

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 – CLUSTER –

PATTA LAND - FRESH QUARRY

CLUSTER EXTENT – 11.50.08Ha




THIRU.K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY

Lease Period/Mining Plan Period – 10 Years

Project Proponent

Thiru. K. Sundramoorthy,

S/o. Kanniyappan,
No.1/31, Lingamedu street, Manamai village,
Thirukazhukkundram Taluk,
Chengalpattu District.

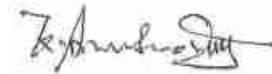
PROJECT LOCATION	PROPOSED PRODUCTION
<p>Block I- S.F. No 88/1, 88/2A and 88/4A Extent: 1.63.98 Ha (Mining area)</p> <p>Block-II S.F No: 75/6, 75/7,75/8,75/9,85/1, 2 Extent: 0.72.0 Ha (Stocking the mined material or dumping the waste/reject material or for parking vehicles or establishing mine office)</p> <p>Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District.</p>	<p>As per ToR obtained For First Five Year Production: 66,025m³ of Rough stone, 18,482m³ of Gravel For Second Five Year Production: 24,955m³ of Rough stone Peak Production = 13,705m³ of Rough stone and 6,346 m³ Gravel Proposed Depth = 22m Bgl.</p>
<p>ToR obtained vide Lr No. SEIAA-TN/F.No.10479/SEAC/ToR-1654/2024 Dated: 08.02.2024</p>	
<p>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/2225/RA 0276 Phone: 0427-2431989, Email: infogeoexploration@gmail.com Web: www.gemssalem.com</p>   	<p>Laboratory EHS 360 LABS PRIVATE LIMITED (Approved by ISO/IEC 17025:2017) 10/2, Ground Floor, 50th Street, 7th Avenue, Ashok Nagar, Chennai – 600 083, Tamil Nadu, India.</p>
<p><u>Baseline Monitoring Period</u> March – May 2024</p>	
<p>JULY 2024</p>	

UNDERTAKING

I Thiru. K. Sundramoorthy given undertaking that this EIA & EMP report prepared for our Rough stone and Gravel quarry situated in Block-1 S.F.No 88/1, 88/2A and 88/4A over an extent of 1.63.98Ha (Mining area) and Block-II S.F.No 75/6, 75/7,75/8,75/9,85/1,2 over an extent of 0.72.0 Ha (Stocking the mined material or dumping the waste/reject material or for parking vehicles or establishing mine office) in Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu based on the ToR issued by the State Level Environmental Impact Assessment Authority (SEIAA), Tamil Nadu vide Lr.No.SEIAA-TN/F.No.10479/SEAC/ToR-1654/2024 Dated: 08.02.2024.

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

Signature of the Project Proponent



K. Sundramoorthy

Place : Chengalpattu

Dated :

DECLARATION

I Dr. M. Ifthikhar Ahmed – EIA Co Ordinator declare that the EIA & EMP report for the Rough stone and Gravel quarry in Block-1 S.F.No 88/1, 88/2A and 88/4A over an extent of 1.63.98Ha (Mining area) and Block-II S.F.No 75/6, 75/7,75/8,75/9,85/1,2 over an extent of 0.72.0 Ha (Stocking the mined material or dumping the waste/reject material or for parking vehicles or establishing mine office) in Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu has been prepared by Geo Exploration and Mining Solutions, Salem, Tamil Nadu.

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

Signature of the EIA Co Ordinator



Dr. M. Ifthikhar Ahmed

Managing Partner

M/s. Geo Exploration and Mining Solutions

Place : Salem

Dated :

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

PROPOSED QUARRIES					
CODE	Name of the Owner	Mineral	S.F. Nos	Extent in Ha	Status
P1	Thiru. K. Sundramoorthy	Rough stone and Gravel	88/1, 2A and 88/4A (1.63.98 ha)	2.35.98	Under processing Present application (ToR obtained Lr No.SEIAA-TN/F.No.10479/SEAC/ToR-1654/2024 Dated: 08.02.2024)
			75/6, 75/7,75/8, 75/9,85/1, 2 (0.72.0 ha)		
P2	M/s.Naraj Blue Metals P Ltd.	Rough stone and Gravel	264/2(P),264/3 A(P),267/1B,267/2(P),267/3.	4.32.10	EC Granted
TOTAL EXTENT				6.68.08ha	
EXISTING QUARRIES					
CODE	Name of the Owner	Mineral	S.F. Nos	Extent in Ha	Status
E-1	Thiru.S. Balaji	Rough stone and Gravel	264/1A(P)	1.62.0	Lease Period 30.09.2020 – 29.09.2025
E-2	Tvl.Uma Blue Metals	Rough stone and Gravel	270/1, 2, 272/4, 5A	3.20.0	Lease Period 20.07.2023 – 19.07.2025 (18 months)
TOTAL EXTENT				4.82.0	
ABANDONED QUARRIES					
A-1	Tmt.S. Manonmani	Rough stone and Gravel	264/1A	2.83.50	17.10.2009 – 16.10.2014
A-2	Thiru.D. Venunathan	Rough stone and Gravel	272/5A	0.88.0	05.09.2013-04.09.2018
A-3	Thiru.R. Ranganathan	Rough stone and Gravel	268/1B1B	1.24.50	06.02.2014-05.02.2019
A-4	Tmt.S. Manonmani	Rough stone and Gravel	266/3	1.21.0	16.03.2015-15.03.2020
TOTAL EXTENT				6.17.0	
TOTAL CLUSTER EXTENT				11.50.08 Ha	

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

* Homogeneous Minerals will be taken for calculating the Cluster Area.

TERMS OF REFERENCE (ToR) COMPLIANCE

Thiru. K. Sundramoorthy

Lr No. SEIAA-TN/F.No.10479/SEAC/ToR-1654/2024 Dated: 08.02.2024

ADDITIONAL CONDITIONS																				
1	Mining is permitted only in Block-I bearing S.F.Nos. 88/1, 88/2A and 88/4A. Hence the PP shall furnish revised mining plan detailing the corresponding production quantity along with the EIA report.	As per ToR obtained For First Five Year Production: 66,025m ³ of Rough stone, 18,482m ³ of Gravel For Second Five Year Production: 24,955m ³ of Rough stone, Peak Production = 13,705m ³ of Rough stone and 6,346 m ³ Gravel Proposed Depth = 22m Bgl.																		
2	No mining is permitted in Block-II bearing S.F.Nos. 75/6,7,8,9 and 85/1,2 and the area shall only be used for stocking the mined material or dumping the waste/reject material or for parking vehicles or establishing mine office.	Block-II is used for stocking the mined material, Green belt or parking vehicles establishing mine office.																		
3	The Proponent shall provide garland drain around the boundary of the proposed quarry and the photographs indicating the same shall be shown during the EIA appraisal.	Noted and agreed																		
4	The Proponent shall justify, the selection of the site for carrying out the stone quarrying with the total volume arrived for the excavation & production adequate details such as lithology of the deposit, reserve estimation, place for waste dump/mined mineral storage, end-use of mined materials, identified potential customers/end-users and travel path.	Detailed furnished in chapter-2																		
5	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.	Structure study have been carried and it is detailed in the Chapter – 3																		
6	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 1km of the proposed quarry.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="text-align: center;">Tank</td> <td style="text-align: center;">370m SE</td> </tr> <tr> <td style="text-align: center;">Tank</td> <td style="text-align: center;">800m South</td> </tr> <tr> <td style="text-align: center;">Tank</td> <td style="text-align: center;">810m SW</td> </tr> <tr> <td style="text-align: center;">Tank</td> <td style="text-align: center;">850m North</td> </tr> <tr> <td style="text-align: center;">Tank</td> <td style="text-align: center;">1km NE</td> </tr> <tr> <td style="text-align: center;">Canal</td> <td style="text-align: center;">4.5km East</td> </tr> <tr> <td style="text-align: center;">Pallavankulam Lake</td> <td style="text-align: center;">5.4km North</td> </tr> <tr> <td style="text-align: center;">odiyur Lake</td> <td style="text-align: center;">6.8km South</td> </tr> <tr> <td style="text-align: center;">Palar River</td> <td style="text-align: center;">7.3km NE</td> </tr> </tbody> </table> <p>Detailed EIA study has been carried out considering the impact to the water bodies and eco system of the area. Details are covered in the Chapter No.3 and 4.</p>	Tank	370m SE	Tank	800m South	Tank	810m SW	Tank	850m North	Tank	1km NE	Canal	4.5km East	Pallavankulam Lake	5.4km North	odiyur Lake	6.8km South	Palar River	7.3km NE
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		Attached detailed hydrological report in Annexure.
7	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.	Fencing and plantation activities has been initiated in the project site. Photographs of the plantation and fencing is given in the Figure No.2.1,
8	The Proponent shall carry out Bio diversity study through Department of Ecology and Environmental Sciences, Pondicherry University and the same shall be included in EIA Report.	Detailed in chapter-3 ecology environment in the draft EIA report.
9	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	The EMP has been prepared for the entire lease period (5 years) for the peak production quantity.
ANNEXURE-1		
1.	The PP shall furnish the letter obtained from the AD (Mines) indicating the existing pit dimensions and pit conditions showing the details on mine having worked during the earlier lease period.	It is a fresh lease application.
2	The PP shall furnish 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.	Polavar Puriyambakkam II R.F – 14.03km Vedanthangal Birds Sanctuary -5km Belt = 19 Km - NW DFO letter will be obtained and attached in the Final EIA/EMP report annexure
3	The PP shall provide individual notice regarding the Public Hearing to the nearby house owners located in the vicinity of the project site. The Proponent shall justify the selection of the site for carrying out the stone quarrying with the total volume arrived for the excavation & production adequate details such as lithology of the deposit, reserve estimation, place for waste dump/mined mineral storage, end-use of mined materials, identified potential customers/end users travel path.	Noted and agreed
4	The PP shall also justify the selection of mining methodology (conventional or nonconventional) adopting blasting techniques/non-explosive techniques with proper ground reality & laboratory testing.	Noted and agreed
5	The proponent shall submit the "Blast Design Parameters for controlling the vibration and fly rock from the quarry blasting" considering the existence of sensitive structures including habitations within 500 m from the lease boundary.	Detailed in Blast Design Parameters for controlling the vibration chapter-4
6	The PP shall justify the estimation of HEMM population for excavation and transportation in the proposed quarries with proper calculation methodology adopted.	Cumulative Noise modelling has been carried out considering blasting and compressor operation (drilling) and transportation activities in chapter-4 & 7
7	The PP shall enumerate the environmental settings situated within a radial distance of 1km such rivers/waterbodies/reserve forests/grazing land/existence of the hospitals and educational institutions/ structures.	Detailed in chapter-3 environmental settings/attribution situated in 1km radius.
8	The PP shall provide the details of the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.	Detailed in chapter-4 the anticipated impacts of the mining operations
9	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)	Structure study have been carried and it is detailed in the Chapter – 3

	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.	
10	The Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry where the depth exceeds 30 m and it shall cover the aspects of stability of quarry walls including the access ramp keeping the benches intact.	Ultimate Pit Dimension Block-1: 99m (L) x 147m (W) x 22m(D) Bgl Proposed Depth = 22m
11	If the blasting operation is to be carried out, the PP shall present a conceptual design for carrying out the NONEL initiation based controlled blasting operation including the line drilling & muffle blasting techniques and a Simulation Model indicating the anticipated Blast induced Ground vibration levels in the proposed quarry as stipulated by the DGMS circular No.7 of 1997, during the EIA Proposal.	Noted and agreed Anticipated Blast induced Ground vibration levels in chapter-4
12	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/1st Class mines manager appointed by the proponent.	Proponent given Affidavit stating that the blasting operation will be carried out by the competent person as per the MMR 1961.
13	The PP shall give an affidavit stating that no contractual persons provided by the explosive suppliers will be employed for carrying out the blasting operations in the proposed quarries.	Noted and agreed
14	The PP shall also give an affidavit that no highly sensitive structure such as fire-cracker manufacturing units, Gas godown /explosive Magazine, LPG Bottling Units, etc are located within a radial distance of 300 m from the lease boundary of the proposed quarry.	Noted and agreed
15	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 20m from the blast site.	The Blasting will be carried out by controlled blasting adopting muffle blasting and line drilling. The cost for the controlled blasting is allotted in the EMP
16	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.	No other quarries operated by the proponent.
17	The PP shall provide the environmental mitigation measures implemented for the crusher(s) located within the mining lease.	Blasting reduce with time slot and fencing and green belt using from the mine boundary.
18	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, <ul style="list-style-type: none"> a) what was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines? b) Quantity of minerals mined out c) Highest production achieved in any one year d) Detail of approved depth of mining e) Actual depth of the mining achieved earlier f) Name of the person already mined in that leases area 	It is a Fresh Lease application.

	<p>g) If EC and CTO already obtained' the copy of the same shall be submitted</p> <p>h) whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.</p>	
19	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/TNPCCB.	Not applicable. It is a Fresh Lease application.
20	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).	Coordinates for all the boundaries are given in the Chapter No.2 Satellite imagery of the project site marked with Lease boundary, Safety area
21	The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,	Drone video survey covering the Cluster, Greenbelt and fencing will be submitted during appraisal.
22	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	The area has been fenced and the photographs are given in the Chapter No.2, No trees within the proposed excavation area, No transplanted is required. Water bodies near to the project site is given in the Chapter No.2
23	The Project Proponent shall provide the organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	Discussed about Organization chart in Chapter 6,
24	The project proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1km (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 are this regard may be provided.	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 3.
25	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & Flora/fauna including traffic/vehicular movement study.	Baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality, & flora/fauna including traffic/vehicular movement study to assess the cumulative impact of the proposed project on the environment is prepared. The details of Baseline study are given in the Chapter No. 3.
26	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	The Cumulative impact study due to mining operations is explained in chapter – 7

	concerned quarry and the surrounding habitations in the mind.	
27	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	The rain water will be collected in the mine pit at the lower point later it will be utilized for the haul road maintenance, Greenbelt development etc.,
28	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 pre operational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use Land cover study within the radius of 10km is detailed in the Chapter No. 3
29	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.	Not applicable, There are no wastages anticipated, the entire quarried out rough stone and Gravel material will be utilized.
30	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	The rain water collected in the pits after spell of rain will be used for greenbelt development and dust suppression.
31	If the village road/State highway/National highway are located within a radial distance of 500 m from the lease boundary of the quarry proposal, the PP shall carry out traffic studies.	There is no group of Houses, Schools in the proposed transportation route Proposed Transportation route with mitigation measures are given in the Chapter No.2
32	A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	The Flora study in the core zone has been carried out and the details are given in the Chapter No.3
33	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	The mine closure plan is detailed in the Chapter No.4 The budget for the mine closure is included in the Environmental Management plan in Chapter No.10.
34	Public Hearing points raised and commitments 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 and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.	The outcome of public hearing will be updated in the final EIA/EMP report
35	The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.	Public hearing advertisement will be made as per the ToR Recommendations
36	The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.	Draft EIA Report in Tamil and English, Executive summary of the project in Tamil and English submitted in TNPCB, Maraimalai Nagar and the same has been displayed at that time of public hearing.
37	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	The Flora and Fauna study around the vicinity of the site is carried out by the Functional area experts along with Local School Students.
38	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 in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be	The plantation in the project site will be carried out using native and mixed plantation. The recommended species for the plantation is given in the Chapter No.4.

	chosen. Species of Small medium/tall trees alternating with shrubs should be planted in a mixed manner.	
39	Taller/one year old Saplings raised in appropriate size of bags; preferably eco-friendly bags should be planted in proper replacement as per the advice of local forest authorities / botanist / Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner.	The plantation in the project site will be carried out using native and mixed plantation. The recommended species for the plantation is given in the Chapter No.4
40	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Disaster management Plan details in Chapter-7
41	A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report.	A Risk Assessment and management Plan Chapter-7
42	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational Health impacts of the project with mitigation measures are detailed in the Chapter No.7, Details of Periodical Medical Examination given in the Chapter No.10
43	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	The details of the population in the impact zone (within 500m radius) are detailed in the Chapter No.3,
44	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Socio Economic study covering 10 km radius is detailed in the Chapter No.3
45	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	No court case and litigation pending against the project.
46	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	It is explained in Chapter -8- Benefits of the Projects.
47	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.	Not applicable, the project is fresh proposal
48	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	The EMP has been prepared for the entire life of the mine. Proponent given affidavit stating the EMP will be submitted during the appraisal after completion of public hearing.
49	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 Reference besides attracting penal provisions in the Environment (Protection) Act, 1986.	Noted and agreed

NORMAL CONDITIONS-ANNEXURE-D		
1	Mining is permitted only in Block-I bearing S.F.Nos. 88/1, 88/2A and 88/4A. Hence the PP shall furnish revised mining plan detailing the corresponding production quantity along with the EIA report.	As per ToR obtained For First Five Year Production: 66,025m ³ of Rough stone, 18,482m ³ of Gravel For Second Five Year Production: 24,955m ³ of Rough stone, Peak Production = 13,705m ³ of Rough stone and 6,346 m ³ Gravel Proposed Depth = 22m Bgl.
2	No mining is permitted in Block-II bearing S.F.Nos. 75/6,7,8,9 and 85/1,2 and the area shall only be used for stocking the mined material or dumping the waste/reject material or for parking vehicles or establishing mine office.	Block-II is used for stocking the mined material, Green belt or parking vehicles establishing mine office.

ADDITIONAL CONDITIONS-Annexure-B		
Cluster Management committee		
1.	Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.	Cluster management committee has been formed with mutual agreement with the proponents including Existing and Proposed quarry at present 4 Nos are members in this CMC
2	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling. tree plantation, blasting etc..	As per the committee agreement proponents will coordinates for the Greenbelt development, Water sprinkling and tree plantation activities combinedly
3	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	The formation of committee with list of members has been submitted to the AD mines office, Chengalpattu and the same will be update in every year
4	Detailed operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.	As per the committee agreement the blasting frequency will be discussed and carryout by the Mines Manager appointed by the proponents and the same will be updated in the committee minutes
5	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan	Details discussed in chapter 7 of Final EIA report
6	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.	Details discussed in chapter 6 of Final EIA report
7	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	Noted & agreed
8	The committee shall furnish the Emergency Management within the cluster.	Details discussed in chapter 7.
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	Details discussed in chapter 10.
10	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	Noted & agreed

11	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	Detailed discussed in chapter 7.
Impact study of mining		
12	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following a) Soil health & Soil biological, physical land chemical features b) Climate change leading to Droughts, Floods etc. c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature' & Livelihood of the local people. d) Possibilities of water contamination and impact on aquatic ecosystem health. e) Agriculture, Forestry & Traditional practices. 1) Hydrothermal/Geothermal effect due to destruction in the Environment. g) Bio-geochemical processes and its foot prints including environmental stress' h) Sediment geochemistry in the surface steams.	Details of Soil health is given in Chapter No 3 and biodiversity is given in Chapter No 3. The project will not cause any significant changes in the climate Climatic changes and GHG are described in Chapter No 4. Details of water contamination and impact on aquatic ecosystem is given in Chapter No 4. Hydrothermal/ Geothermal effects due to destruction in the environment, Bio geochemical process and sediment geo chemistry given in the Chapter No 7.
Agriculture & Agro-Biodiversity		
13	Impact on surrounding agricultural fields around the proposed mining Area.	Detailed discussed in chapter 4.
14	Impact on soil flora & vegetation around the project site.	Detailed discussed in chapter 4.
15	Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	Details discussed in chapter 10
16	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora. fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	The EIA study on biodiversity, natural ecosystem, the soil micro flora, fauna was carried out and discussed in earlier slides. The species overcome periods of un favorable weather conditions by building up large seed stock in the soil, which is known as “soil seed banks”. This strategy protects plant species diversity against local extinction of the species during the disturbance and provides information on the past population dynamics and structure and future regeneration potential of degraded land. The proposed project site is a dry land without any major vegetation and its proposed to remove the top layer of gravelly formation and sold in open market and the 7.5m of safety barrier shall be remained un touched all around the lease applied area.
17	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	During Mine Closure the excavated pit will be allowed to collect rain water and shall act as an artificial reservoir and shall prove beneficial for the ecosystem. The proposed greenbelt activity shall also prove beneficial for the ecosystem during mine closure
18	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands. Horticulture, Agriculture and livestock.	The project area is bounded by Existing quarries on the South side. Proponent proposed to erect green mesh along with fencing on the South side besides, Budgetary allocation given in the Chapter No. 10.
Forest		
19	The project proponent shall detail study on impact of mining on Reserve forests free ranging wildlife.	Polavar Puriyambakkam II R.F – 14.03km

		Vedanthangal Birds Sanctuary -5km Belt = 19 Km - NW
20	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	Ecology and Biodiversity environment deals in Chapter-3
21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	Ecology and Biodiversity environment deals in Chapter-3
22	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	Anticipated Environment Impact and Mitigation measures are detailed in Chapter No.4
<i>Water Environment</i>		
23	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1km (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.	There are 10 open wells and 6 bore wells within the radius of 1km from the project area, Hydrogeological study has been conducted by the resistivity method
24	Erosion Control measures.	Noted & agreed
25	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby villages, water-bodies/ Rivers. & any ecological fragile areas.	Details in Chapter 2
26	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	Details in Chapter 2 and 4 impact of bio diversity
27	The project proponent shall study and furnish the details on potential fragmentation impact on natural Environment by the activities.	Noted & agreed
28	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.	Noted & agreed. Detailed under Chapter 3.
29	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil, physical, chemical components and microbial components.	Details in Chapter 3 Soil environment.
30	The Environmental impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	Details in Chapter 3 Water environment.
<i>Energy</i>		
31	The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilize the Energy shall be furnished.	Details in Chapter 3 environmental monitoring details.
<i>Climate Change</i>		
32	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	Details of carbon emission and mitigation activities are given in the Chapter No.4
33	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	Details in Chapter-3 for meteorological and climate/weather data representation of graphs.
<i>Mine Closure Plan</i>		

34	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	Details in Chapter 2 mine closure plan
EMP		
35	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	Detailed under Chapter 10
36	The Environmental Impact Assessment should hold detailed study on EMP with budget for green belt development and mine closure plan including disaster management plan.	Details in Green belt development in chapter 4
Risk Assessment		
37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	Detailed under Chapter 7
Disaster Management Plan		
38	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope 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.	Details in Study 7.3 Disaster Management Plan in Chapter -7
Others		
39	The project proponent shall furnish VAO Certificate with reference to 300m radius regard to approved habitations. schools. Archaeological sites. Structures. railway lines, roads. Water bodies such as streams, odai, vaari, canal, channel. river, lake pond, tank etc.,	Noted & agreed. Detailed under Chapter 4
40	As per the MoEF& CC office memorandum tr.No.22-65/2017-1A.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	Noted and agreed
41	The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	Details of carbon emission and mitigation activities are given int the Chapter No.4
STANDARD TERMS OF REFERENCE		
1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.	Not applicable. This is not a violation category project. This proposal falls under B1 Category
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	Map showing – Project area is with adjacent quarries details is enclosed in Figure No1.1

	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).	Project area boundary coordinates superimposed on Toposheet – Figure No. 1.1A Toposheet of the project area covering 10km radius – Figure No. 1.2 Geology map of the project area covering 10km radius - Figure No. 2.11
5	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	Map showing – Geology map of the project area covering 10km radius - Figure No. 2.11 Geomorphological features are incorporated in the Toposheet map covering 10km radius around the project area Figure No. 2.12
6	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.	The applied area was inspected by the officers of Department of Geology along with revenue officials and found that the land is fit for quarrying under the policy of State Government.
7	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.	The proponent has framed their Environmental Policy and the same is discussed in the Chapter No 10.1.
8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	It is an opencast quarrying operation proposed to operate in Mechanized method. The Rough stone and Gravel 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 and Gravel 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.	Polavar Puriyambakkam II R.F – 14.03km 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.	Polavar Puriyambakkam II R.F – 14.03km
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.
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	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range'.

	Department should be secured and furnished to the effect that the proposed mining activities could be considered.	
20	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	Not Applicable. The project doesn't attract The C. R. Z. Notification, 2018.
21	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need-based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to 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 Summer Season (March 2024 –May 2024) as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3.
23	Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.	Air Quality Modelling for prediction of incremental GLC's of pollutant was carried out using AERMOD Model. Details in Chapter No. 4,
24	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.	Total Water Requirement for this project is given in the chapter No 2, Table No 2.13.
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Water for dust suppression, greenbelt development and domestic use will be obtained from accumulated rainwater/seepage water in mines pits.

		Drinking water will be sourced from the approved water vendors, No 2, Table No 2.13.
26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	The rain water collected in the pits after spell of rain will be used for greenbelt development and dust suppression.
27	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	Impact Studies and Mitigation Measures of Water Quality discussed in Chapter No. 4.
28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	The ground water table is at 49m below ground level. Ultimate Pit Dimension: Block-1: 99m (L) x 147m (W) x 22m(D) Bgl Maximum depth is proposed in this EIA project is 22m.
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.	Highest elevation of the project area is 100m AMSL Ultimate depth of the mine is 22m Water level in the area is 49m BGL
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.	Progressive greenbelt development plan has been prepared and discussed along with Recommended Species details are given in the Chapter 4, Table No.4.9
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.	Traffic density survey was carried out to analyse the impact of Transportation in the study area as per IRC guidelines 1961 and it is inferred that there is no much significant impact due to the proposed transportation from the project area. Details in Chapter 2.
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.	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. .
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Discussed in chapter No 2.
34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	Details in Chapter 10.

35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	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.	Details in Chapter 4,
37	Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Environment Management Plan Chapter 10.
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.	The outcome of public hearing will be updated in the final EIA/EMP report
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.	No litigation is pending in any court against this 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.	The proposed capital cost for Environmental Monitoring Programme is Rs 7,60,000/- and the recurring cost is Rs 76,000/- per annum. Details in Chapter 6
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.	Details in Chapter 10.
42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Details in Chapter 7.
43	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Details in Chapter.8.
44	Besides the above, the below mentioned general points are also to be followed: -	
A	Executive Summary of the EIA/EMP Report	Encloses as separate volume
B	All documents to be properly referenced with index and continuous page numbering.	All the documents are properly referenced with index and continuous page numbering.
C	Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.	List of Tables and source of the data collected are given properly.
D	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF & CC / NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project	Baseline monitoring reports are enclosed.
E	Where the documents provided are in a language other than English, an English translation should be provided.	Not Applicable.
F	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	Will be enclosed along with Final EIA /EMP Report.

G	While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA. II(I) Dated: 4th August, 2009, which are available on the website of this Ministry, should be followed.	Instructions issued by MoEF & CC O.M. No. J-11013/41/2006-IA. II (I) Dated: 4th August, 2009 are followed.
H	Changes, if any made in the basic scope and project parameters (as submitted in Form-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	Noted & agreed.
I	As per the circular no. J-11011/618/2010-IA. II(I) Dated: 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.	Not applicable.
J	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.	Surface Plan – Figure No. 2.2. Geological Plan – Figure No 2.9. Working Plan – Figure No 2.9. Closure Plan – Figure No.2.10.

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1.INTRODUCTION

1.0 PREAMBLE

Project History: -

The project proponent **Thiru. K. Sundramoorthy** has applied for Tender cum Auction for Patta land and was successfully awarded to the Project Proponent for Rough stone and Gravel quarry over an extent of Block-1 S.F.No 88/1, 88/2A and 88/4A over an extent of 1.63.98Ha (Mining area) and Block-II S.F.No 75/6, 75/7,75/8,75/9,85/1,2 over an extent of 0.72.0 Ha (Stocking the mined material or dumping the waste/reject material or for parking vehicles or establishing mine office), Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District.

- Proponent applied for Rough stone and Gravel quarry letter on 05.06.2023
- Precise area communication letter was issued by the Deputy Director, Department of Geology and Mining Chengalpattu vide RC.No. 0185/2023/Mines Dated 22.09.2023
- The Mining plan has been prepared by the Qualified person and got approval by the Assistant Director, Department of Geology and Mining Chengalpattu vide Letter Rc. No. 185/Mines/2023 Dated 25.09.2023.
- The Mining plan has been approved for the quantity of 90,980 m³ of rough stone and Gravel 18,482 m³ of up to the depth of 22m Bgl for first five years and Ten years.

As per the EIA Notification, 2006 and subsequent amendments and OM The proposal falls in the B1 Category (Cluster quarries - 2 proposal and 2 Existing quarries forming Cluster Category {Total Extent of the Cluster is 11.50.08 Ha}- Cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016).

- Proponent applied for Terms of Reference vide Proposal No. SIA/TN/MIN/448716/2023 Dated 13.10.2023 and the ToR was Granted vide Lr No. SEIAA-TN/F.No.10479/SEAC/ToR-1654/2024 Dated: 08.02.2024
As per Obtained ToR the depth was restricted up to 22m Bgl for first five years and 10 years and Revised Reserves for First Five Year Production is 66,025 m³ of rough stone and Second Five Year Production 24,955 m³ for ten years and 18,482m³ of gravel for first three years in the entire area.

Based on the ToR Baseline Monitoring study has been carried out for one season i.e., **March 2024 –May 2024** and this EIA/EMP report is prepared for considering cumulative impacts arising out of these projects, the Cumulative Environmental Impact Assessment study is undertaken, which is followed by preparation of a detailed Environmental Management Plan (EMP) to minimize those adverse impacts.

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

1.1 PURPOSE OF THE REPORT

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

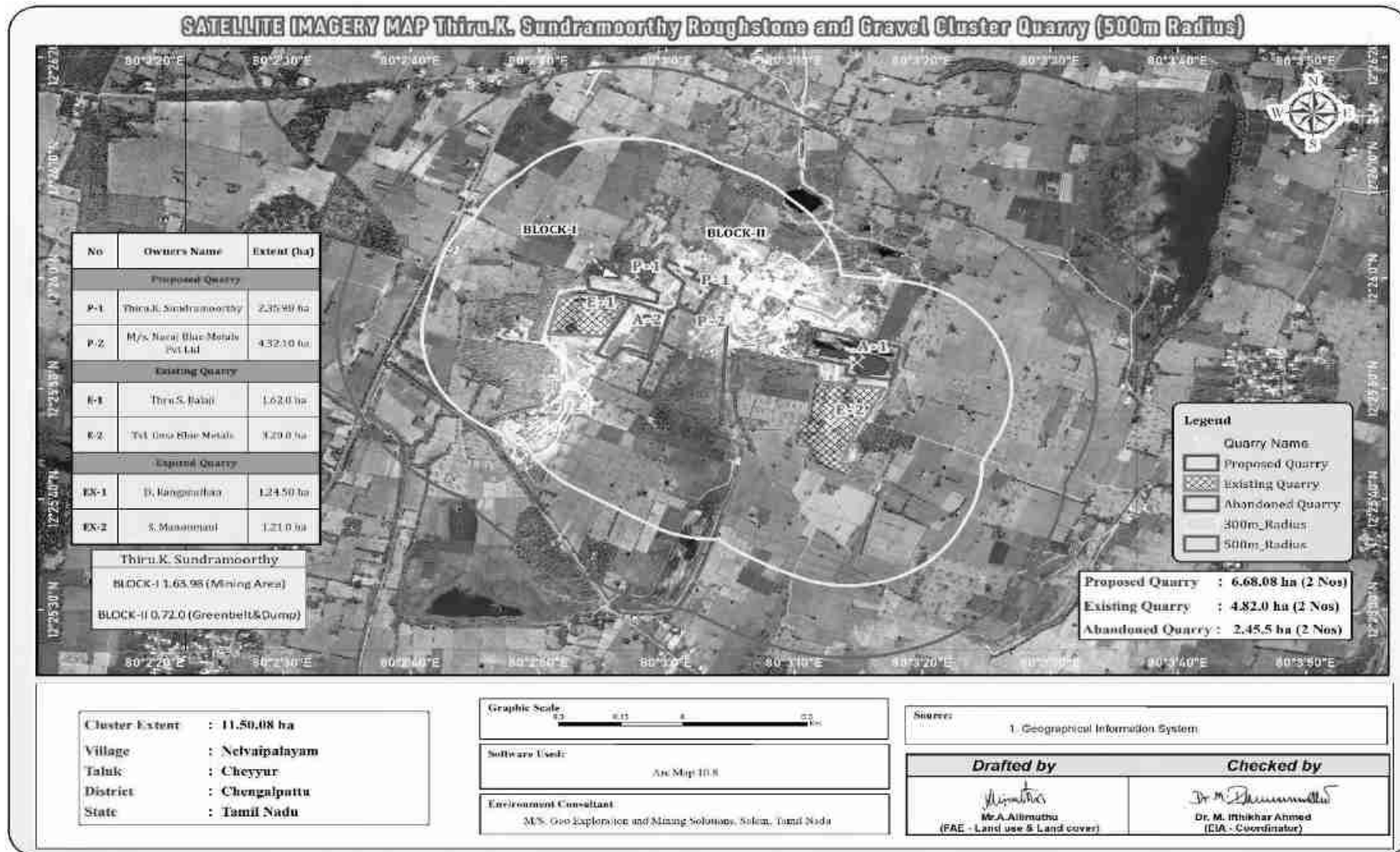
Now, as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-

IA-II (M) Dated: 12.12.2018 clarified the requirement for EIA, EMP and therefore, Public Consultation for all areas from 5 to 25 ha falling in Category B1 and appraised by SEAC/ SEIAA as well as for cluster situation.

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

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

FIGURE 1.1 SATELLITE IMAGERY CLUSTER QUARRIES



1.2 IDENTIFICATION OF PROJECT AND PROJECT PROPONENTS

1.2.1 Identification of Project Proponent

TABLE 1.1: DETAILS OF PROJECT PROPONENT

Name of the Project Proponent	Thiru. K. Sundramoorthy Rough stone and Gravel Quarry
Address	S/o. Kanniyappan, No.1/31, Lingamedu Street, Manamai Village, Thirukazhukkundram Taluk, Chengalpattu District, Tamil Nadu State – 603 102
Mobile	+91 94432 43299
Email	ashokconstruction@yahoo.co.in
Status	Individual

1.2.2 Identification of Project

TABLE 1.2: SALIENT FEATURES OF THE PROPOSED PROJECT

Name of the Project	Thiru. K. Sundramoorthy Rough stone and Gravel Quarry	
S.F. No.	88/1, 88/2A and 88/4A	
Extent	2.35.98 ha (1.63.98 ha is Mining Area & 0.72 is (Stocking the mined material or dumping the waste/reject material or for parking vehicles or establishing mine office))	
Village Taluk and District	Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu State.	
Land Type	Patta Land	
Existing quarry operation	Nil, it is a Fresh area	
Toposheet No	66 D/03	
Latitude between	12°25'56.6724"N to 12°26'02.8961"N	
Longitude between	80°02'53.5538"E to 80°03'03.8121"E	
Elevation of the area	100m AMSL	
Water Level	49m bgl	
Lease period	10 Years	
Mining Plan period	10 years	
Proposed Depth for current mining plan	22m bgl	
Geological Resources	Rough stone	Gravel in m³
	3,27,960	32,796
Mineable Reserves	90,980	18,482
For First Five Year Production	66,025	18,482
For Second Five Year Production	24,955	-
Peak Production	13,705	6,346
Ultimate Pit Dimension	Block-1: 99m (L) x 147m (W) x 22m(D) Bgl	
Method of Mining	Opencast Mechanized Mining Method involving small drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area is exhibiting plain terrain. The area has gentle sloping towards Northeast side and altitude of the area is 100m above from Mean Sea Level. The area is covered by 2m thickness of Gravel and followed by Massive Charnockite which is clearly inferred from the outcrops.	
Machinery proposed	Jack Hammer	2Nos
	Compressor	1 No
	Excavator with Bucket and Rock Breaker	1 No
	Tipper	2 Nos

Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough stone and Gravel.	
Proposed Manpower Deployment	20 Nos	
A. Operational Cost	Rs. 64,77,000/-	
B. EMP cost	Rs. 7,60,000/-	
Total Project cost	Rs.72,37,000/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Tank	370m SE
	Tank	800m South
	Tank	810m SW
	Tank	850m North
	Tank	1km NE
	Canal	4.5km East
	Pallavankulam Lake	5.4km North
	odiyur Lake	6.8km South
Palar River	7.3km NE	
Greenbelt Development Plan	Proposed to plant 1200 Nos of trees considering 500 Nos of trees/ Ha criteria The plantation will be developed around the project site and nearby village roads	
Proposed Water Requirement	1.7 KLD	
Nearest Habitation	990m-SW	
Nearest Reserve Forest	Polavar Puriyambakkam II R.F – 14.03km (Source - TNGIS)	
Nearest Wild Life Sanctuary	Vedanthangal Birds Sanctuary -5km Belt = 19 Km - NW	

Source: Approved Mining & Land Documents.

1.3 BRIEF DESCRIPTION OF THE PROJECT

1.3.1 Nature and Size of the Project

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

The peak production of Rough stone is 13,705 m³ maximum in a year (46m³ per day/ 12Tippers per day considering 4m³ per load). The depth of the mining is 22m Bgl.

1.3.2 Location of the Project

- The project site is located in Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu.
- The lease applied area is located about 28km Southeast side of Chengalpattu town, 10km Northeast side of Cheyyur town and 1.5km Southwest side of Nelvaipalayam Village.

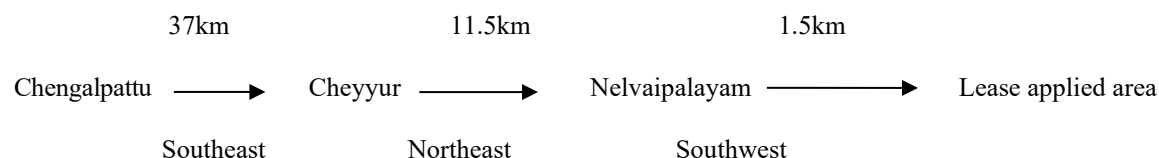
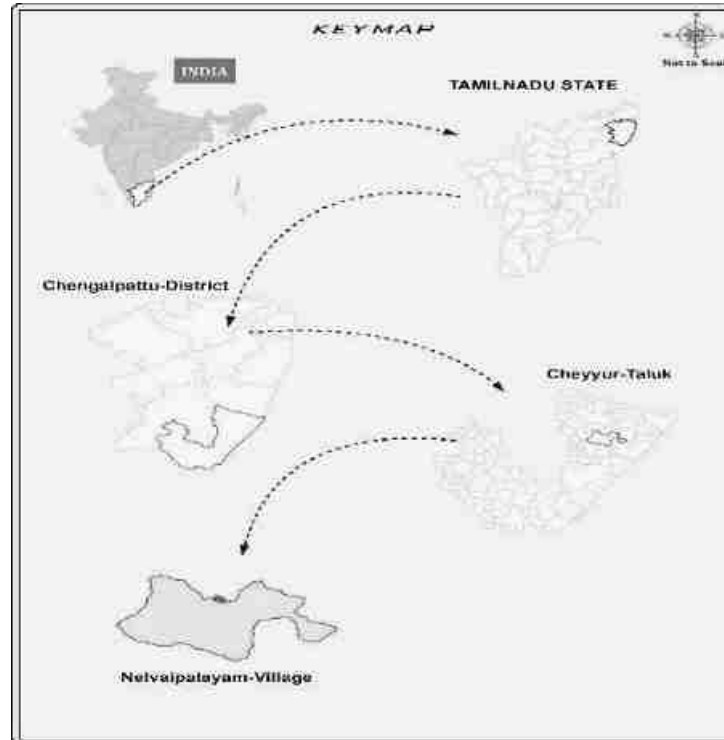


FIGURE 1.2 LOCATION MAP OF THE PROJECT SITE



Source: Survey of India Toposheet 66 D/03

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

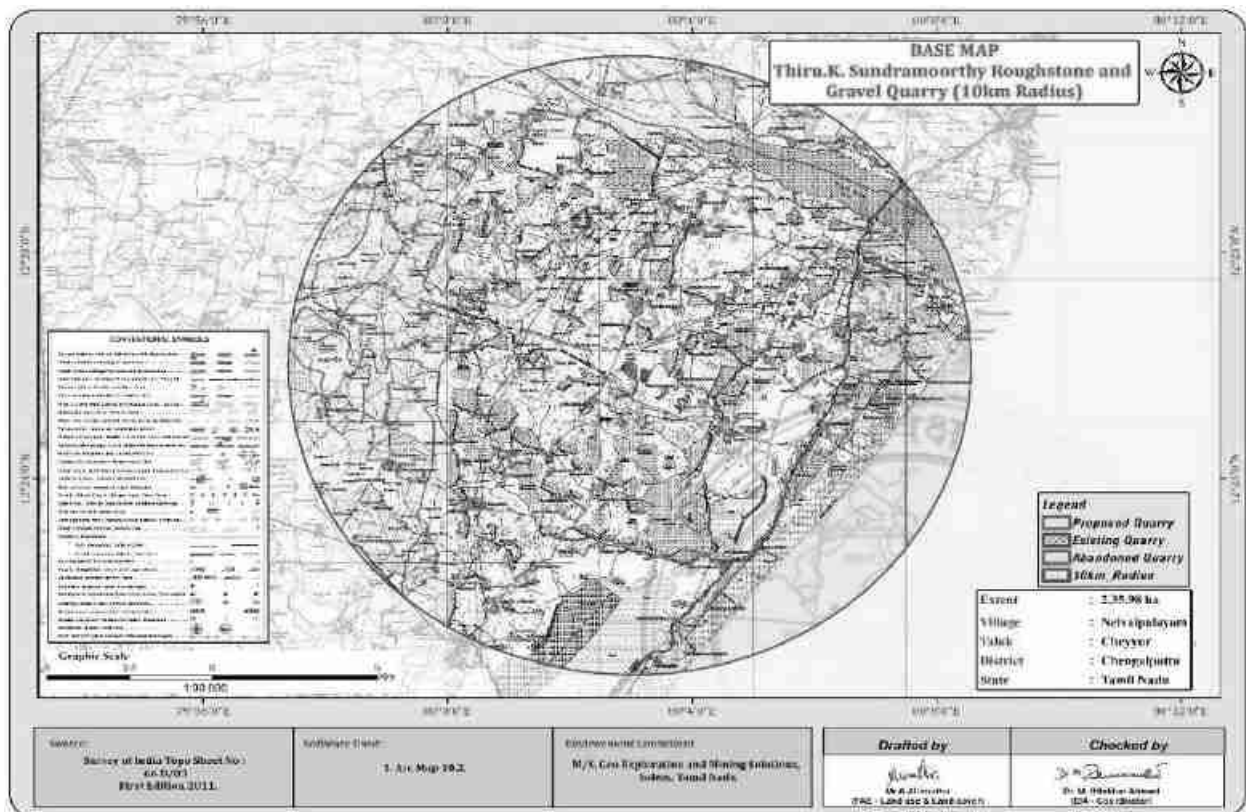
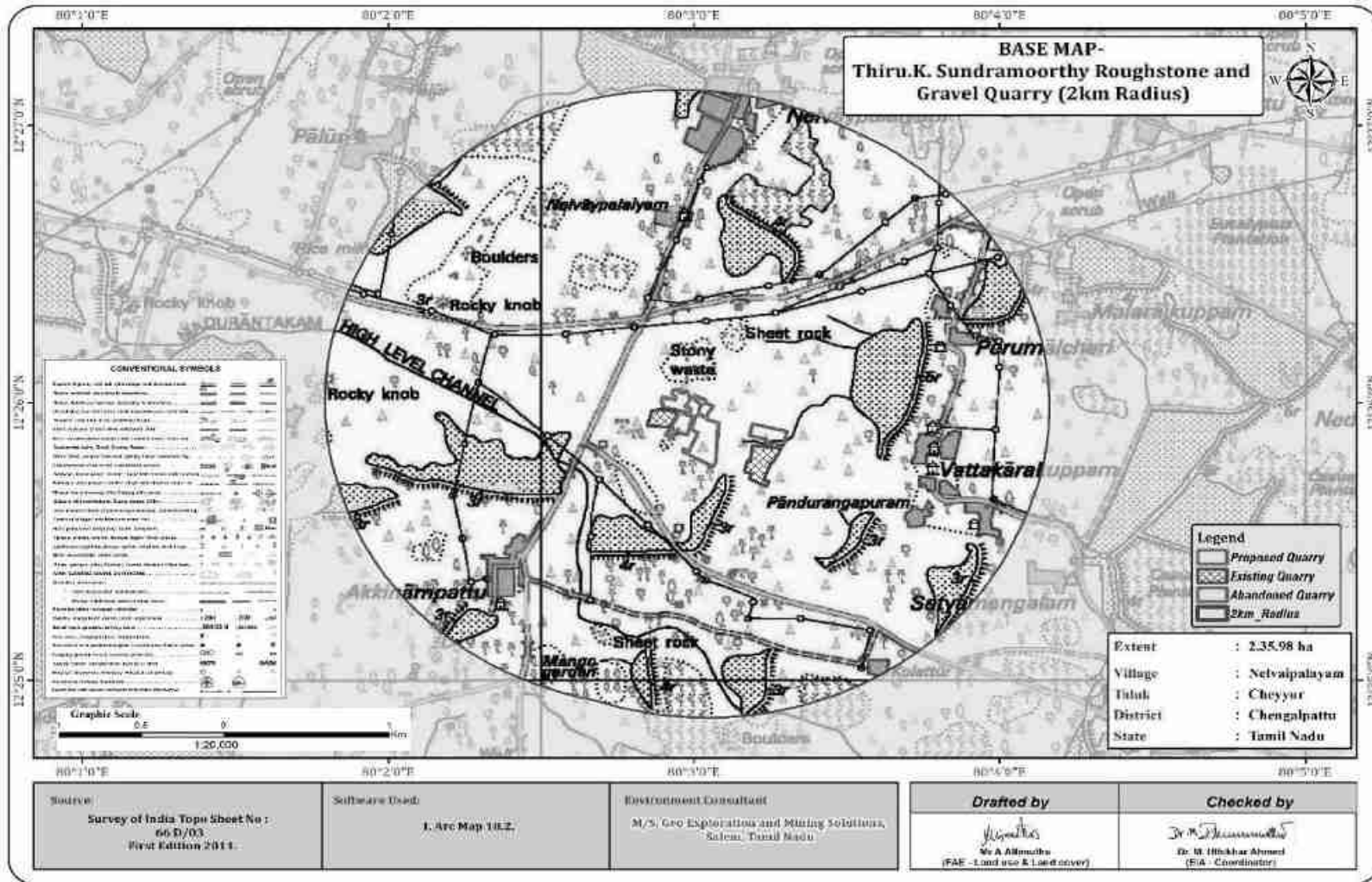


FIGURE 1.4: TOPOSHEET MAP OF THE STUDY AREA 2KM RADIUS



1.4 ENVIRONMENTAL CLEARANCE

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

- Screening,
- Scoping
- Public consultation &
- Appraisal

SCREENING –

- Proponent applied for Rough stone and Gravel quarry letter on 05.06.2023
- Precise area communication letter was issued by the Deputy Director, Department of Geology and Mining Chengalpattu vide RC.No. 0185/2023/Mines Dated 22.09.2023
- The Mining plan has been prepared by the Qualified person and got approval by the Assistant Director, Department of Geology and Mining Chengalpattu vide Letter Rc. No. 185/Mines/2023 Dated 25.09.2023
- The proposed project falls under “B1” Category as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018
- Proponent applied for ToR for Environmental Clearance vide online Proposal No. SIA/TN/MIN/448716/2023 Dated 13.10.2023

SCOPING:

- The proposal was placed in 436th SEAC meeting held on 29.12.2023 and the committee recommended for issue of ToR.
- The proposal was considered in 693rd SEIAA meeting held on 08.02.2024 and issued ToR vide Lr No.SEIAA-TN/F.No.10479/SEAC/ToR-1654/2024 Dated: 08.02.2024.

PUBLIC CONSULTATION

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

APPRAISAL –

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

1.5 TERMS OF REFERENCE (ToR)

The ToR was issued by the SEIAA vide Lr No. SEIAA-TN/F.No.10479/SEAC/ToR-1654/2024 Dated: 08.02.2024. The Details of the ToR Compliance is given in the Page No. i-xvi.

1.6 POST ENVIRONMENT CLEARANCE MONITORING

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

1.7 GENERIC STRUCTURE OF EIA DOCUMENT

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

1.8 THE SCOPE OF THE STUDY

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

TABLE 1.3: ENVIRONMENT ATTRIBUTES

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

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

Source: Field Monitoring Data

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

- Application for Quarrying Lease as per Tamil Nadu Minor Mineral Concession Rules, 1959.
- Obtained Precise Area Communication Letter as per Tamil Nadu Minor Mineral Concession Rules, 1959 for Preparation of Mining Plan and obtaining Environmental Clearance.
- The Mining Plan has been approved under Rule 41 & 42 as amended of Tamil Nadu Minor Mineral Concession Rules, 1959.
- ToR vide Lr No. SEIAA-TN/F.No.10479/SEAC/ToR-1654/2024 Dated: 08.02.2024

2. PROJECT DESCRIPTION

2.0 GENERAL

The Proposed Rough stone and Gravel Quarries requires Environmental Clearance. There are 2 proposed, and 2 existing quarries forming a cluster; calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016 and the total extent of cluster is **11.50.08 Ha**

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

2.1 DESCRIPTION OF THE PROJECT

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

2.2 LOCATION OF THE PROJECT

The lease applied area is located about 28km Southeast side of Chengalpattu town, 10km Northeast side of Cheyyur town and 1.5km Southwest side of Nelvaipalayam Village.

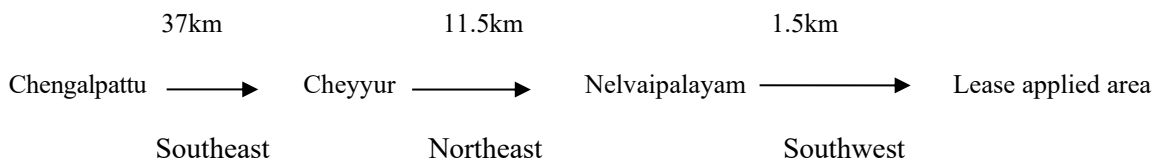


TABLE 2.1: SITE CONNECTIVITY

Nearest Roadway	Chennai – Puduchery (NH-332A) – 6.0km-E Cheyyur – Melmaruvathur (SH-115) – 10.0km-SW
Nearest Village	Akkinampattu – 1.0 km- SW
Nearest Town	Cheyyur – 10.0km – SW
Nearest Railway Station	Maduranthagam – 18.5km-NW
Nearest Airport	Chennai – 62.0km – NE
Seaport	Ennore Port–92km – NE

TABLE 2.2: CO-ORDINATES – PROJECT BOUNDARY

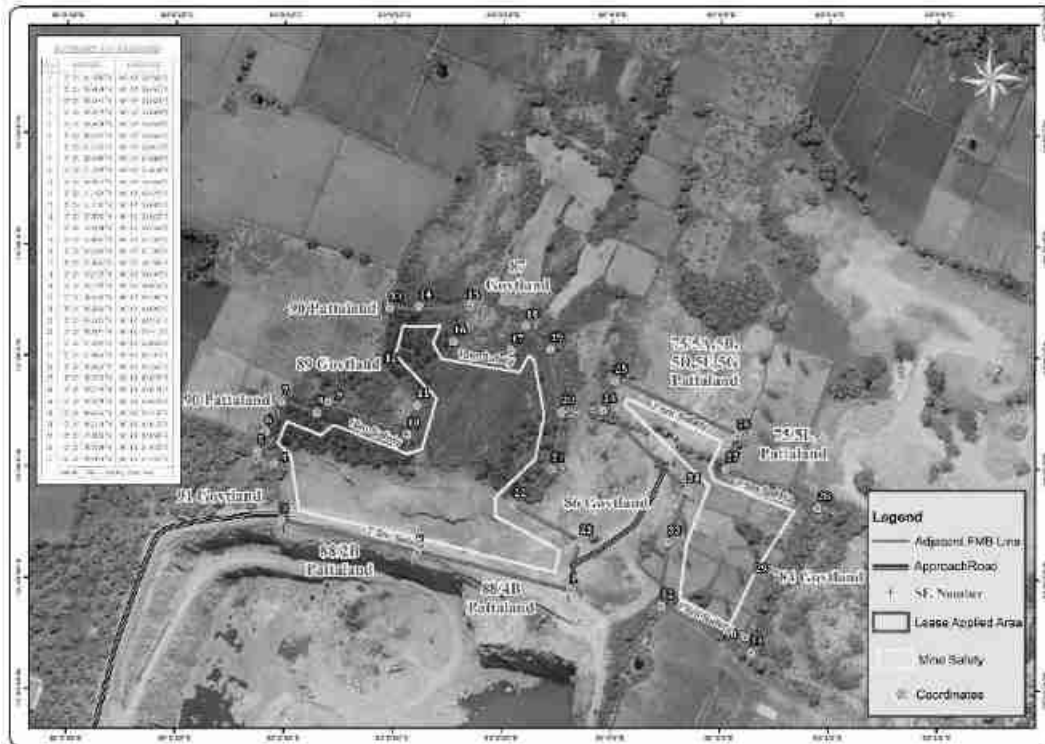
Corner Nos.	Latitude	Longitude
1	12° 25' 57.7988"N	80° 02' 59.2542"E
2	12 25 58.4944"N	80° 02' 56.4355"E
3	12 25' 59.0441"N	80° 02' 53.9621"E
4	12 26' 00.0547"N	80° 02' 53.8069"E
5	12 26' 00.2934"N	80° 02' 53.5538"E
6	12 26' 00.4747"N	80° 02' 53.6354"E
7	12 26 01.2149"N	80° 02' 53.9413"E
8	12 26' 00.9486"N	80° 02' 54.6086"E
9	12 26' 01.1387"N	80° 02' 54.8489"E
10	12 26' 00.5947"N	80° 02' 56.2648"E
11	12 26 01.1467"N	80° 02' 56.4272"E
12	12° 26' 01.9185"N	80° 02' 55.6822"E
13	12 26 02.8885"N	80° 02' 55.9255"E
14	12° 26' 02.8484"N	80° 02' 56.4328"E
15	12 26' 02.8961"N	80° 02' 57.4075"E
16	12 26 02.2490"N	80° 02' 57.1008"E
17	12° 26' 02.0685"N	80° 02' 58.1386"E
18	12 26' 02.5123"N	80° 02' 58.4063"E
19	12° 26' 02.1155"N	80° 02' 58.8724"E
20	12° 26' 00.9465"N	80° 02' 59.1087"E
21	12 25' 59.9906"N	80° 02' 58.9050"E
22	12 25' 59.3310"N	80° 02' 58.2102"E
23	12 25 58.6971"N	80° 02' 59.4110"E
24	12° 26' 01.0590"N	80° 02' 59.8558"E
25	12 26 01.5922"N	80° 03' 00.1012"E
26	12° 26' 00.6053"N	80° 03' 02.3556"E
27	12 25 59.9799"N	80° 03' 02.0722"E
28	12 25 59.3119"N	80° 03' 03.8121"E
29	12' 25' 58.0274"N	80° 03' 02.9636"E
30	12 25 56.9306"N	80° 03' 02.4234"E
31	12' 25' 56.6724"N	80' 03' 02.6130"E
32	12 25 57.5829"N	80° 03' 00.9090"E
33	12' 25' 58.7264"N	80° 03' 01.0656"E
34	12' 25' 59.5944"N	80° 03' 01.4057"
Datum: UTM-WGS84, Zone 44 North		

FIGURE 2.1: TOPOGRAPHICAL VIEW & FENCING, GREENBELT OF PROJECT AREA

FENCING & GREEN BELT PHOTOGRAPHS

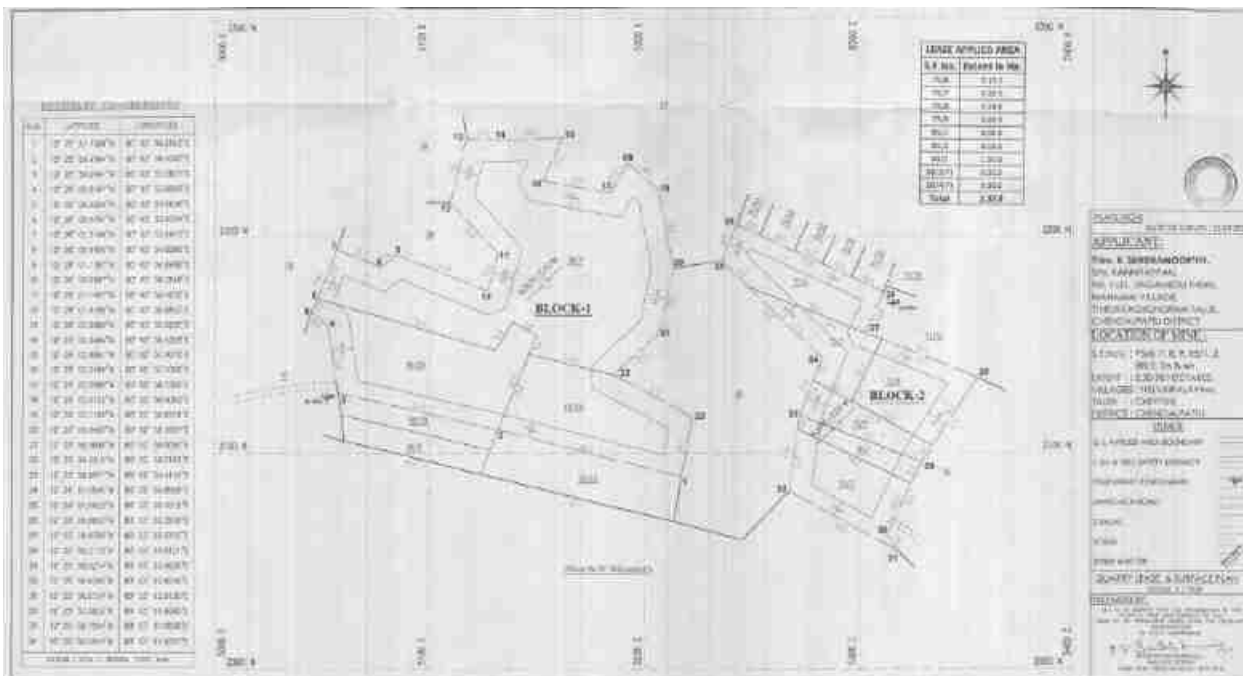


FIGURE 2.2: GOOGLE IMAGE OF THE PROJECT AREA



Source: Google Earth Imagery

FIGURE 2.3: QUARRY LEASE PLAN / SURFACE PLAN



Source: Approved Mining Plan

FIGURE 2.4: VILLAGE MAP SUPERIMPOSED ON GOOGLE EARTH IMAGE

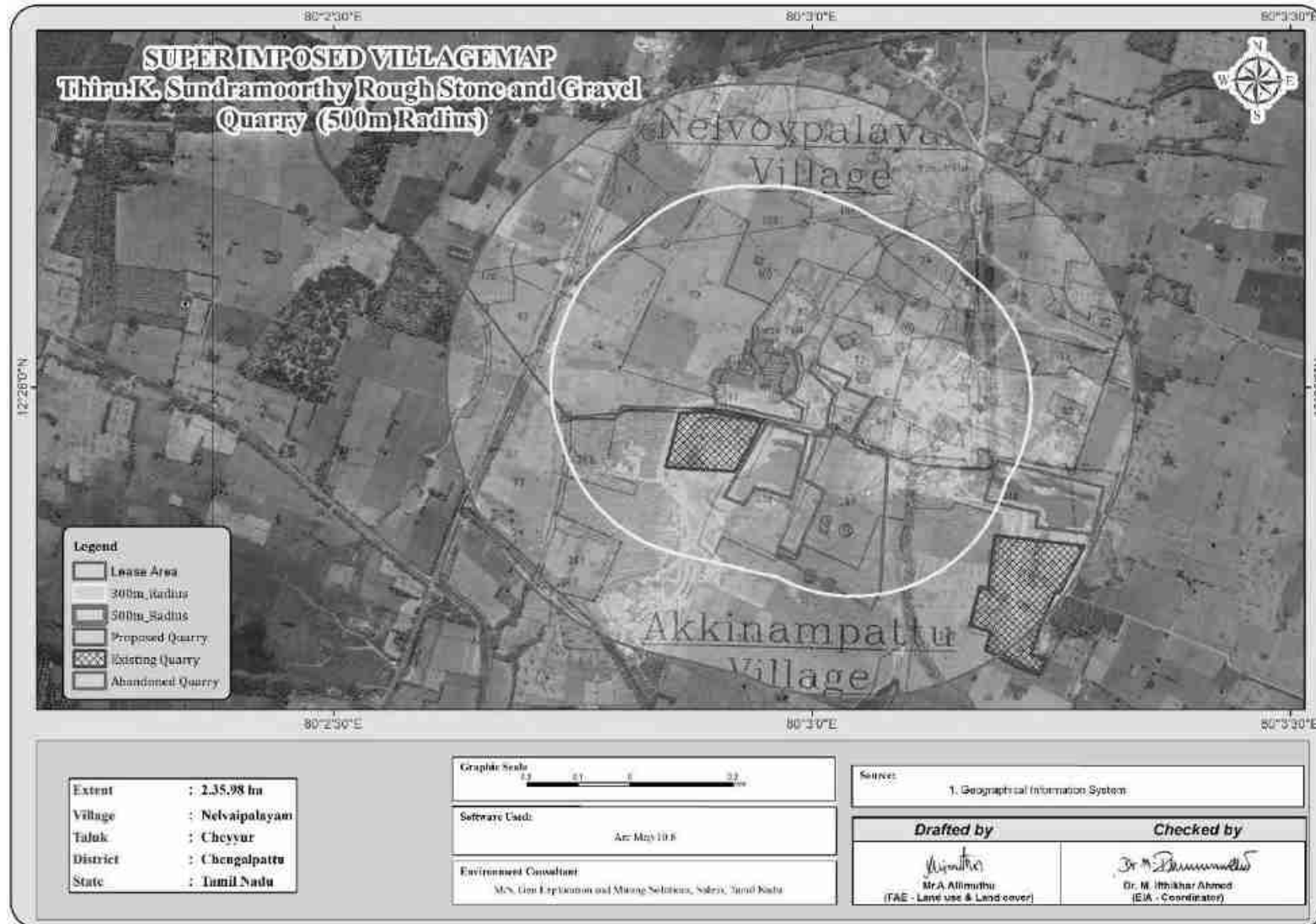


FIGURE 2.5: IMAGE SHOWING SURFACE FEATURES AROUND 10 KM RADIUS

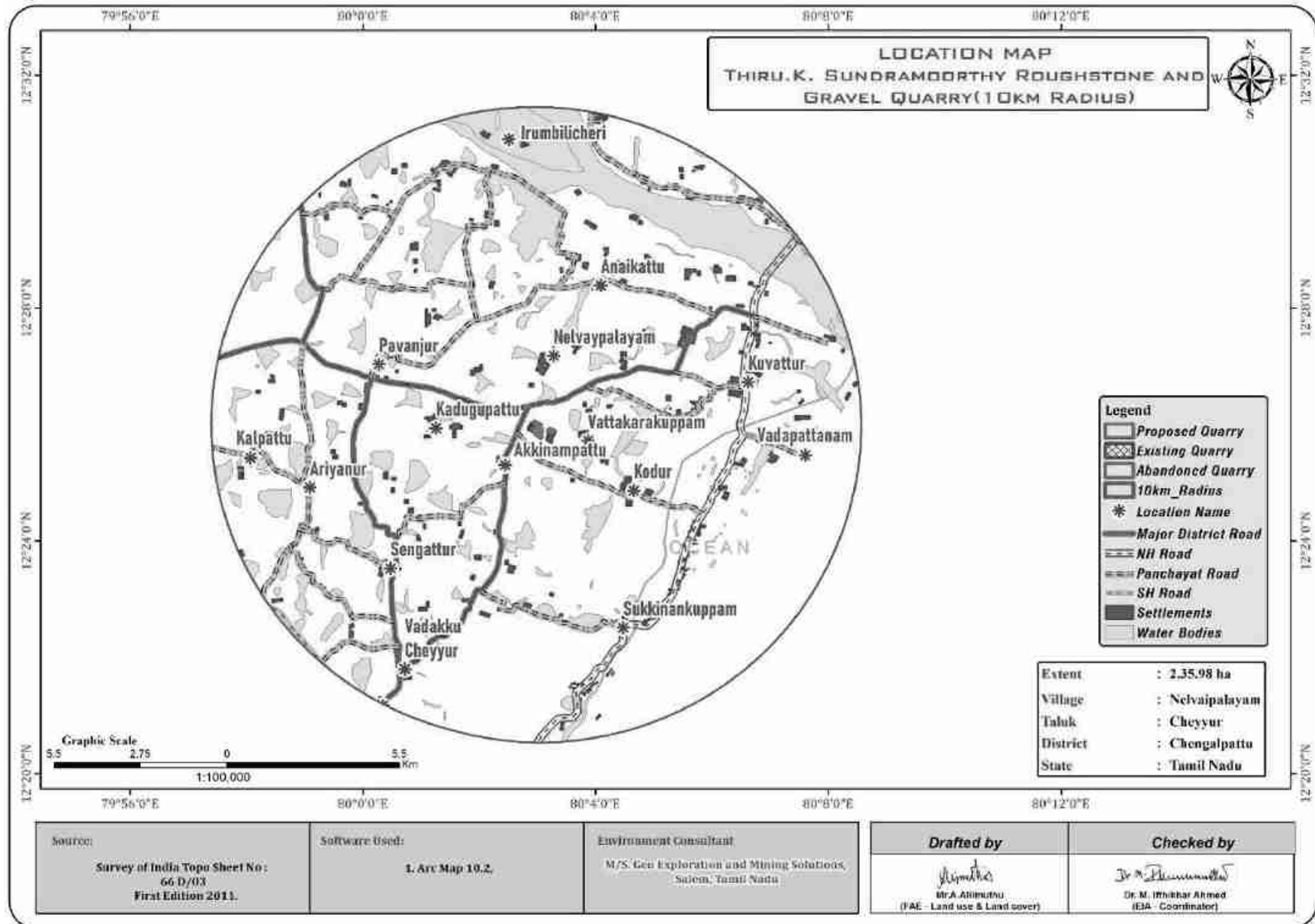
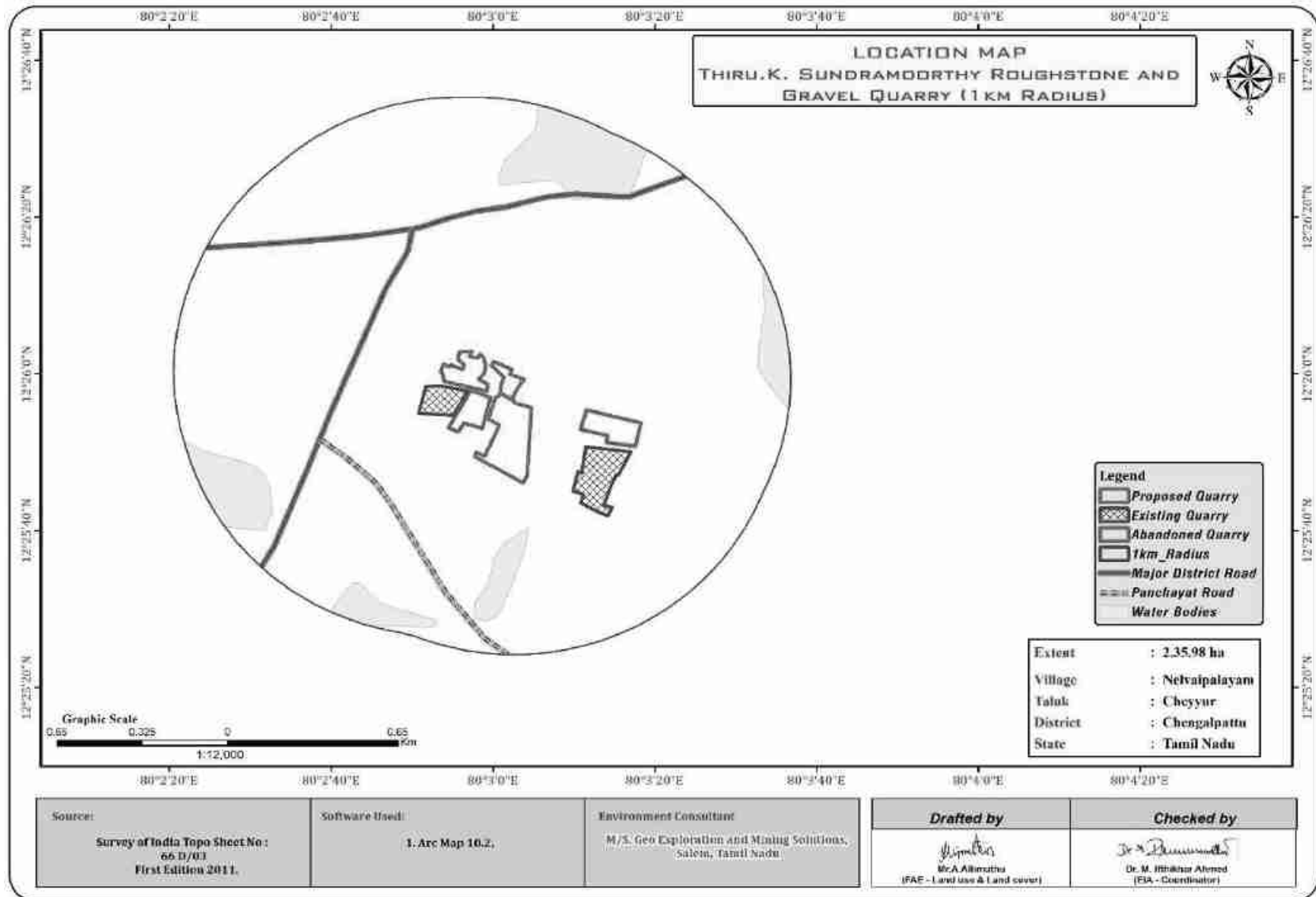


FIGURE 2.6: IMAGE SHOWING SURFACE FEATURES AROUND 1 KM RADIUS



2.2.1 Project Area

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

TABLE 2.3: LAND USE PATTERN

Description	Present area (Ha)	Area required during the first five year (Ha)	Area at the end of lease period (Ha)
Quarrying Pit	Nil	0.98.80	0.98.80
Infrastructure	Nil	0.02.00	0.02.00
Roads	Nil	0.02.00	0.02.00
Green Belt	Nil	0.29.00	0.58.60
Unutilized Area	2.35.98	1.04.18	0.74.58
Grand Total	2.35.98	2.35.98	2.35.98

Source: Approved Mining Plan

2.2.2 Size or Magnitude of Operation

TABLE 2.4: RESOURCES AND RESERVES

PARTICULARS	DETAILS	
	Rough stone	Gravel in m ³
Geological Resources	3,27,960	32,796
Mineable Reserves	90,980	18,482
Production for first five-year plan period	66,025	18,482
Production for Second five-year plan period	24,955	-
Peak Production	13,705	6,346
Mining Plan Period / Lease Applied Period	10 Years	
Number of Working Days	300 Days	
Production per day (Period of ten years)	46	21
No of Lorry loads (12m ³ per load)	4	2
Proposed Depth of Mining as per ToR	22m bgl	

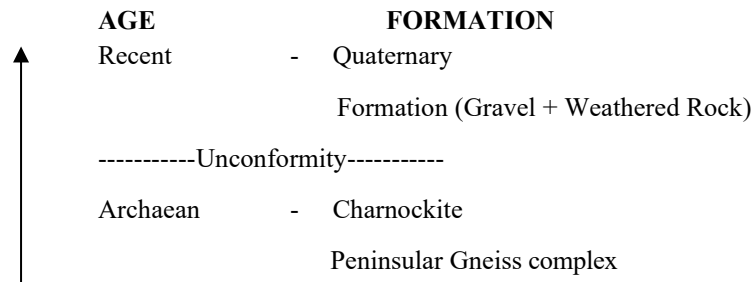
Source: Approved mining plan.

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 of the Charnockite body is N45°E – S45°W with dipping towards SE70°.

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



The Kanchipuram area is endowed with a complex geological set up with crystalline rocks occurring in the southern part of the area and the northern part of the area the crystalline rocks occur at depths covered by sedimentary

formations ranging from Gondwana to Recent. The depth at which the crystalline rocks occur progressively increase towards north. The sedimentary cover sequence is named as Palar basin and the thickness of the sediments is as high as 300 m in the northern part. The eastern part comprises unconsolidated sediments of fluvio-marine and marine origin.

Source: District Survey Report for Minor Minerals Kancheepuram District – March 2019

<https://kancheepuram.nic.in/document/kancheepuram-district-mineral-survey-report/>

2.3.2 Local Geology: -

The area exposes crystalline rocks of Archaean age and sedimentary rocks of Gondwana Supergroup and the Cuddalore Formation belonging to Mio-Pliocene age. A gravel and shingle bed locally known as Kanchipuram Gravels belong to the Pliocene to lower Pleistocene age. The laterite and alluvium are related to Quaternary age. The Archaean rocks are represented by Khondalite Group, Charnockite Group and Migmatite complex. Garnet Sillimanite Gneiss is well exposed in the Northeastern part of the district in Pachchamalai hill at Chrompet, Parangimalai and Southeast of Pallavaram. Charnockite is the predominant country rock and the type area for Charnockite is St. Thomas Mount at Pallavaram Taluk. The lower Gondwana sediments (Talchirs) overlie the Archaean rocks unconformably and are seen to the northeast and south of Palar river preserved in the trough faults and comprise boulder beds, dirty white to light green, greyish yellow fine sandstone, siltstone with clasts of rock fragments and khaki green to greenish grey shales. Source: <https://tnmines.tn.gov.in/pdf/dsr/15.pdf>

2.3.3 Hydrogeology

The Kancheepuram district is principally made up of hardrocks and sedimentary formations. These are overlain by laterites and alluvium. The study area is underlain by formations of Quaternary, Tertiary and Mesozoic ages followed by the basement complex of crystalline rocks of Archaean age. The general trend of the gneiss is NE-SW direction and the regional trend observed is NNE-SSW to NW-SE direction. The deposition of Gondwana rocks, the sedimentary rocks, in faulted troughs and in the rugged topography of crystalline rocks took place during Jurassic period. The insitu soils laterites and alluvial deposits were deposited along the Palar and Cheyyar rivers during the quaternary period.

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 Chengalpattu 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 12m. These formations are porous and permeable which have good water bearing zones.

Charnockite

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

Aquifer Parameters

The Transmissivity values in weathered, partly weathered and jointed rocks vary from 10.- 125 m² /day and specific yield in these formations is 1.5%. The specific yield of the porous formation varied from 1.4 – 10.6%. The transmissivity in the semi-consolidated and unconsolidated are varies from 23 to 52 m² /day and 200 – 300 m² /day respectively.

TABLE 2.5: RANGE OF AQUIFER PARAMETERS

Parameters	Range
Specific yield in %	1.4-10.6%
Transmissivity (T) m ² /day	10-125 m ² /day
semi-consolidated and unconsolidated	23-52 m ² /day and 200 – 300 m ² /day

Source: http://cgwb.gov.in/district_profile/tamilnadu/kancheepuram.pdf

TABLE 2.6: GROUND WATER LEVEL VARIATION OF CHENGALPATTU DISTRICT

Jan 2013	May 2013	Jan 2014	May 2014	Jan 2015	May 2015	Jan 2016	May 2016	Jan 2017	May 2017	Jan 2018	May 2018	Jan 2019	May 2019	5 Years Pre Monsoon Average	5Years Post Monsoon Average
6.1	9.4	4.2	7.4	5.6	8.3	5.8	8.3	7.4	12.4	9.16	5.81	6.1	9.4	4.2	7.4

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

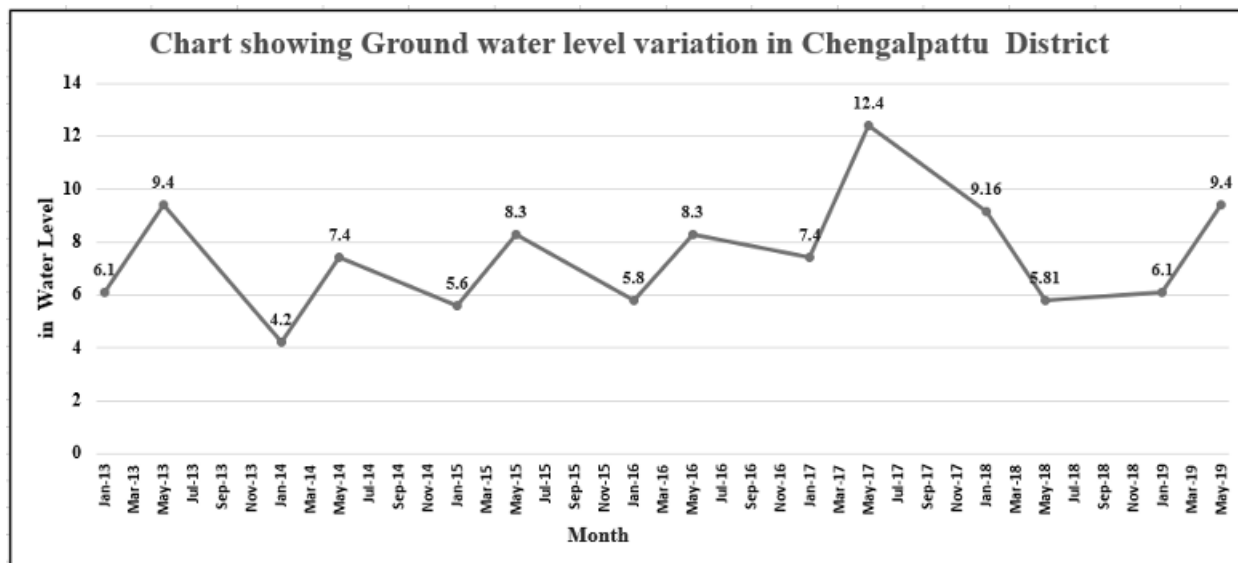
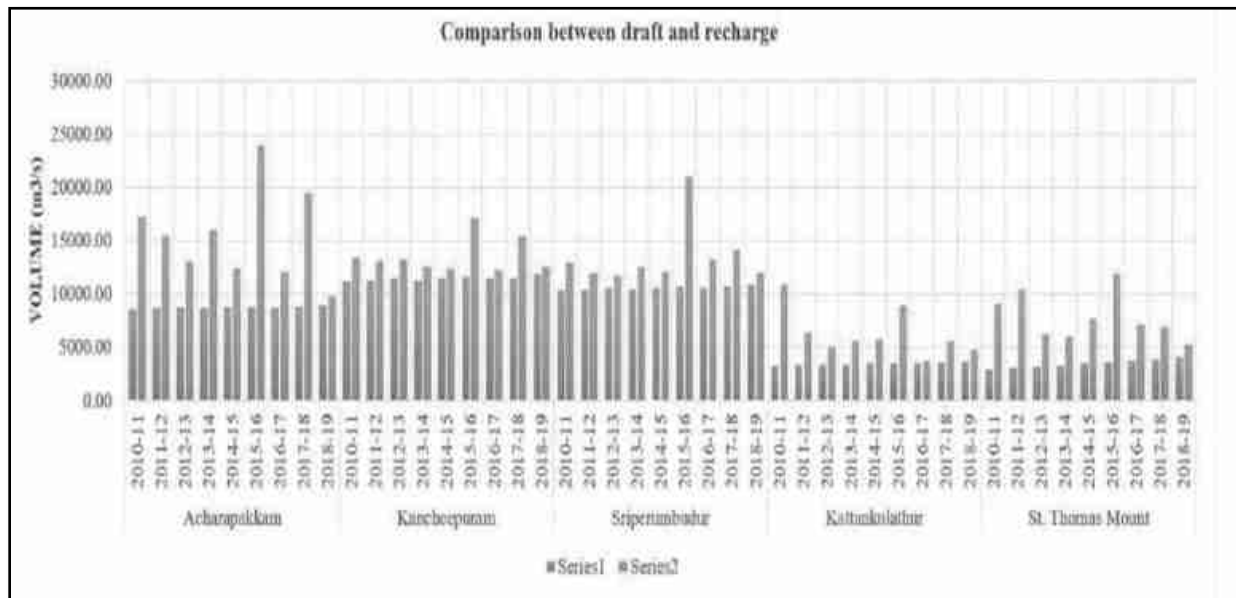


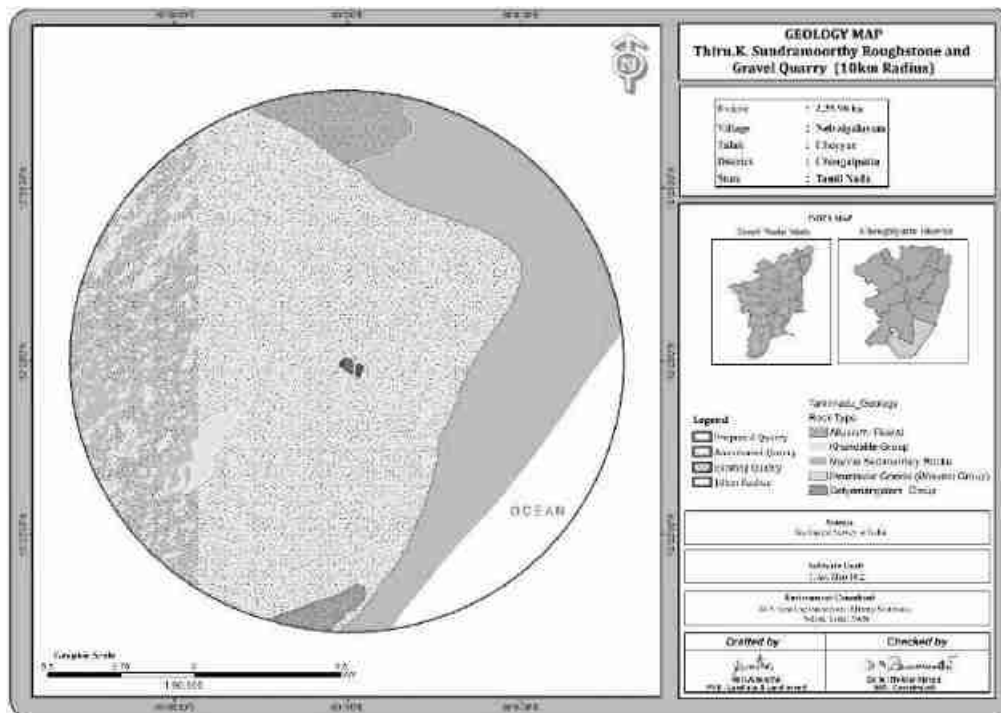
FIGURE 2.7: Chart Showing Ground water level Variation

FIGURE 2.8: COMPARISON BETWEEN DRAFT AND RECHARGE OF KANCHEEPURAM DISTRICT



Source: <https://aip.scitation.org/doi/pdf/10.1063/5.0025968>

FIGURE 2.9: REGIONAL GEOLOGY MAP



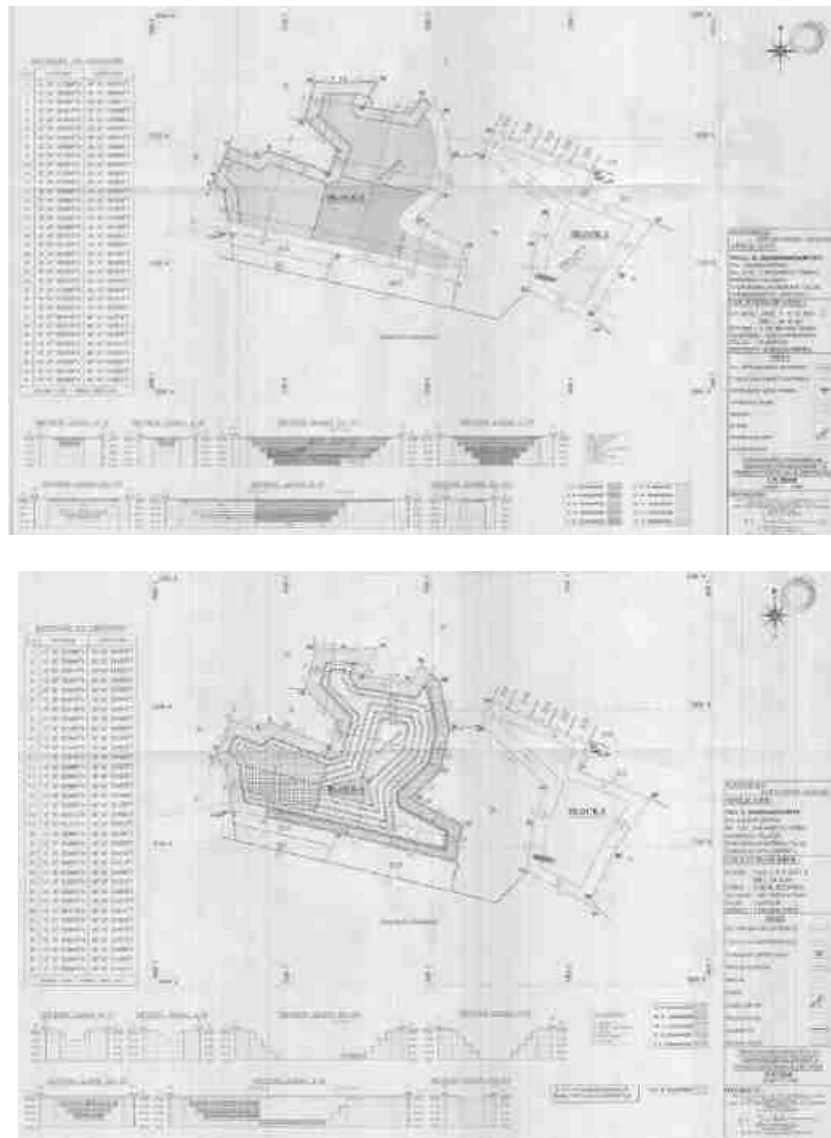
V	13,705	-
VI	3,995	-
VII	5,145	-
VIII	4,900	-
IX	6,820	-
X	4,095	-
TOTAL	90,980	18,482

Source: Approved Mining Plan

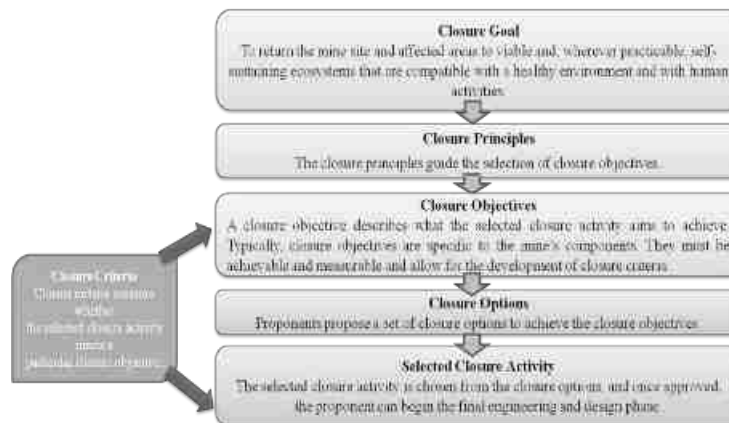
Disposal of Waste

In this Proposed Quarry no waste is anticipated, quarried out materials (Rough stone and Gravel) will be utilized (100%).

FIGURE 2.11: TOPOGRAPHY, GEOLOGICAL, YEAR-WISE DEVELOPMENT PRODUCTION PLAN AND SECTIONS FOR 1-10 YEARS



Closure Objectives –



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

Closure Planning & Options Considerations in Mine Design –

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

2.5 METHOD OF MINING

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

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

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

2.5.1 Drilling & Blasting Parameters

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

Spacing	–	1.2m
Burden	–	1.0 m
Depth of hole	–	1.5 m
Charge per hole	–	0.50 – 0.75kg
Powder factor	–	8.0 tonnes/kg
Diameter of hole	–	32 mm
Total Volume	=	1,11,805 m ³
	=	1,11,805 /10
	=	11,180.5/300
	=	37 * 2.6
	=	97 Tonnes per day
Therefore, Number of Holes per day	=	97/8
	=	12Kg of Explosive Used
	=	12*2
	=	24 Holes

Explosives per hole = ½ kg hence 12 kg of Explosives will be utilized maximum considering the production

Type of Explosives to be used –

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

Storage of Explosives –

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

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

2.5.2 Extent of Mechanization

TABLE 2.10 PROPOSED MACHINERY DEPLOYMENT

S.NO.	TYPE	NOS	SIZE/CAPACITY	MOTIVE POWER
1	Jack hammers	2	1.2m to 2.0m	Compressed air
2	Compressor	1	400psi	Diesel Drive
3	Excavator with Bucket and Rock Breaker	1	300 HP	Diesel Drive
4	Tipppers	2	20 Tonnes	Diesel Drive

Source: Approved Mining Plan

2.6 GENERAL FEATURES

2.6.1 Existing Infrastructures

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

2.6.2 Drainage Pattern

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

2.6.3 Traffic Density

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

Traffic density measurements were performed at two locations

1. Kodur Village Panchayat Road
2. Koovathur-Maduranthagam District Road

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

TABLE.2.11: TRAFFIC SURVEY LOCATIONS

Station Code	Road Name	Distance and Direction	Type of Road
TS1	Kodur Village Panchayat Road	420m-SW	Panchayat Road
TS2	Koovathur-Maduranthagam District Road	960m-NW	District Road

Source: On-site monitoring by GEMS FAE & TM

TABLE 2.12: EXISTING TRAFFIC VOLUME

Station code	HMV		LMV		2/3 Wheelers		Total PCU
	No	PCU	No	PCU	No	PCU	
TS1	175	525	75	75	150	75	750
TS2	225	675	125	125	200	100	900

Source: On-site monitoring by GEMS FAE & TM

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

TABLE 2.13: ROUGH STONE AND GRAVEL & GRAVEL HOURLY TRANSPORTATION REQUIREMENT

Transportation of Rough stone and Gravel & Gravel per day		
Capacity of trucks	No. of Trips per day	Volume in PCU
20 tonnes	4	12

FIGURE.2.11: MINERAL TRANSPORTATION ROUTE MAP

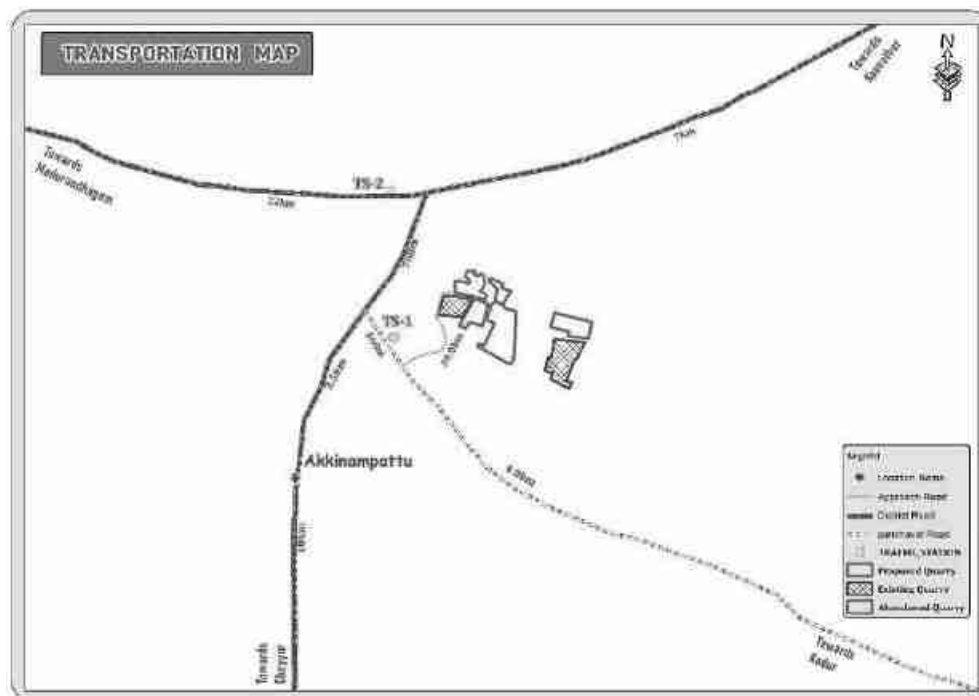


TABLE 2.14: SUMMARY OF TRAFFIC VOLUME

Route	Existing Traffic volume in PCU	Incremental traffic due to the project	Total traffic volume	Hourly Capacity in PCU as per IRC – 1960 guidelines
Kodur Village Panchayat Road	750	12	762	1200
Koovathur-Maduranthagam District Road	900	12	912	1500

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

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

2.6.4 Mineral Beneficiation and Processing

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

2.7 PROJECT REQUIREMENT

2.7.1 Water Source & Requirement

Detail of water requirements in KLD as given below:

TABLE 2.15: WATER REQUIREMENT FOR THE PROJECT

Purpose	Quantity	Source
Dust Suppression	0.7 KLD	From Existing bore wells from nearby area
Green Belt	0.6 KLD	From Existing bore wells from nearby area
Sanitation & Drinking	0.4 KLD	From existing, bore wells and drinking water will be sourced from Approved water vendors.
Total	1.7 KLD	

Source: Prefeasibility report

2.7.2 Power and Other Infrastructure Requirement

Power is not required for the mining operation; the mining operation will be carried out using Diesel Generator and Earth moving machineries using diesel. The quarrying activity is proposed during day time only (General Shift 8 AM – 5 PM, Lunch Break 1 PM – 2 PM). Electricity for use in office and other internal infrastructure will be obtained from TNEB by project proponent.

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

2.7.3 Fuel Requirement

Rough stone:

Per hour Excavator will consume = 16 liters / hour
 Per hour Excavator will excavate = 20m³ of Rough stone
 Rough stone quantity = 90,980/20 = 4,549hours
 Diesel consume = 4,549hours x 16 liters
 Total diesel consumption = **72,784Liters** of HSD will be utilized for rough stone

Gravel:

Per hour Excavator will consume = 10 liters / hour
 Per hour Excavator will excavate = 60m³ of Gravel
 Gravel quantity = 18,482/60 = 308hours
 Diesel consume = 308hours x 10 liters
 Total diesel consumption = **3,080** Liters of HSD will be utilized for Gravel
 Total diesel consumption around = **75,864 Liters** of HSD will be utilized for ten years.

2.7.4 Project Cost

The Environmental Management plan has been prepared considering the mode of working, Safety of the employees and Monitoring periods the **total Cost is 84.44 Lakhs.**

2.8 EMPLOYMENT REQUIREMENT:

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

TABLE 2.16: PROPOSED MANPOWER DEPLOYMENT

Designation	No of persons
Geologist	1
Mines Manager/Mines Foreman	1
Mate/Blaster	1
Jack hammer operator	6
Excavator Operator	1
Water Sprinkler Driver	1
Tipper driver	2
Helper	2
Cleaner & Co-operator	3
Security	2
Total	20

Source: Approved Mining Plan & Pre-Feasibility report.

2.9 PROJECT IMPLEMENTATION SCHEDULE

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

TABLE 2.17: EXPECTED TIME SCHEDULE

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

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

3. DESCRIPTION OF ENVIRONMENT

3.0 GENERAL

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

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

Environmental data has been collected with reference to cluster quarries by EHS 360 Labs Private Limited, – An accredited by ISO/IEC 17025:2017 (NABL) Laboratory.

Study Area

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

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

Study Period

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

Study Methodology

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

sampling methodologies for the various environmental parameters required for the study, frequency of sampling, method of samples analysis, etc., are given below Table 3.1.

TABLE 3.1: MONITORING ATTRIBUTES AND FREQUENCY OF MONITORING

Attribute	Parameters	Frequency of Monitoring	No. of Locations	Protocol
Land-use Land cover	Land-use Pattern within 10 km radius of the study area	Data'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 (2 surface water & 4 ground water)	IS 10500& CPCB Standards
Meteorology	Wind Speed Wind Direction Temperature Cloud cover Dry bulb temperature Rainfall	1 Hourly Continuous Mechanical/Auto matic Weather Station	1	Site specific primary data& Secondary Data from IMD Station
*Ambient Air Quality	PM10 PM2.5 SO2 NOX Fugitive Dust	24 hourly twice a week (March 2024 – May 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	8 (2 core & 6 buffer zone)	IS 9989 As per CPCB Guidelines
Ecology	Existing Flora and Fauna	Through field visit during the study period	Study Area	Primary Survey by Quadrate & Transect Study Secondary Data – Forest Working Plan
Socio Economic Aspects	Socio-Economic Characteristics, Population Statistics and Existing Infrastructure in the study area	Site Visit & Census Handbook, 2011	Study Area	Primary Survey, census handbook & need based assessments.

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

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

3.1 LAND ENVIRONMENT

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

3.1.1 Land Use/ Land Cover

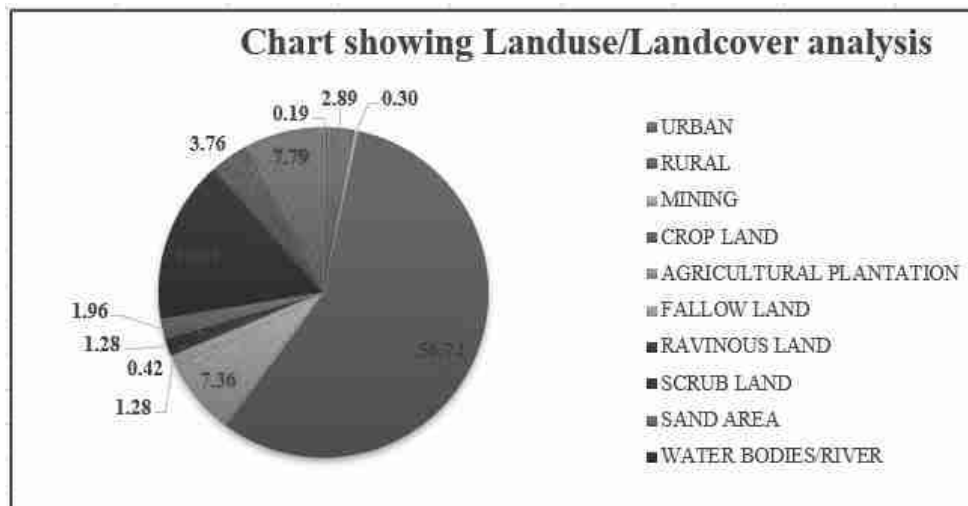
A visual interpretation technique has been adopted for land use classification based on the keys suggested in the chapter – V of the guidelines issued by NNRMS Bangalore & Level III classification with 1:50,000 scale for the preparation of land use mapping. Land use pattern of the area was studied through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

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

S.No	CLASSIFICATION	AREA_HA	AREA_%
BUILTUP			
1	URBAN	62.36	0.19
2	RURAL	932.66	2.89
3	MINING	95.80	0.30
AGRICULTURAL LAND			
4	CROP LAND	18313.01	56.74
5	AGRICULTURAL PLANTATION	2375.86	7.36
6	FALLOW LAND	412.52	1.28
BARREN/WASTE LANDS			
7	RAVINOUS LAND	133.97	0.42
8	SCRUB LAND	412.10	1.28
9	SAND AREA	632.63	1.96
WETLANDS/ WATER BODIES			
10	WATER BODIES/RIVER	5175.74	16.04
11	COASTAL WEDTLAND	1213.26	3.76
12	OCEAN	2514.94	7.79
TOTAL		32274.87	100.00

Source: Survey of India Toposheet and Landsat Satellite Imagery

FIGURE 3.1: PIE DIAGRAM OF LAND USE AND LAND COVER



From the above table, pie diagram and land use map it is inferred that the majority of the land in the study area is Agriculture and fallow land (includes crop land) 65.3% followed by Built-up Lands (Rural and Urban) – 3.08%, Scrub land – 1.28%, and Water bodies including Ocean 23.83%, Coastal wet land is 3.76% in the study area.

The total mining area within the study area is 95.80 ha i.e., 0.30%. This small percentage of Mining Activities shall not have any significant impact on the environment.

FIGURE 3.2: PHYSIOGRAPHIC MAP 10KM RADIUS

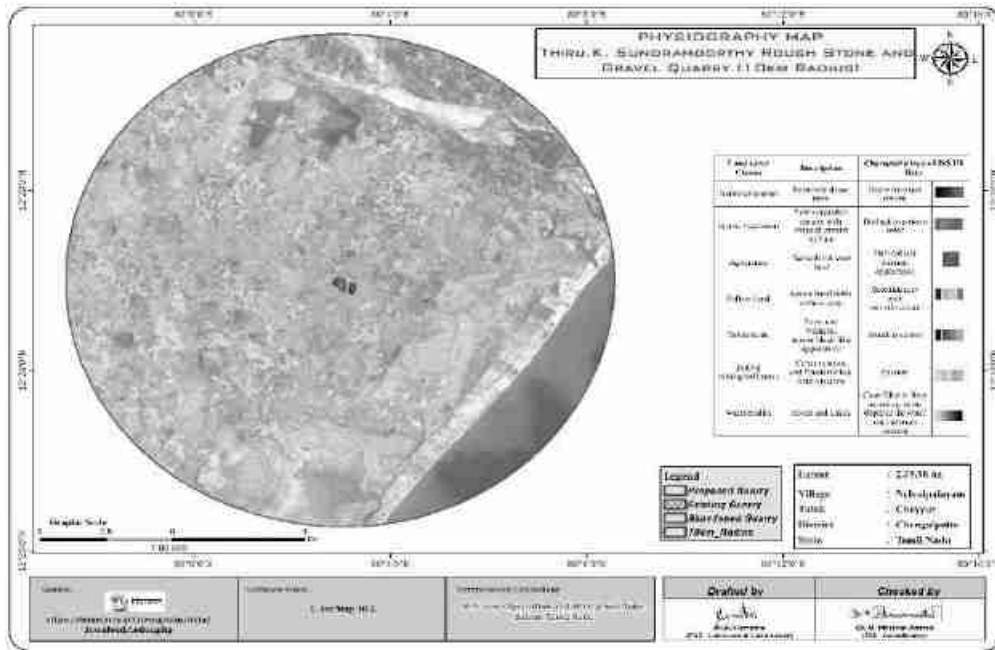


FIGURE 3.3 A: LAND USE LAND COVER MAP 10KM RADIUS

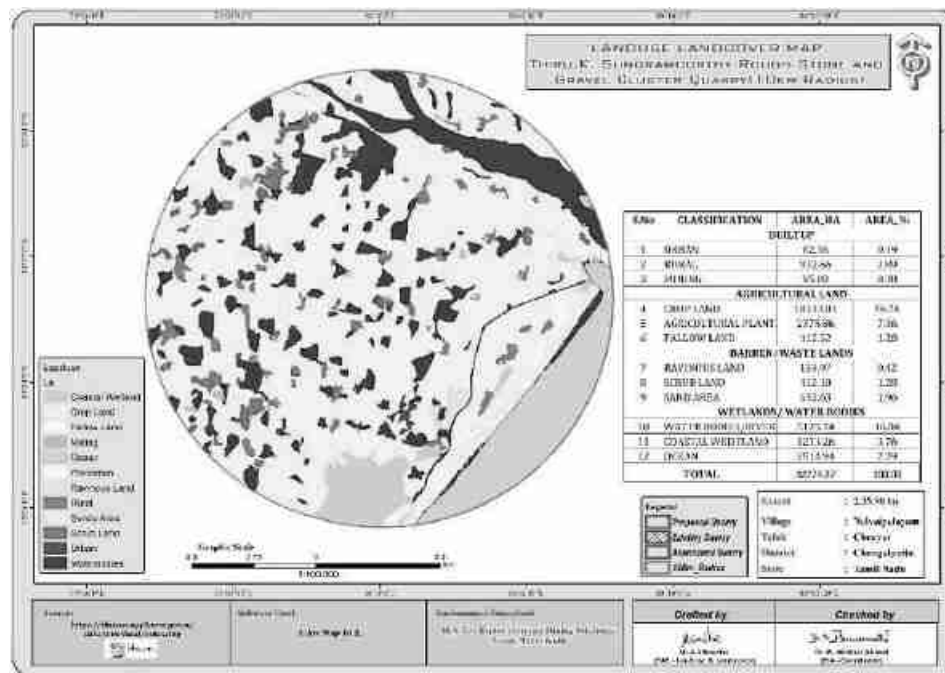
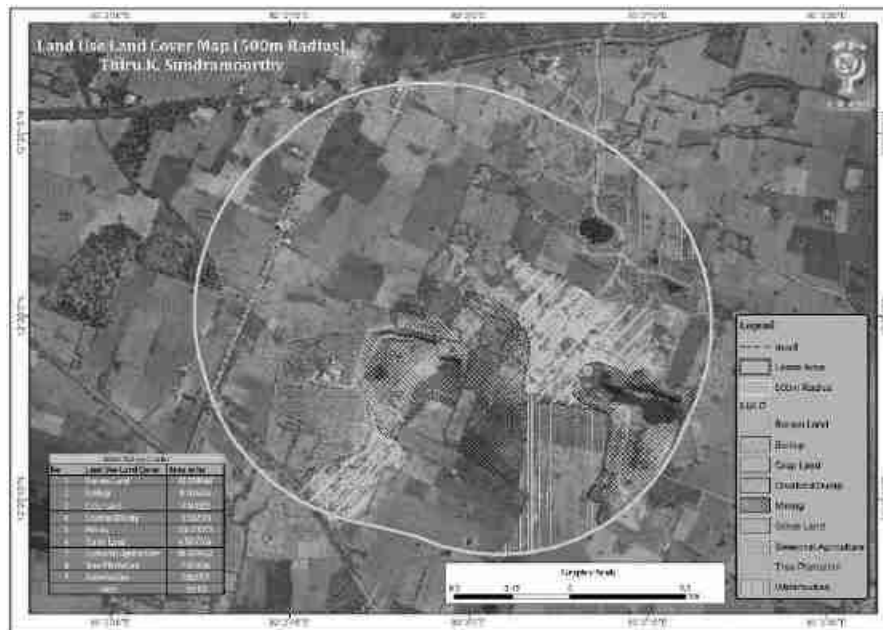


TABLE 3.2 B: LAND USE / LAND COVER TABLE 500m RADIUS

500m Radius Cluster		
No	Land Use Land Cover	Area in ha
1	Barren Land	10.200968
2	Built up	0.783646
3	Crop Land	9.141322
4	Crusher & Dump	11.962175
5	Mining	20.571073
6	Scrub Land	6.504764
7	Seasonal Agriculture	58.389662
8	Tree Plantation	7.105636
9	Waterbodies	1.866501
Total		126.53

FIGURE 3.3 B: LAND USE LAND COVER MAP 500m RADIUS

Land use Landcover of the area within 500m radius were studied in detailed that the majority of the land within 500m is Seasonal agriculture land (58.38ha) and mining (20.57ha) followed by agriculture land and Mining areas are contributing majority of the land use.

3.1.2 Topography

The lease applied area is exhibiting plain terrain. The area has gentle sloping towards North East side and altitude of the area is 100m Amsl. The area is covered by 2m thickness of gravel and followed by massive charnockite which is clearly inferred from the outcrops.

3.1.3 Drainage Pattern of the Area

The drainage pattern of the area is dendritic – sub dendritic. Drainage pattern is the pattern formed by the streams, rivers, and lakes in a particular drainage basin. They are governed by the topography of the land, whether a

particular region is dominated by hard or soft rocks, and the gradient of the land. There are no streams, canals or water bodies crossing within the project area.

3.1.4 Seismic Sensitivity

The proposed project site falls in the seismic Zone II, 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.

3.1.5 Environmental Features in the Study Area

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

TABLE 3.3: DETAILS OF ENVIRONMENT SENSITIVITY AROUND THE CLUSTER

Sl.No	Sensitive Ecological Features	Name	Arial Distance in km from Cluster
1	National Park / Wild life Sanctuaries	Vedanthangal Birds Sanctuary + 5Km Belt	19 Km - NW
2	Reserve Forest	Polavar Puriyambakkam II R.F	14.03km South west
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	Industries/ Thermal Power Plants	None	Nil within 10km Radius
9	Defence Installation	None	Nil within 10km Radius

Source: Survey of India Toposheet

TABLE 3.4: NEARBY WATER BODIES FROM THE PROPOSED PROJECT SITE

Sl.No	NAME	DISTANCE & DIRECTION
1	Tank	370m SE
2	Tank	800m South
3	Tank	810m SW
4	Tank	850m North
5	Tank	1km NE
6	Canal	4.5km East
7	Pallavankulam Lake	5.4km North
8	odiyur Lake	6.8km South
9	Palar River	7.3km NE

Source: Village Cadastral Map and Field Survey

3.1.6 Soil Environment

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

The objective of the soil sampling is -

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

TABLE 3.5: SOIL SAMPLING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	S-1	Core Zone	Project Area	12°26'0.45"N 80° 2'56.47"E
2	S-2	Nelvaipalayam	1.5km North	12°26'48.13"N 80° 3'0.76"E
3	S-3	Kodur	3.8km SE	12°24'47.95"N 80° 4'31.86"E
4	S-4	Lathur	6.2km NW	12°28'40.61"N 80° 0'43.67"E
5	S-5	Siruvangunam	3.5km SW	12°24'24.66"N 80° 1'43.86"E
6	S-6	Nerkunapattu	5km NE	12°27'19.75"N 80° 5'33.78"E

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

Methodology –

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

TABLE 3.6: METHODOLOGY OF SAMPLING COLLECTION

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

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

Soil Testing Result

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

FIGURE 3.5: SOIL SAMPLING LOCATIONS AROUND 10 KM RADIUS

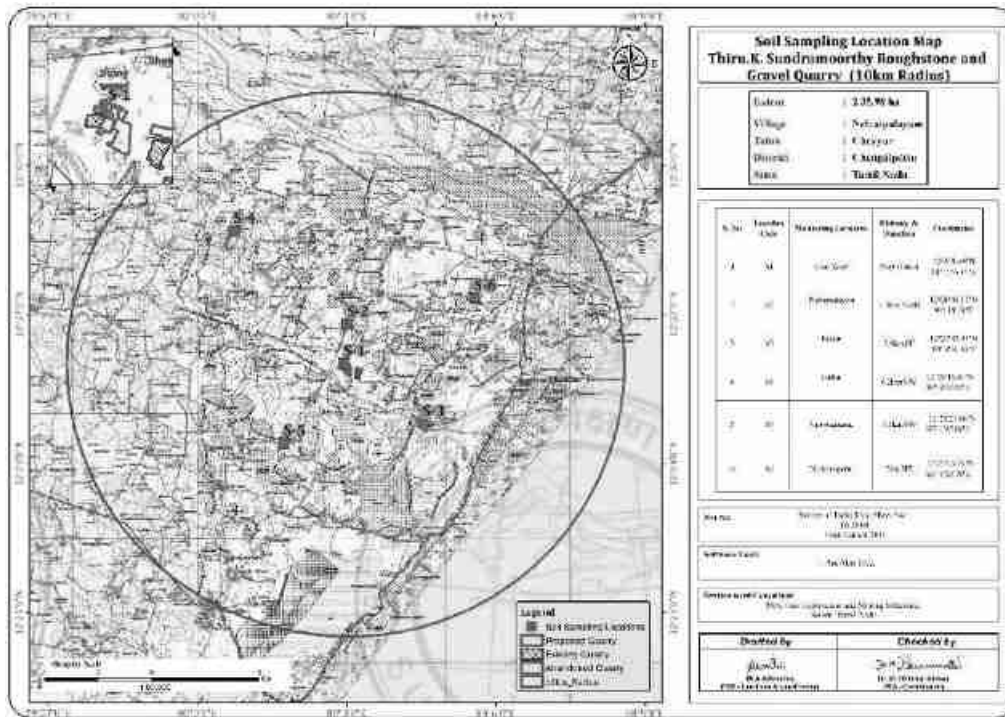


FIGURE 3.6: SOIL MAP

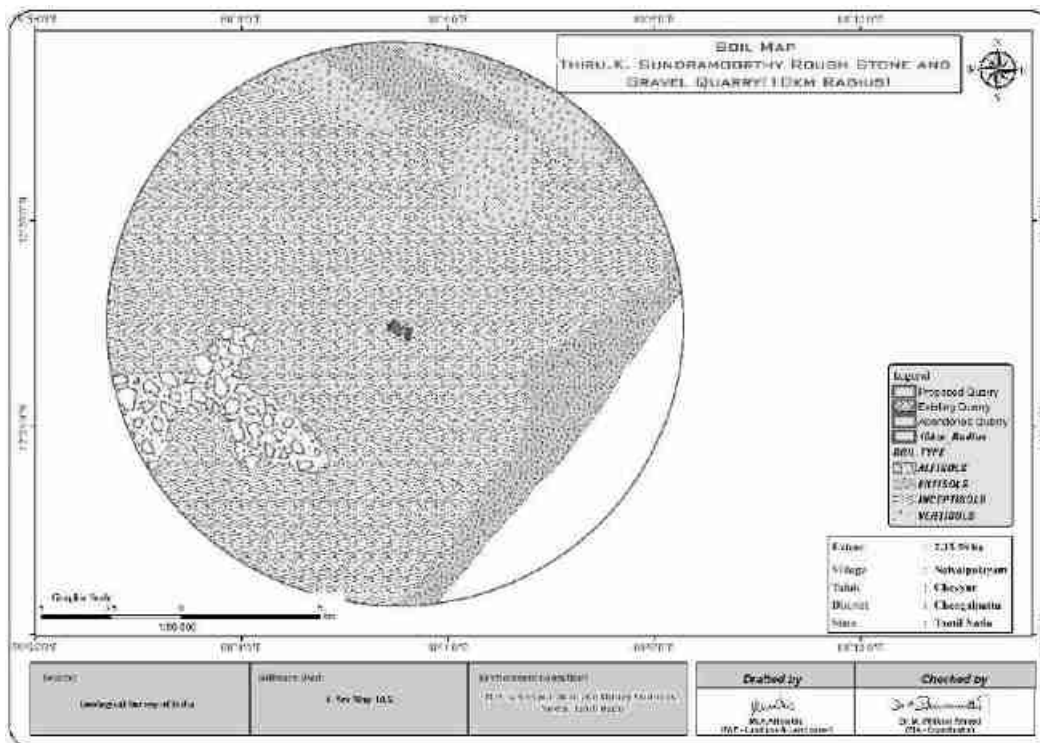


TABLE 3.7: SOIL QUALITY OF THE STUDY AREA

S.No	Test Parameters	Protocols	S-1	S2	S-3	S-4	S-5	S-6
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.65	8.76	8.95	8.61	8.06	8.57
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	495 µmhos/cm	500 µmhos/cm	443 µmhos/cm	316 µmhos/cm	440 µmhos/cm	450 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	47.5 %	47.9 %	46.8 %	46.1 %	45.7 %	48.0 %
04	Bulk Density	By Cylindrical Method	1.11 g/cm ³	1.01 g/cm ³	0.98 g/cm ³	1.01 g/cm ³	1.09 g/cm ³	1.11 g/cm ³
05	Porosity	By Gravimetric Method	46.6 %	46.4 %	48.6 %	45.7 %	46.6 %	46.1 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	51.6 mg/kg	71.2 mg/kg	46.2 mg/kg	63.7 mg/kg	61.8 mg/kg	60.4 mg/kg
07	Magnesium as Mg		34 mg/kg	40.3 mg/kg	30 mg/kg	51.8 mg/kg	35.5 mg/kg	28.6 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	55.3 mg/kg	28 mg/kg	26.3 mg/kg	41.2 mg/kg	30 mg/kg	50.3 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0011 %	0.0018 %	0.0031 %	0.0030 %	0.0017 %	0.0019 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	5.2 mg/kg	2.61 mg/kg	1.56 mg/kg	3.1 mg/kg	2.64 mg/kg	6.88 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	400 mg/kg	45.1 mg/kg	6.54 mg/kg	473.5 mg/kg	356 mg/kg	463.7 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.67 %	2.67 %	2.02 %	2.15 %	1.93 %	1.98 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.97 %	1.55 %	1.17 %	1.25 %	1.12 %	1.15 %
14	Texture :							
	Clay	Gravimetric Method	31.9 %	33.9 %	28.6 %	29.1 %	32.2 %	30.5 %
	Sand		33.6 %	35.7 %	32.5 %	31.8 %	32.9 %	33.1 %
	Silt		34.5 %	30.4 %	38.9 %	39.1 %	34.9 %	36.4 %
15	Manganese as Mn	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	13.1 mg/kg	21.9 mg/kg	30.9 mg/kg	7.26 mg/kg	13.6 mg/kg	22.3 mg/kg
16	Zinc as Zn		3.39 mg/kg	10.1 mg/kg	2.12 mg/kg	6.6 mg/kg	4.15 mg/kg	5.6 mg/kg
17	Boron as B		3.45 mg/kg	5.9 mg/kg	8.6 mg/kg	3.26 mg/kg	3.3 mg/kg	1.7 mg/kg
18	Potassium as K		22 mg/kg	39 mg/kg	5.51 mg/kg	30 mg/kg	15 mg/kg	20 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	2.09	12.6	5.6	10.2
21	Copper as Cu		BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)
22	Lead as Pb		2.16 mg/kg	1.53 mg/kg	1.18 mg/kg	2.1 mg/kg	2.02 mg/kg	1.63 mg/kg
23	Iron as Fe		3.56 mg/kg	4.4 mg/kg	1.55 mg/kg	5.3 mg/kg	5.6 mg/kg	4.5 mg/kg
24	Cation Exchange Capacity	USEPA 9080 - 1986	40.1 meq/100g of soil	39.8 meq/100g of soil	43.7 meq/100g of soil	36.7 meq/100g of soil	43.89 meq/100g of soil	35.1 meq/100g of soil

Source: Sampling Results by EHS360 Labs Private Limited Private Limited.

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

The physical properties of the soil samples were examined for texture, bulk density, porosity and water holding capacity. The soil texture found in the study area is Clay (28.6 % 33.9%) to Sandy Loam Soil and Bulk Density of Soils in the study area varied between 0.98-1.11 g/cc. The Water Holding Capacity of the soil samples is found to be medium i.e., ranging from 45.7– 48.0 %.

Chemical Characteristics –

- The nature of soil is slightly alkaline to strongly alkaline with pH range 8.06 – 8.95
- The available Nitrogen content range between 6.54 – 473.5 mg/kg
- The available Phosphorus content range between 1.56 – 6.88 mg/kg
- The available Potassium range between 5.51mg/kg to 39.0 mg/kg

Observation:

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

3.2 WATER ENVIRONMENT

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

3.2.1 Surface Water Resources:

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

3.2.2 Ground Water Resources:

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

3.2.3 Methodology

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

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

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

TABLE 3.8: WATER SAMPLING LOCATIONS

S.NO	CODE	LOCATIONS	DISTANCE & DIRECTION	CO-ORDINATES
SURFACE WATER				
1	SW-1	Nelvaipalayam Eri	1.2km North	12°26'40.00"N 80° 3'10.14"E
2	SW-2	Palar River	8.5km NE	12°28'36.70"N 80° 6'54.58"E
GROUND WATER				
3	WW-1	Near Project Area	180m West	12°26'1.27"N 80° 2'47.94"E
4	WW-2	Siruvangunam	3.5km SW	12°24'24.19"N 80° 1'47.11"E
5	BW-1	Near Project Area	170m NE	12°26'0.13"N 80° 3'9.82"E
6	BW-2	Lathur (Near House)	6.2km NW	12°28'41.35"N 80° 0'41.73"E

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

FIGURE 3.8: WATER SAMPLING LOCATIONS AROUND 10 KM RADIUS

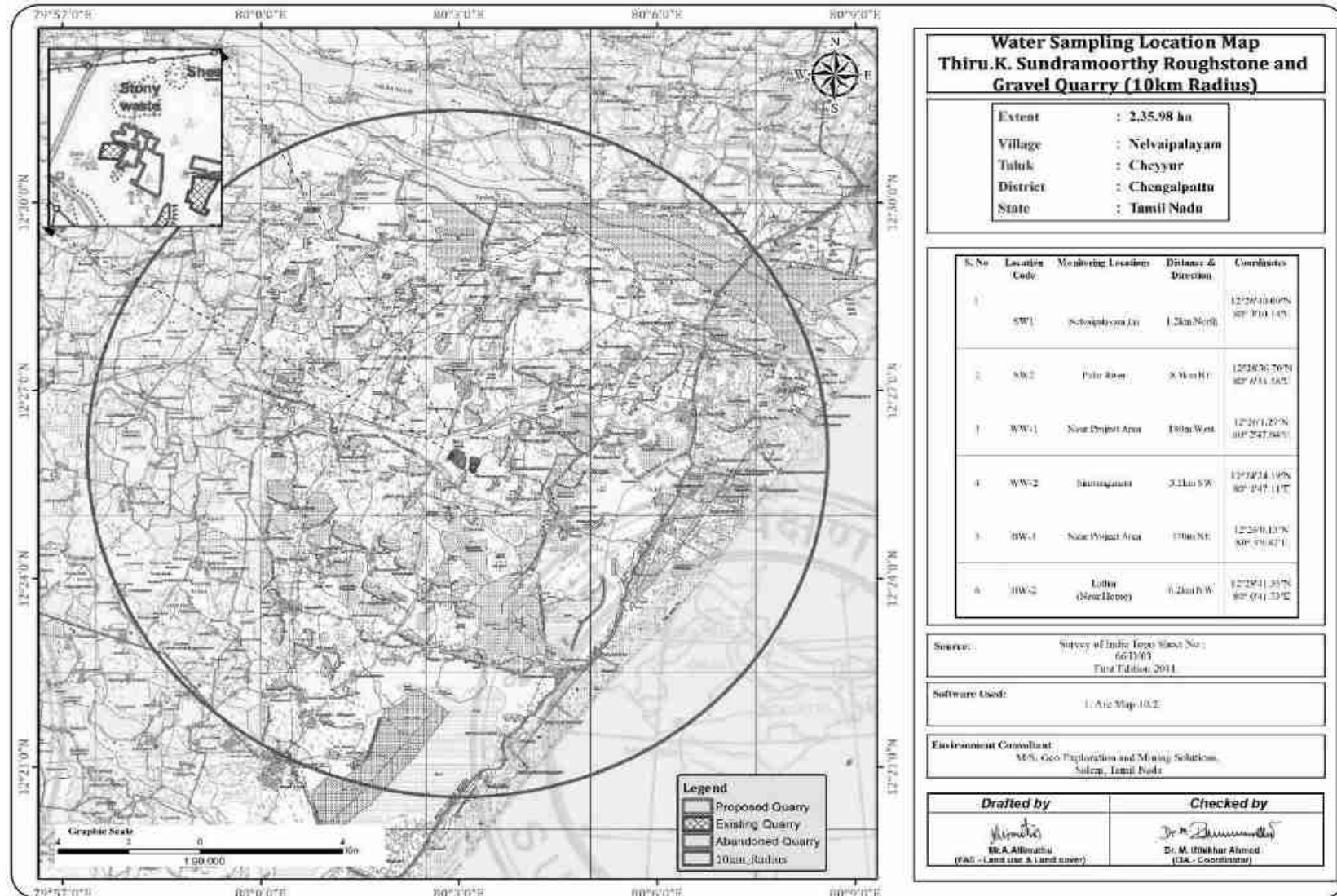


TABLE 3.9: GROUND WATER SAMPLING RESULTS

Sno	Test	Protocol	Ground Water (WW-1) – Near Project Area	Ground Water (WW-2) – Siruvanganam	Ground Water (BW1) Near Project Area	Ground Water (BW-2) – Lathur
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	5	5	5	5
2	Odour	IS 3025 Part 5:2018	Agreeable	Agreeable	Agreeable	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.60	6.96	7.75	7.68
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	968 µmhos/cm	914 µmhos/cm	877 µmhos/cm	1064 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	1.2 NTU	1.1 NTU	1.0 NTU	1.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	572 mg/l	539 mg/l	517 mg/l	628 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	200.0 mg/l	196.15 mg/l	189.43 mg/l	230.22 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	35.5 mg/l	33.3 mg/l	31.1 mg/l	40.2 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	27.1 mg/l	27.5 mg/l	27.2 mg/l	31.6 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	180 mg/l	188.1 mg/l	145 mg/l	200 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	112 mg/l	105 mg/l	86.4 mg/l	119 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	49.2 mg/l	60 mg/l	64.5 mg/l	70.3 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.31 mg/l	0.26 mg/l	0.25 mg/l	0.25 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.22 mg/l	0.17 mg/l	0.31 mg/l	0.21 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	8.5 mg/l	6.84 mg/l	5.55 mg/l	8.6 mg/l
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)	BDL(DL : 0.02 mg/l)	BDL(DL : 0.02 mg/l)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff: 2019)	BDL(DL : 0.01 mg/l)	BDL(DL : 0.01 mg/l)	BDL(DL : 0.01 mg/l)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff: 2019)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 44:1993 (Reaff:2019)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 17 -1984 (Reaff:2017)	16.5 mg/l	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	144 MPN/100ml	190 MPN/100ml	130 MPN/100ml	200 MPN/100ml
38	Escherichia coli	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml

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

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

TABLE 3.10: SURFACE WATER SAMPLING RESULTS

SNO	TEST	PROTOCOL	Surface Water (SW-1) - Nelvaipalayam Eri	Surface Water (SW-2) Palar River
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	10 Hazen	5 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.86	7.26
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	959 µmhos/cm	768 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	5.5 NTU	6.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	566 mg/l	454 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	188.75 mg/l	167.61 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	33.3 mg/l	30.1 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	25.7 mg/l	22.5 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	171.5 mg/l	145 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	100 mg/l	72.6 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	55.3 mg/l	40 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.21 mg/l	0.14 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.19 mg/l	0.29 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	9.76 mg/l	10.5 mg/l
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
31	BOD @ 27°C for 3 days	IS 3025 Part 44:1993 (Reaff:2019)	8.1 mg/l	12.1 mg/l
32	Chemical Oxygen Demand	IS 3025 Part 58:2006 (Reaff:2017)	40 mg/l	60 mg/l
33	Dissolved Oxygen	IS 3025 Part 38:1989 (Reaff:2019)	5.4 mg/l	5.7 mg/l
34	Barium as Ba	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)
35	Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Reaff. 2019)	1.6 mg/l	1.2 mg/l
36	Sulphide as H ₂ S	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
37	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
38	Total Arsenic as As	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
39	Total Suspended Solids	IS 3025 Part 17 -1984 (Reaff:2017)	12.1 mg/l	14.6 mg/l
40	Total Coliform	APHA 23rd Edn. 2017:9221B	525 MPN/100ml	753 MPN/100ml
41	<i>Escherichia coli</i>	APHA 23rd Edn. 2017:9221F	150 MPN/100ml	177 MPN/100ml

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

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

FIGURE 3.8: SITE PHOTOGRAPHS OF WATER SAMPLING LOCATIONS

3.2.4 Interpretation & Conclusion

Surface Water

The pH varied from 7.26 – 7.86 while turbidity found within the standards (Optimal pH range for sustainable aquatic life is 6.5 to 8.5 pH).

Total Dissolved Solids:

Total Dissolved Solids varied from 454-566mg/l, the TDS mainly composed of carbonates, bicarbonates, Chlorides, phosphates and nitrates of calcium, magnesium, sodium and other organic matter.

Other parameters:

Chloride content is 72.6-100 mg/l, sulphates varied from 40.0 – 55.3mg/l.

Ground Water

The pH of the water samples collected ranged from 6.96 – 7.75 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 517-628 mg/l in all samples. Total hardness varied between 189.43- 230.22 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-ATS Instrument by qualified Geo physicist with the help of IGIS software and it was inferred that the low resistance encountered at the depth between 49m. The maximum depth proposed out of proposed projects is 22m.

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

In general, the ground water movement is based on the gradient i.e., water moves from the highest static ground water elevation to lowest static ground water elevation point. The ground water movement is important aspect to locating the recharge and discharge areas. Therefore, the data has been collected in the study area. Water level measured in the eight open well and 6 borewells.

The average water level in the open well is varies from = 11.8 m to 14.2m bgl

The water level in the bore well is varies from = 71.6 to 73.5 m bgl

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

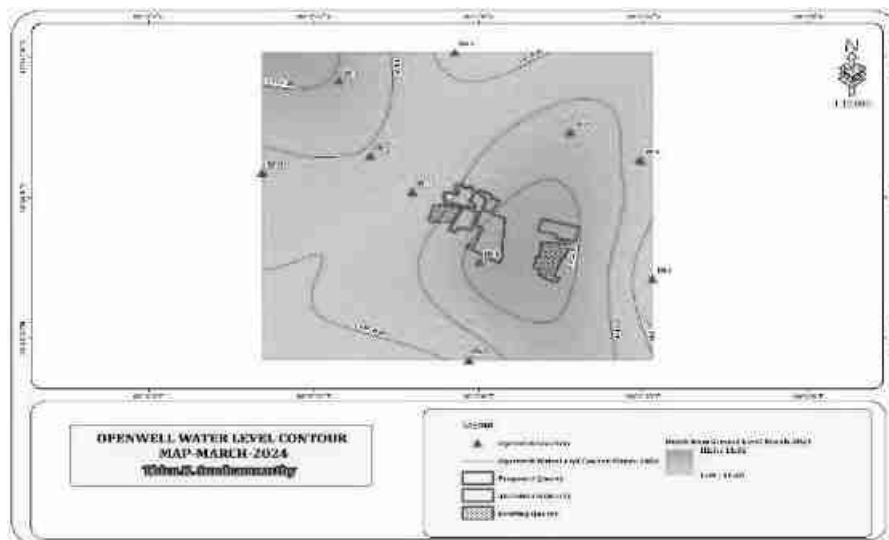
The water level in the area is above 49m hence there is no possibilities of water table intersection during the entire mine life period besides it is also inferred topographically that there are no major water bodies intersecting the project area.

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

S.NO	LABEL	LONGITUDE	LATITUDE	Marc-24	Apr-24	May-24
1	OW-1	80° 02' 47.9177" E	12° 26' 01.2320" N	10.8	11.4	11.9
2	OW-2	80° 02' 40.3054" E	12° 26' 08.8547" N	11	11.6	12.1
3	OW-3	80° 02' 34.6164" E	12° 26' 24.8497" N	11.2	11.8	12.3
4	OW-4	80° 02' 55.6920" E	12° 26' 30.9785" N	10.7	11.3	11.8
5	OW-5	80° 03' 16.6532" E	12° 26' 13.8975" N	11.1	11.7	12.2
6	OW-6	80° 03' 29.4589" E	12° 26' 08.0178" N	10.9	11.5	12
7	OW-7	80° 03' 31.6695" E	12° 25' 42.7658" N	10.6	11.2	11.7
8	OW-8	80° 03' 00.2265" E	12° 25' 46.2692" N	11.3	11.9	12.4
9	OW-9	80° 02' 58.2489" E	12° 25' 25.3970" N	10.8	11.4	11.9
10	OW-10	80° 02' 20.6449" E	12° 26' 05.3347" N	10.9	11.5	12

Source: Onsite monitoring data

FIGURE 3.9: OPEN WELL CONTOUR MAP -MAR- MAY 2024



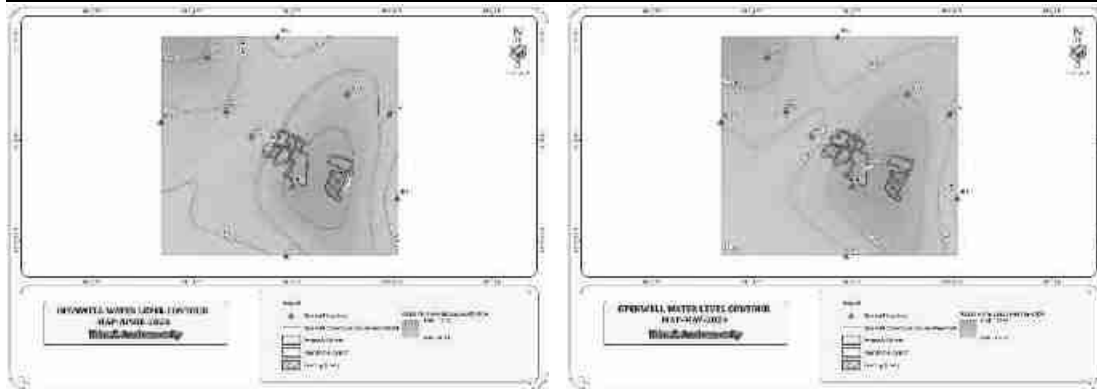
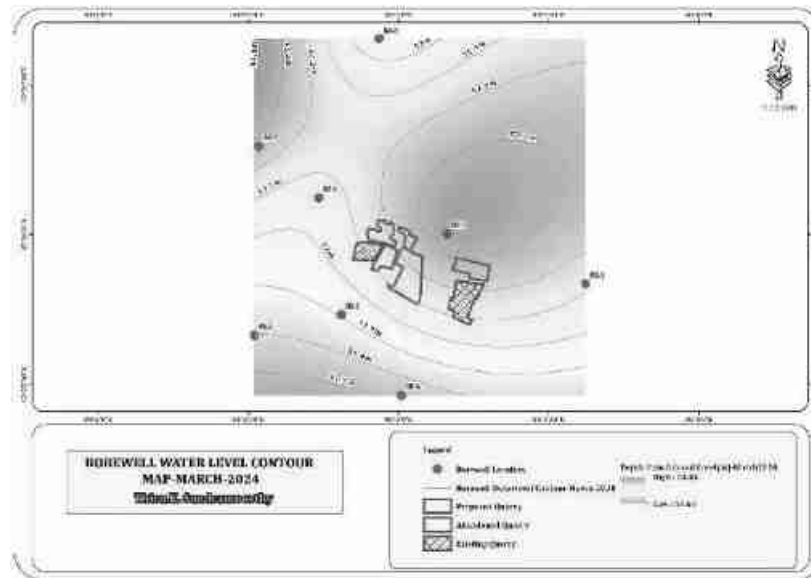


TABLE 3.12: SUMMER SEASON WATER LEVEL OF BOREWELLS 1 KM RADIUS

S.NO	LABEL	LONGITUDE	LATITUDE	Marc-24	Apr-24	May-24
1	BW-1	80° 03' 09.7477" E	12° 26' 00.1693" N	52.4	53	53.5
2	BW-2	80° 03' 37.4059" E	12° 25' 50.1098" N	52.1	52.7	53.2
3	BW-3	80° 02' 48.5105" E	12° 25' 43.9820" N	51.9	52.5	53
4	BW-4	80° 03' 00.5583" E	12° 25' 27.8465" N	51.7	52.3	52.8
5	BW-5	80° 02' 31.1381" E	12° 25' 39.8193" N	51.8	52.4	52.9
6	BW-6	80° 02' 43.9872" E	12° 26' 07.3703" N	52	52.6	53.1
7	BW-7	80° 02' 31.9929" E	12° 26' 17.7117" N	52.3	52.9	53.4
8	BW-8	80° 02' 56.0926" E	12° 26' 39.2153" N	51.9	52.5	53

Source: Onsite monitoring data

FIGURE 3.10: BOREWELL CONTOUR MAP – MAR- MAY 2024



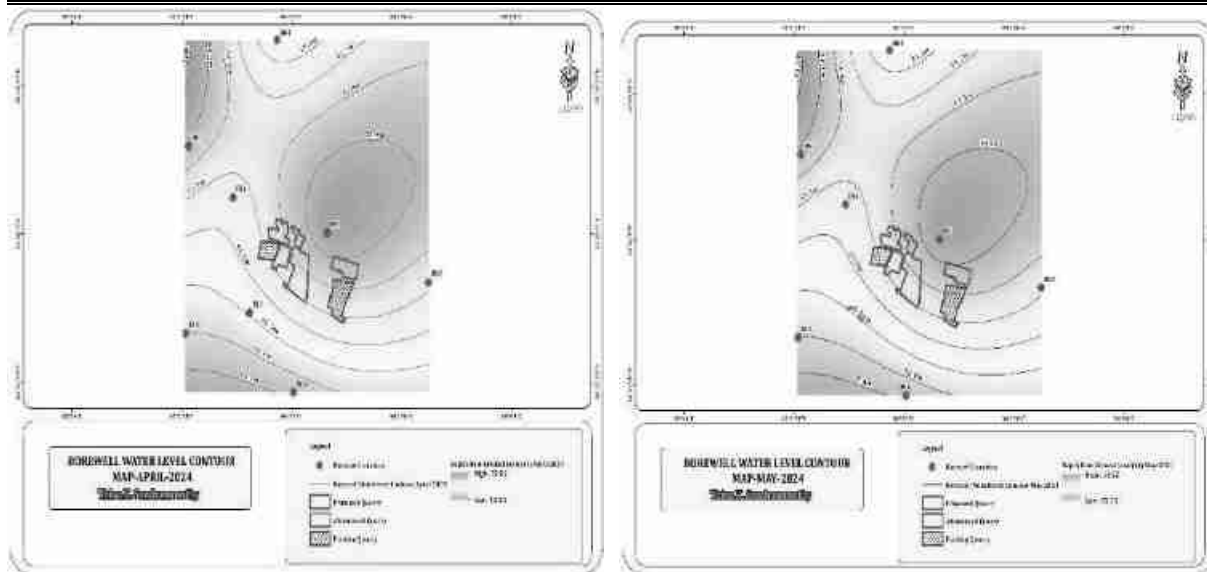
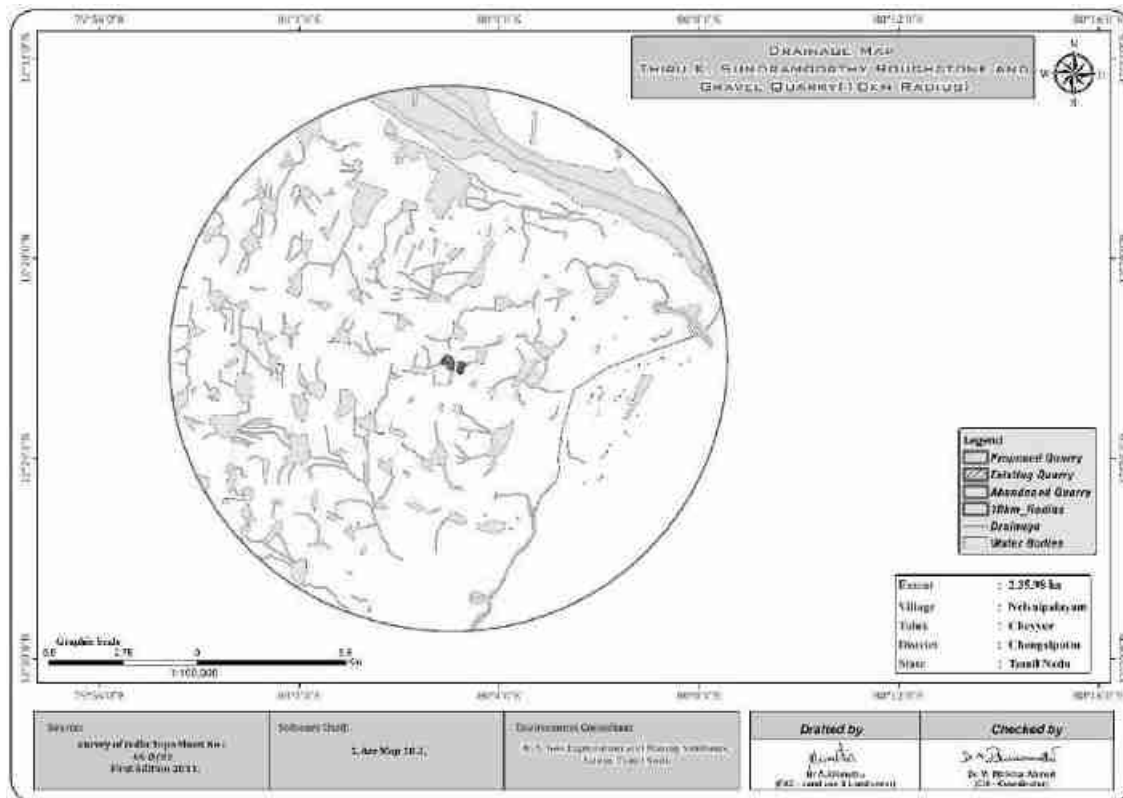
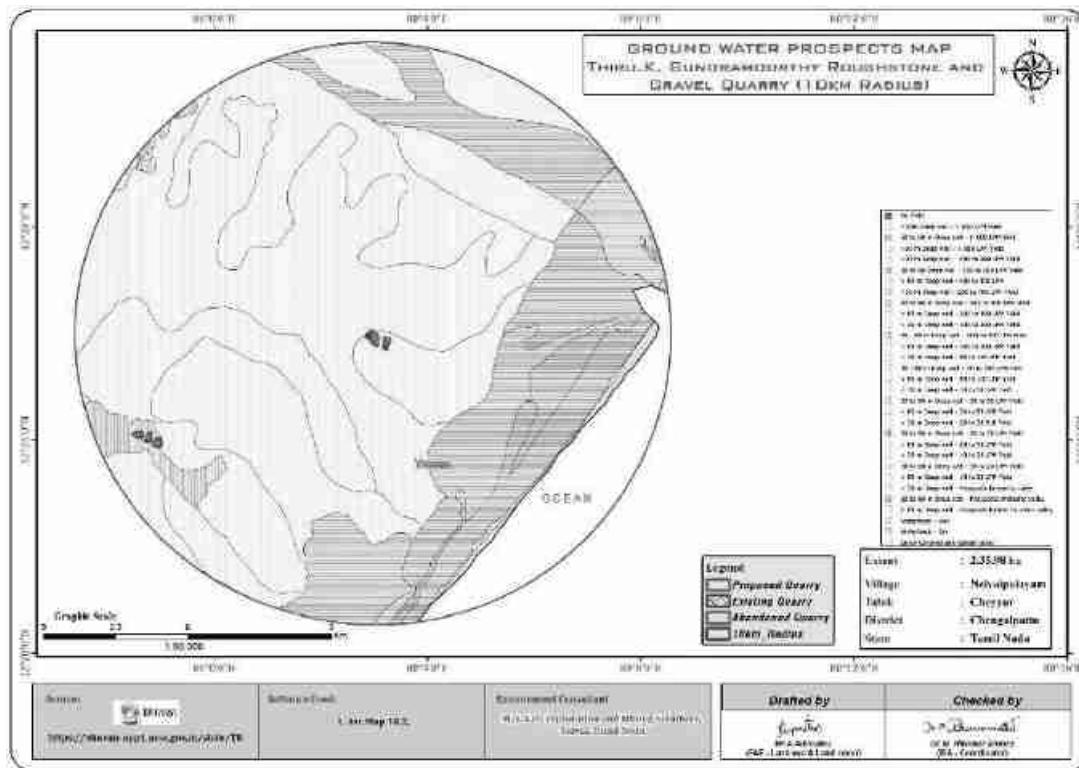


FIGURE 3.11: DRAINAGE MAP AROUND 10 KM RADIUS FROM PROJECT SITE



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

FIGURE 3.12: GROUND WATER PROSPECT MAP



Geophysical Resistivity Survey

3.2.5.1 Methodology and Data Acquisition

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

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

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

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

ΔV = potential difference between receiving electrodes

G = Geometric Factor.

Rocks show wide variation in resistivity ranging from 10⁻⁸ more than 10⁺¹⁴ ohmmeter. On a broad classification, one can group the rocks falling in the range of 10⁻⁸ to 1 ohmmeter as good conductors. 1 to 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,

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

ρ_r = Resistivity of Rocks

ρ_w = Resistivity of water in pores of rock

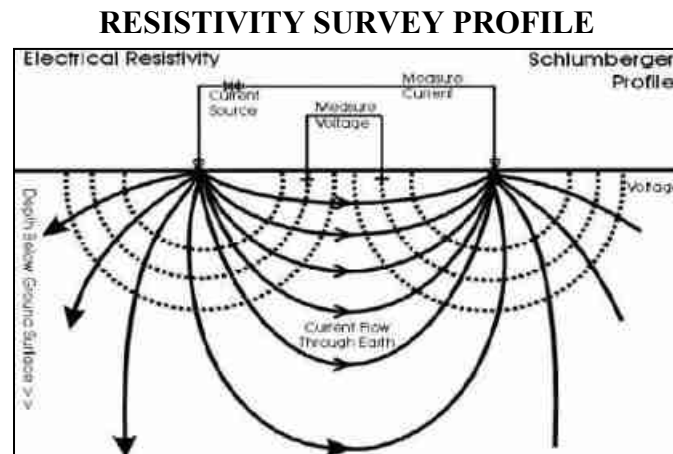
F = Formation Factor

\emptyset = Fractional pore volume

A = Constants with values ranging from 0.5 to 2.5

3.2.5.2 Survey Layout

The field equipment deployed for the study is in a deep resistivity meter with a model of SSRMP – ATS. 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 ration can be enhanced by \sqrt{N} where N is the number of stacked readings. This SSR meter in which running averages of measurements [1, (1+2)/2, (1+2+3)/3 ... (1+2...+16/16)] up to the chosen stacks are displayed and the final average is stored automatically, in memory utilizing the principles of stacking to achieve the benefit of high signals to noise ratio. Based on these above significations the signal stacking resistivity meter was used for (VES) Vertical Electric Resistivity Sounding.



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

3.2.5.3 Data Presentation

It was inferred that the low resistance encountered at the depth between 49m. The maximum depth proposed out of proposed projects 22m Hence there is no possibilities of water table intersection during the entire mine life period besides it is also inferred topographically that there are no major water bodies intersecting the project area.

3.2.5.4 Geophysical Data Interpretation

The geophysical data was obtained to study the lateral variations, vertical in homogeneities in the sub – surface with respect to the availability of groundwater. From the interpreted data, it has inferred that the area has

moderate groundwater potential in the investigated area. This small quarrying operation will not have any significant impact on the natural water bodies.

It is inferred that the existing quarries in the surrounding area reaches maximum of 15m and the water table is not intersected, only the seepage water during rainy season encountered from the upper layer and it will be used for the Greenbelt development, Dust suppression and quarrying operation.

3.3 AIR ENVIRONMENT

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

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

3.3.1 Meteorology & Climate

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

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

Climate

- In Chengalpattu the climate is tropical. In winter, there is much less rainfall than in summer. The climate here is classified as Aw by the Köppen-Geiger. The mean yearly temperature recorded in Chengalpattu is 27.8 °C | 82.0 °F, as per the available data. The precipitation level on a yearly basis amounts to 995 mm | 39.2 inch as per the meteorological records.
- Chengalpattu experiences a moderate climate, and the summers are not easy to define. The best time to visit is January, February, March, December.
- In February, the precipitation level plummets to a mere 9 mm | 0.4 inch. This month holds the title for being exceptionally arid. Most precipitation falls in October, with an average of 205 mm | 8.1 inch.
- The month of highest temperature is May during which the average temperature reaches up to 31.2 °C | 88.2 °F. In January, the average temperature is 24.2 °C | 75.5 °F. It is the lowest average temperature of the whole year.

<https://en.climate-data.org/asia/india/tamil-nadu/chengalpattu-767200/>

Rainfall

TABLE 3.13 – RAINFALL DATA

Actual Rainfall in mm					Normal Rainfall in mm
2015	2016	2017	2018	2019	
2256.6	990.5	1191.7	833.0	1051.17	1263.8

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

TABLE 3.14: METEOROLOGICAL DATA RECORDED AT SITE

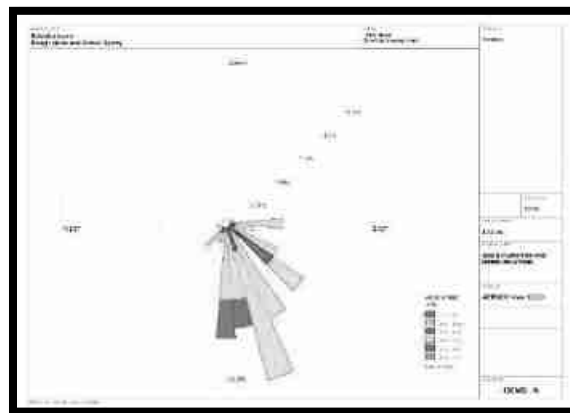
S.No	Parameters		Mar-2024	Apr-2024	May-2024
1	Temperature (°C)	Max	30.05	32.14	33.23
		Min	27.9	30.31	30.09
		Avg	28.97	31.22	31.66
2	Relative Humidity (%)	Avg	64.37	66.59	69.62
3	Wind Speed (m/s)	Max	4.9	5.84	6.3
		Min	2.84	3.28	2.76
		Avg	3.87	4.56	4.53
4	Cloud Cover (OKTAS)		0-8	0-8	0-8
5	Wind Direction		ESE, SSE	SSE, E	S, SSW

Source: On-site monitoring/sampling by *EHS360 Labs Private Limited* 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 Chengalpattu Agro. A comparison of site data generated during the three months with that of IMD, Chengalpattu_Agro reveals the following.

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

FIGURE 3.13: WINDROSE DIAGRAM

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

1. Predominant winds were from ENE, E, SSE
2. Wind velocity readings were recorded between 2.10 to 5.70m/s
3. Calm conditions prevail of about 0 % of the monitoring period
4. Temperature readings ranging from 27.9 to 33.23 °C
5. Relative humidity ranging from 64.3 to 69.6 %
6. The monitoring was carried out continuously for three months.

3.3.2 Methodology and Objective

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

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

3.3.3 Sampling and Analytical Techniques

TABLE 3.15: METHODOLOGY AND INSTRUMENT USED FOR AAQ ANALYSIS

Parameter	Method	Instrument
PM2.5	Gravimetric Method Beta attenuation Method	Fine Particulate Sampler Make – Thermo Environmental Instruments – TEI 121
PM10	Gravimetric Method Beta attenuation Method	Respirable Dust Sampler Make –Thermo Environmental Instruments – TEI 108
SO2	IS-5182 Part II (Improved West & Gaeke method)	Respirable Dust Sampler with gaseous attachment
NOx	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 EHS360 Labs Private Limited & CPCB Notification

TABLE 3.16: NATIONAL AMBIENT AIR QUALITY STANDARDS

Sl.No.	Pollutant	Time Weighted Average	Concentration in ambient air	
			Industrial, Residential, Rural & other areas	Ecologically Sensitive area (Notified by Central Govt.)
1	Sulphur Dioxide ($\mu\text{g}/\text{m}^3$)	Annual Avg.* 24 hours**	50.0 80.0	20.0 80.0
2	Nitrogen Dioxide ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	40.0 80.0	30.0 80.0

3	Particulate matter (size less than 10µm) PM10 (µg/m3)	Annual Avg. 24 hours	60.0 100.0	60.0 100.0
4	Particulate matter (size less than 2.5 µm PM2.5 (µg/m3)	Annual Avg. 24 hours	40.0 60.0	40.0 60.0

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

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

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

3.3.4 Frequency & Parameters for Sampling

Ambient air quality monitoring has been carried out with a frequency of two samples per week at Seven (7) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period March 2024 – May 2024. The baseline data of ambient air has been generated for PM₁₀, PM_{2.5}, Sulphur Dioxide (SO₂) & Nitrogen Dioxide (NO₂) Monitoring has been carried out as per the CPCB, MoEF guidelines and notifications.

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

3.3.5 Ambient Air Quality Monitoring Stations

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

TABLE 3.17: AMBIENT AIR QUALITY (AAQ) MONITORING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	AAQ-1	Core Zone	Project Area SW	12°25'59.33"N 80° 2'54.15"E
2	AAQ-2	Core Zone	Project Area NE	12°26'1.95"N 80° 2'58.58"E
3	AAQ-3	Near Existing Quarry	200m SW	12°25'54.07"N 80° 2'50.29"E
4	AAQ-4	Nelvaipalayam (Near School)	1.5km North	12°26'51.17"N 80° 3'1.18"E
5	AAQ-5	Kodur (Near School)	3.8km SE	12°24'46.75"N 80° 4'38.96"E
6	AAQ-6	Lathur (Near House)	6.2km NW	12°28'40.82"N 80° 0'44.26"E
7	AAQ-7	Siruvangunam	3.5km SW	12°24'24.69"N 80° 1'40.83"E

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

FIGURE 3.14: AIR QUALITY MONITORING PHOTOGRAPHS



FIGURE 3.15: AMBIENT AIR QUALITY LOCATIONS AROUND 10 KM RADIUS

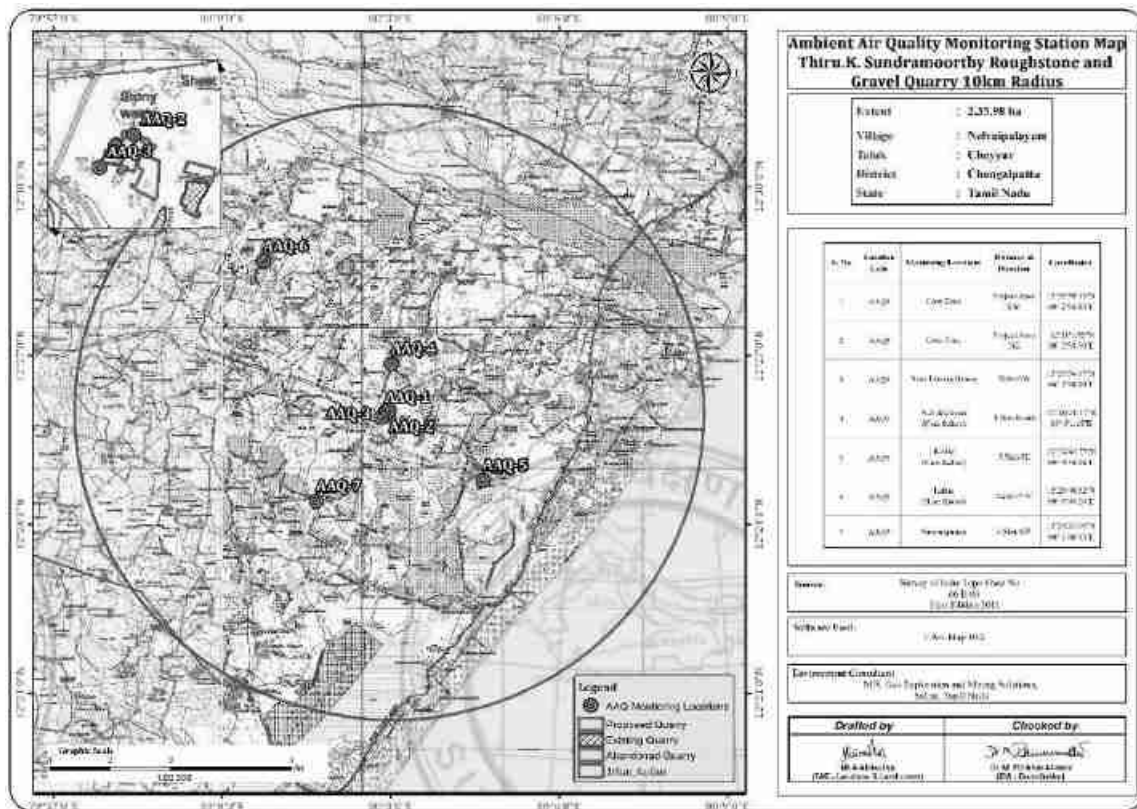


TABLE 3.18: SUMMARY OF AAQ 1 to AAQ7

PM10	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	45.7	43.0	46.3	46.1	40.2	40.2	44.4
Minimum	44.6	41.3	43.6	44.7	38.3	41.5	42.6
Maximum	47.7	44.7	48.6	47.9	41.5	44.9	46.9
NAAQ Norms	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PM2.5	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	21.7	21.1	21.8	22.1	40.2	43.2	21.8
Minimum	20.2	20.0	20.3	20.1	18.6	20.3	20.3
Maximum	23.6	21.9	24.7	24.4	21.4	22.9	24.9
NAAQ Norms	60.0	60.0	60.0	60.0	60.0	60.0	60.0
SO2	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	5.8	5.1	6.7	6.3	6.4	6.6	6.1
Minimum	4.6	4.1	4.5	4.3	4.5	5.0	4.1
Maximum	7.4	6.6	7.8	7.6	7.9	8.7	7.6
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	24.4	25.2	26.2	25.9	23.8	25.4	25.7
Minimum	21.3	21.4	24.9	24.3	21.3	23.7	23.8
Maximum	25.8	27.9	28.3	28.4	24.9	26.9	27.6
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0

TABLE 3.19: ABSTRACT OF AMBIENT AIR QUALITY DATA

1	Parameter	PM _{2.5}	PM ₁₀	SO ₂	NO ₂
2	No. of Observations	260	260	260	260
3	98 th Percentile Value	48.1	24.5	8.4	28.1
4	Arithmetic Mean	44.8	21.8	6.5	25.7
5	Geometric Mean	44.8	21.8	6.4	25.7
6	Standard Deviation	2.3	1.4	1.2	1.4
7	Minimum	40.7	20.1	4.7	23.4
8	Maximum	48.1	24.5	8.4	28.1
9	NAAQ Norms*	100.0	60.0	80.0	80.0
	% Values exceeding Norms*	0.0	0.0	0.0	0.0

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

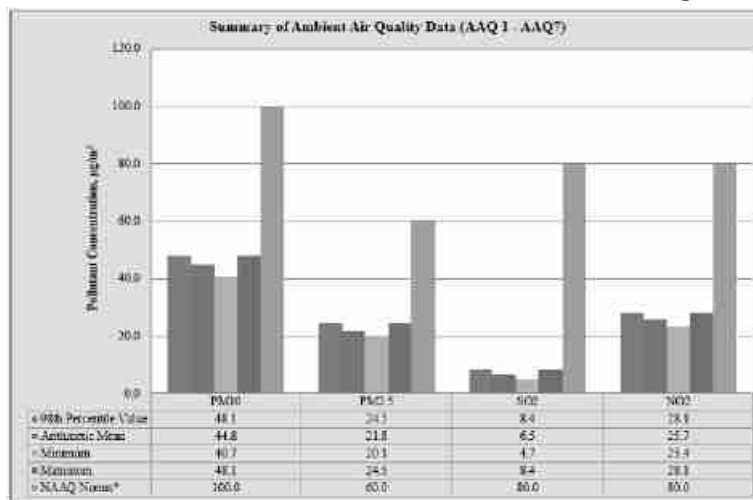


FIGURE 3.17: BAR DIAGRAM OF PARTICULATE MATTER PM_{2.5}

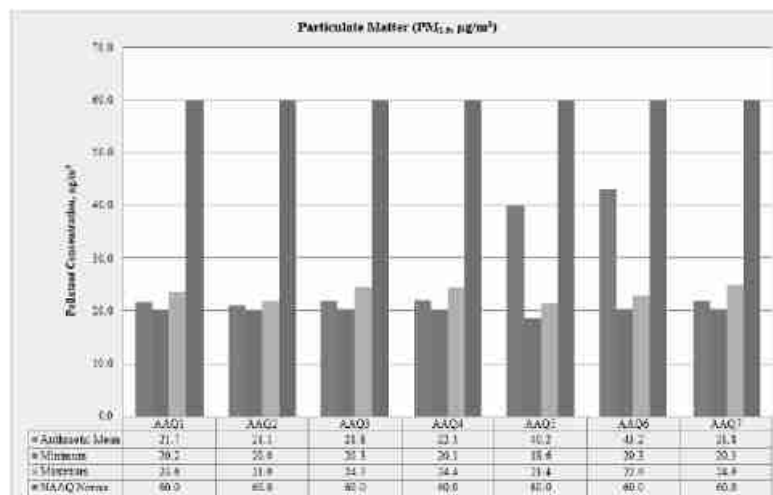


FIGURE 3.18: BAR DIAGRAM OF PARTICULATE MATTER PM₁₀

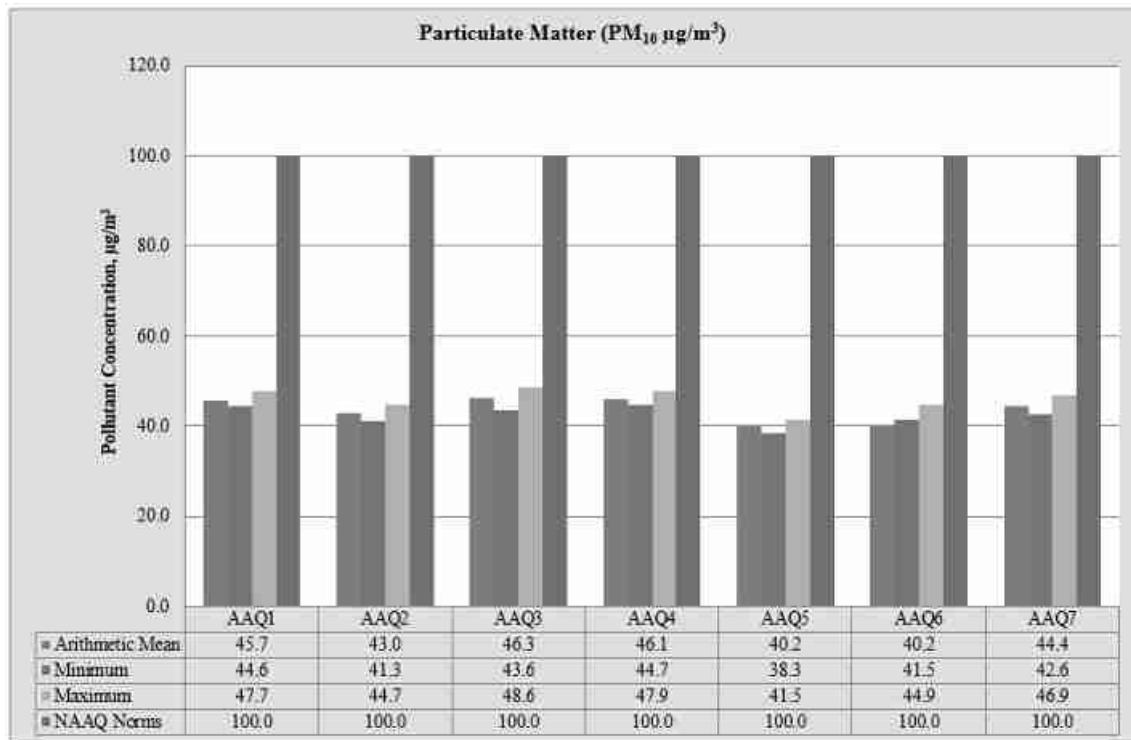


FIGURE 3.19: BAR DIAGRAM OF GASEOUS POLLUTANT SO₂

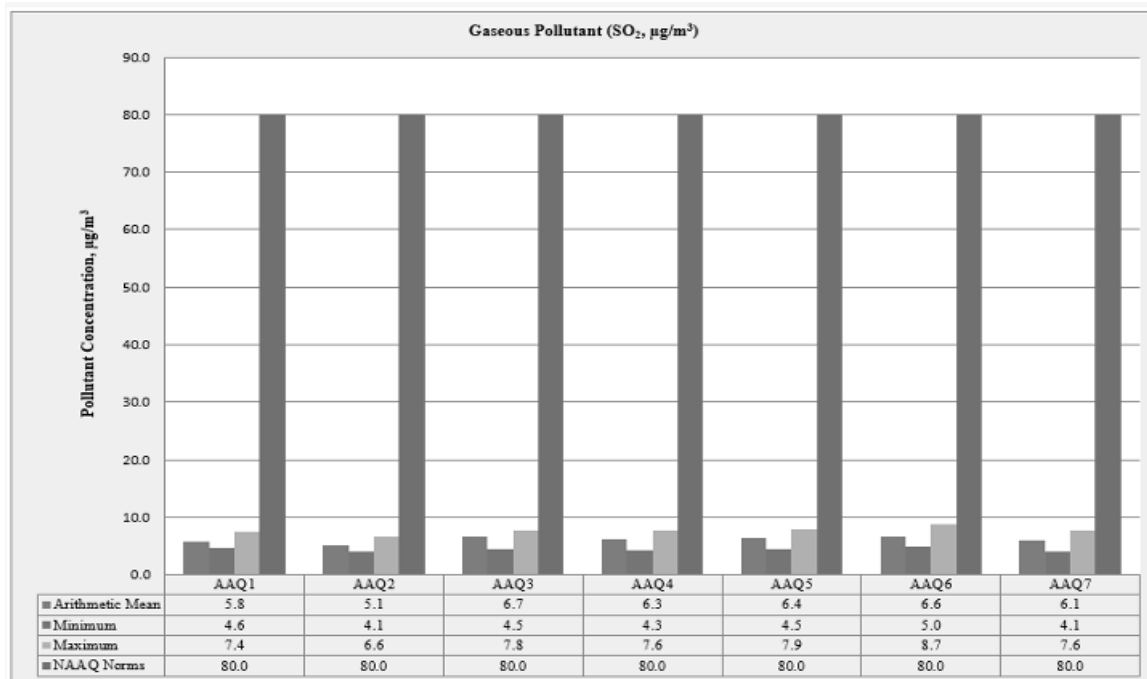
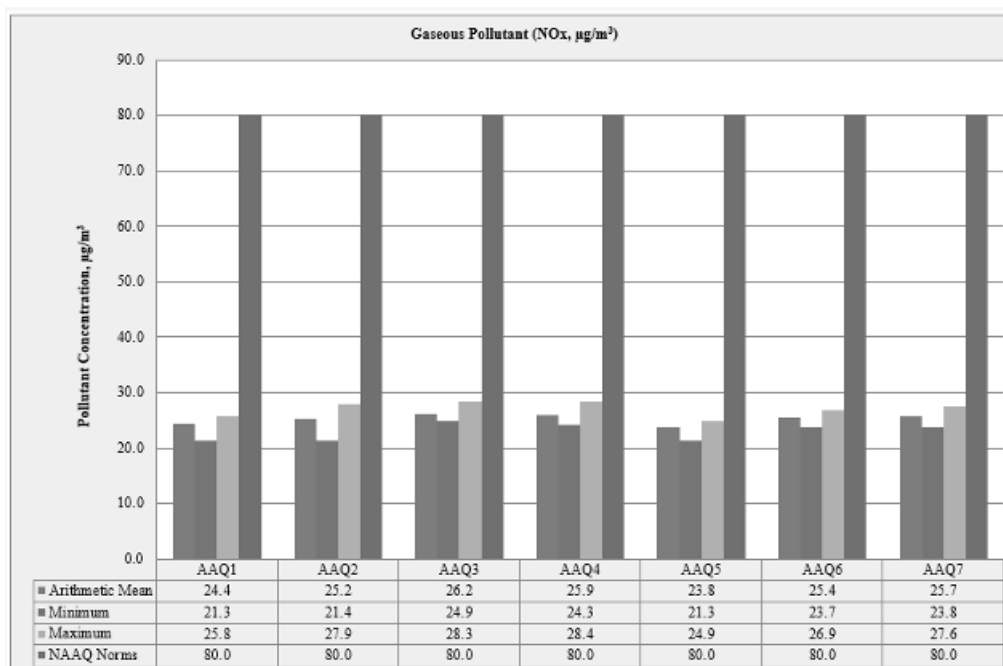


FIGURE 3.20: BAR DIAGRAM OF GASEOUS POLLUTANT NO_x

3.3.6 Interpretations & Conclusion

As per monitoring data, PM₁₀ ranges from 38.3 µg/m³ to 48.6 µg/m³, PM_{2.5} data ranges from 18.6 µg/m³ to 24.9 µg/m³, SO₂ ranges from 4.1 µg/m³ to 8.7 µg/m³ and NO₂ data ranges from 21.3 µg/m³ to 28.4 µg/m³. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

3.4 NOISE ENVIRONMENT

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

3.4.1 Identification of Sampling Locations

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

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

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

TABLE 3.20: DETAILS OF SURFACE NOISE MONITORING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	N1	Core Zone	Project Area SW	12°25'59.35"N 80° 2'54.66"E
2	N2	Core Zone	Project Area NE	12°26'1.43"N 80° 2'58.62"E
3	N3	Near Existing Quarry	200m SW	12°25'53.44"N 80° 2'51.03"E
4	N4	Nelvaipalayam (Near School)	1.5km North	12°26'52.08"N 80° 3'1.74"E
5	N5	Kodur (Near School)	3.8km SE	12°24'47.43"N 80° 4'38.91"E
6	N6	Lathur (Near House)	6.2km NW	12°28'40.73"N 80° 0'45.12"E
7	N7	Siruvangunam	3.5km SW	12°24'24.85"N 80° 1'41.66"E
8	N8	Nerkunapattu	5km NE	12°27'22.44"N 80° 5'29.77"E

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

3.4.2 Method of Monitoring

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

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

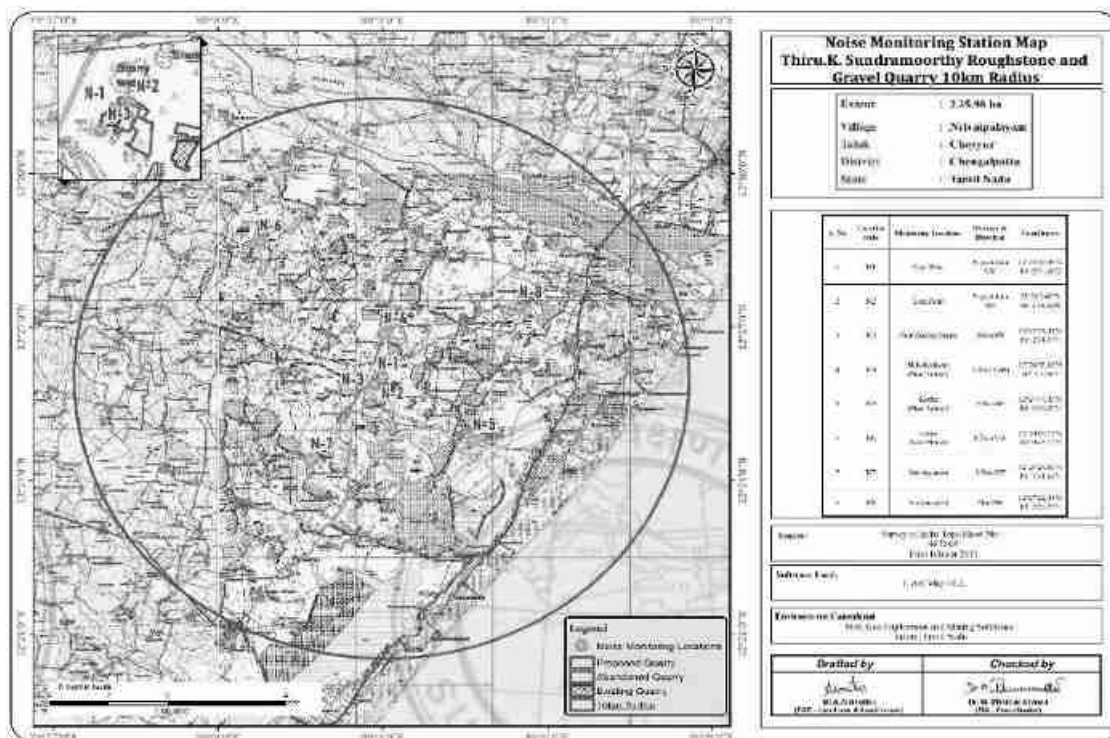
Where L = Sound pressure level at function of time dB (A)

T = Time interval of observation

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

FIGURE 3.21: AMBIENT NOISE MONITORING PHOTOGRAPHS

FIGURE 3.22: NOISE MONITORING STATIONS AROUND 10 KM RADIUS



3.4.3 Analysis of Ambient Noise Level in the Study Area

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

Day time: 6:00 hours to 22.00 hours.

Night time: 22:00 hours to 6.00 hours.

TABLE 3.21: AMBIENT NOISE QUALITY RESULT

S. No	Locations	Noise level (dB (A) Leq)		Ambient Noise Standards
		Day Time	Night Time	
1	Core Zone	42.9	34.7	Industrial Day Time- 75 dB (A) Night Time- 70 dB (A)
2	Core Zone	40.8	36.4	
3	Near Existing Quarry	39.7	40.2	Residential Day Time- 55 dB (A) Night Time- 45 dB (A)
4	Nelvaipalayam (Near School)	39.4	36.4	
5	Kodur (Near School)	39.7	36.8	
6	Lathur (Near House)	39.2	37.9	
7	Siruvangunam	37.2	34.2	
8	Nerkunapattu	39.7	36.5	

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

FIGURE 3.23: DAY TIME NOISE LEVELS IN CORE AND BUFFER ZONE

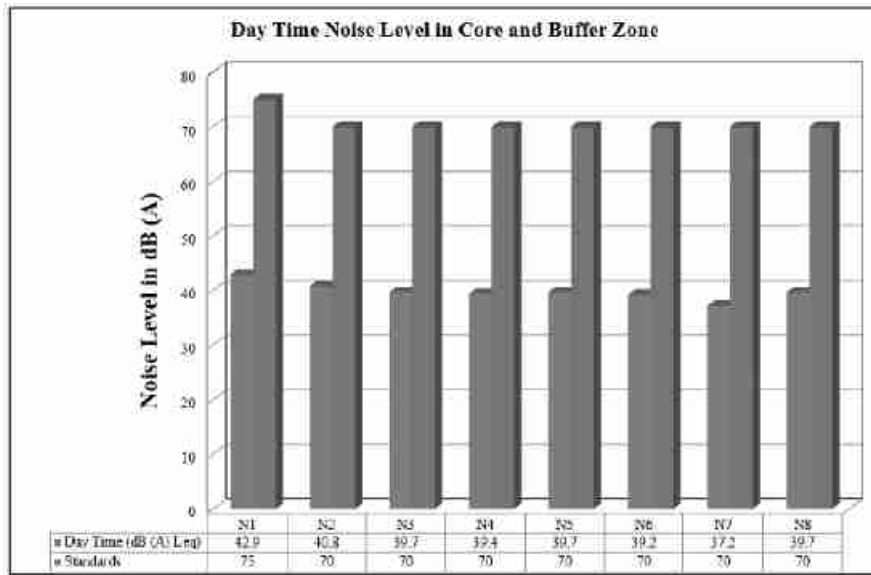
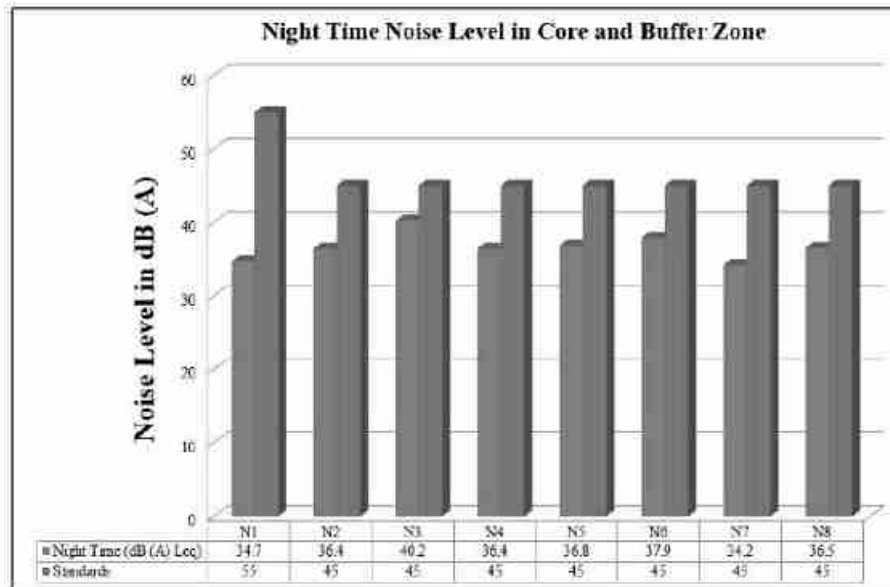


FIGURE 3.24: NIGHT TIME NOISE LEVELS IN CORE AND BUFFER ZONE



3.4.4 Interpretation & Conclusion:

Ambient noise levels were measured at 8 (Eight) locations around the proposed project area. Noise levels recorded in core zone during day time were from 40.8 - 42.9 dB (A) Leq and during night time were from 34.7 – 36.4 dB (A) Leq. Noise levels recorded in buffer zone during day time were from 37.2 – 39.7 dB (A) Leq and during night time were from 34.2 – 40.2 dB (A) Leq. Thus, the noise level for Industrial and Residential area meets the requirements of CPCB.

3.5 Biological Environment

3.5.1.Study area Ecology

The core area extent of 1.63.98 Ha of has an impact on the diversity of flora and fauna of the surrounding area. But present work was carried out on the detailed study of the impacts of the Rough stone and gravel quarry on the ecology and biodiversity of the core lease area with the proper mitigation and sustainable management plan. The proposed mine lease area is situated on an exhibiting plain terrain. The following methods were applied during the baseline study of flora, fauna and diversity assessment.

3.5.2. Objectives of Biological Studies

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

Necessity of the Ecology Management Plan

Monitoring the influence of anthropogenic activities on flagship species is an important part of conserving biodiversity, because the information gained is crucial for the development and adaptation of conservation management plans. Ecological monitoring provides feedback about the actual environmental impacts of a project. Monitoring results help judge the success of mitigation measures in protecting the environment. They are also used to ensure compliance with environmental standards, and to facilitate any needed project design or operational changes.

Regulatory bodies worldwide are increasingly recognizing the fact that human activities are causing environmental and ecological damage. To effectively deal with this environmental crisis, it is important to understand its dimensions and dynamics. What specifically are the damages, how are they changing over time, and the best means of prevention or mitigation. To develop precise ecology management plan, longer-term programs of monitoring and research must be designed and implemented. Such programs are capable of detecting environmental and ecological change over large areas, and of developing an understanding of the causes and consequences of those changes

1.5. Methodology of Sampling

Primary survey was conducted with established and accepted ecological methods in different habitats of study area. The field data collection mainly included biodiversity status assessment of different life forms habit of flora elements such as Trees, Shrubs, Climbers Herbs and Grass. Faunal diversity was assessed by inventorying the taxonomical groups like Mammals, Herpetofauna, birds and butterflies.

Nocturnal faunal species were searched by locating their calls during night time and by searching along the forest shrubs areas, dense dry bushes, below the stones, water bodies. During the study, to know more about the seasonal presence of flora and faunal species, information was obtained from local people and forest department.

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.

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).

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

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

1.5.5. Field Equipment's/ References

Following tools/equipment were used for conducting phytosociological study.

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

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

1.5.6. Part I Field Sampling Techniques (Fauna Sampling)

1.5.6.1. 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.

1.5.6.2. 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.

1.5.6.3. 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 on search. VES technique is one of the simplest methods, and an appropriate technique for both inventory and monitoring Herpetofauna (Heyer et al. 1994).

1.5.6.4. 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 Quadrats – 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

3.5.5.1. Quadrat Sampling Method

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

3.5.5.1. Flora Composition in the Core Zone (Primary data)

Core zone flora samplings were conducted between 8.30 am to 10.30 am in three locations. The applied area is an exhibiting plain terrain, so we used quadrat sampling methods. Taxonomically a total of 13 species

belonging to 7 families have been recorded from the core mining lease area based on habitat classification of the enumerated plants the majority of species were Herbs 5, followed by Trees 4, Shrubs 2 and Grasses 2. Details of flora with the scientific name were mentioned in Table No. 3.22. The result of the core zone of flora studies shows that Fabaceae and Lamiaceae are the main dominating species in the study area mentioned in Table No.3.22. No species were found as a threatened category Table No.3.23. The percentage distribution of floral life forms in Core Zone is given in Fig No.3.26.

Table No: 3.22. Flora in the Core zone of Nelvaipalayam Village, Rough stone and Gravel quarry, Cheyyur Taluk, Chengalpattu District (Primary data)

Sl. No	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	Neem	Vembu	<i>Azadirachta indica</i>	Meliaceae
2.	Mesquite	Mullu maram	<i>Prosopis juliflora</i>	Fabaceae
3.	Eucalyptus	Thailam maram	<i>Eucalyptus globules</i>	Myrtaceae
4.	Acacia Nilotica	Karuvelam maram	<i>Vachellia nilotica</i>	Fabaceae
Shrubs				
1.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae
2.	Avaram	Avaram	<i>Senna auriculata</i>	Fabaceae
Herbs				
1.	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae
2.	Fish poison	Kolinchi	<i>Tephrosia purpurea</i>	Fabaceae
3.	Pignut	Nattapoochedi	<i>Hyptis suaveolens</i>	Lamiaceae
4.	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae
5.	Coat buttons	Thatha poo	<i>Tridax procumbens</i>	Asteraceae
Grasses				
1.	Great brome	Thodappam	<i>Bromus diandrus</i>	Poaceae
2.	Nut grass	Korai	<i>Cyperus rotandus</i>	Poaceae

Sources: Species observation in the field study



a. *Azadirachta indica*



b. *Calotropis gigantea*



c. *Prosopis juliflora*

d. *Anisomeles malabarica*

Fig No: 3.25. Flora species observation in the Core zone area

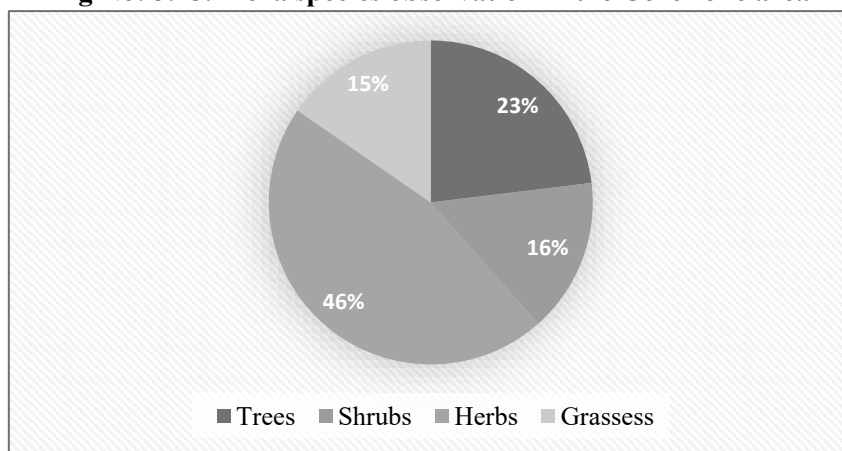


Fig No. 3.26. Graph Showing % Distribution of Floral Life Forms (Core Zone)

The trees surveys were conducted around 300m radius from the proposed project site of Nelvaipalayam village. This is the standard scientific method followed by various workers in respect of phytosociological studies (Cotton and Curtis 1956; Ralhan et al. 1982; Saxena and Sing 1982; Nayak et al. 2000; Lu et al. 2004; Nautiyal 2008). Diameter at breast height (DBH) of 130 cm was consistently used during the present study. In no case, the thicker part near branching position was considered. Instead, diameter of the tree having a branch at about 130 cm was measured either below 30 cm from the branch or in case of all the stems above 30 cm from the branch and averaged. In each unit, presence or absence of the species, number of individuals of each species, GBH (only for tree species) to estimate basal area of the tree species were recorded. surveying areas, a detailed trees inventory has been compiled. A list of all plants from the study area was prepared and their habitats were recorded. The species of trees were documented during this base line survey. The dominant plant species growing in this area were *Eucalyptus globules*, *Prosopis juliflora*, etc. Please refer the Table No.3.23.

Table No: 3.23. Tree survey around 300m radius from the proposed project site (Primary data)

S.No	English Name	Vernacular Name	Scientific Name	No of trees
Trees				
1.	Acacia Nilotica	Karuvellammaram	<i>Vachellianilotica</i>	4
2.	Mesquite	Mullumaram	<i>Prosopis juliflora</i>	11
3.	Neem	Vembu	<i>Azadirachta indica</i>	15
4.	Coconut	Thennai maram	<i>Cocos nucifera</i>	5
5.	Eucalyptus	Thailam maram	<i>Eucalyptus globules</i>	18

(Sources: Species observation in the field study)

Table No: 3.24. Flora in the Buffer zone Nelvaipalayam Village, Rough stone and Gravel quarry, Cheyyur Taluk, Chengalpattu District (Primary data and Secondary data)

Sl.No.	English Name	Vernacular Name	Scientific Name	Resource use type *(E,M,EM)
Trees				
1.	Acacia-tree	Pencil maram	<i>Acacia auriculiformis</i>	E
2.	Kassod Tree	Manjal Konnai	<i>Cassia siamea</i>	EM
3.	Coconut	Thennai maram	<i>Cocos nucifera</i>	EM
4.	Asian Palmyra palm	Panai maram	<i>Borassus flabellifer</i>	E
5.	Neem or Indian lilac	Vembu	<i>Azadirachta indica</i>	M
6.	Creamy peacock flower	Perungondrai	<i>Delonix elata</i>	M
7.	Lemon	Ezhumuchaipalam	<i>Citrus lemon</i>	EM
8.	Mango	Manga	<i>Mangifera indica</i>	E
9.	Horsetail Tree	Savukku	<i>Casuarina</i>	E
10.	Banyan tree	Alamaram	<i>Ficus benghalensis</i>	E
11.	Monoon longifolium	Asoka maram	<i>Polyalthia longifolia</i>	M
12.	Java Plum	Naval pazham	<i>Syzygium cumini</i>	EM
13.	Peepal	Arasanmaram	<i>Ficus religiosa</i>	M
14.	Kapok Tree	Elavam Panji	<i>Ceiba pentandra</i>	E
15.	Tamarind	Puliyamaram	<i>Tamarindus indica</i>	EM
16.	False ashoka	Asoka maram	<i>Polyalthia longifolia</i>	E
17.	Flame Tree	Neruppu Kondrai	<i>Delanix regia</i>	E
18.	Giant thorny bamboo	Perumungil	<i>Bambusa bambos</i>	M
19.	Yellow elder	Manjarali	<i>Tecoma stans</i>	E
20.	Eucalyptus	Eucalyptus	<i>Eucalyptus globules</i>	EM
21.	Custard apple	Seethapazham	<i>Annona reticulata</i>	E
22.	Black plum	Navalmaram	<i>Syzygium cumini</i>	EM
23.	Indian-almond	Naatu Vaadhumi	<i>Terminalia catappa</i>	EM
24.	Indian gooseberry	Nelli	<i>Emblica officinalis</i>	EM
25.	Henna	Marudaani	<i>Lawsonia inermis</i>	EM
26.	Indian cork tree	Maramalli	<i>Millingtonia hortensis</i>	E
27.	Sacred fig	Arasan	<i>Ficus religiosa</i>	E
28.	Tahitian gooseberry tree	Nelli	<i>Phyllanthus acidus</i>	M

29.	Indian mulberry	Nuna	<i>Morinda tinctoria</i>	E
30.	Banyan	Alamaram	<i>Ficus bengalensis</i>	M
31.	Teak	Thekku	<i>Tectona grandis</i>	E
32.	Banana Tress	Vazhaimaram	<i>Musa paradisiaca</i>	EM
33.	Chinese chaste tree	Nocchi	<i>Vitex negundo</i>	EM
34.	Cashew Nut	Munthiri	<i>Anacardium</i>	E
35.	Millettia pinnata	Pongam oiltree	<i>Pongamia pinnata</i>	E
36.	Guava	Koyya	<i>Psidium guajava</i>	EM
37.	Curry tree	Karuveppilai	<i>Murraya koenigii</i>	EM
38.	Bamboo	Moonghil	<i>Bambusa bambo</i>	E
39.	Madras Thorn	Kodukapuli	<i>Pithocelopium dulce</i>	E
40.	Drumstick tree	Murunga maram	<i>Moringa oleifera</i>	EM
41.	Gliricidia	Seemai Agathi	<i>Gliricidia sepium</i>	M
42.	Indian almond	Padam maram	<i>Terminalia catappa</i>	EM
43.	Mesquite	Velikathan maram	<i>Prosopis juliflora</i>	M
Shrubs				
1.	Indian jujube	Elanthai	<i>Ziziphus mauritiana</i>	M
2.	Night shade plan	Sundaika	<i>Solanum torvum</i>	EM
3.	Castor oil plant	Amanakku	<i>Ricinus communis</i>	M
4.	Thorn apple	Oomathai	<i>Datura stramonium</i>	E
5.	White Frangipani	Perungalli	<i>Plumeria alba</i>	M
6.	Rough cocklebu	Ottarachedi	<i>Xanthium strumarium</i>	M
7.	Triangular spruge	Chaturakalli	<i>Euphorbia antiquorum</i>	NE
8.	Lantana	Unnchedi	<i>Lantana camara</i>	M
9.	Coffee senna	Kattuttakarai	<i>Senna occidentalis</i>	M
10.	Rosy Periwinkle	Nithyakalyani	<i>Cathranthus roseus</i>	M
11.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	M
12.	Avaram	Avarai	<i>Senna auriculata</i>	M
13.	Indian mallow	Thuthi	<i>Abutilon indicum</i>	M
14.	Indian Oleander	Arali	<i>Nerium indicum</i>	M
15.	Shoe flower	Chemparuthi	<i>Hibiscu rosa-sinensis</i>	EM
16.	Puriging nut	Kattamanakku	<i>Jatropha curcas</i>	EM
17.	Columnar Cactus	Sappathikalli	<i>Cereus pterogonus</i>	M

18.	Bush Morning Glory	Neyvelik Kattamanakku	<i>Ipomoea carnea</i>	E
19.	Century plant	Anaikathalai	<i>Agave americana</i>	M
20.	Jackal jujube	Soorai pazham	<i>Ziziphus oenopolia</i>	M
21.	Tiger nail	Eli verandi	<i>Martynia annua</i>	M
22.	Flame of the Woods	Idlipoo	<i>Xoracoc cineia</i>	M
23.	Peacock Flower	Mayil Kontai	<i>Caesalpinia pulcherrima</i>	M
24.	Water spinach	Nalikam	<i>Ipomoea aquatica</i>	E
25.	Cassava	Maravalli kizhangu	<i>Manihot esculenta</i>	EM
26.	Hopbush	Virali	<i>Dodonaea viscosa</i>	E
27.	Paper flower	Kahitha poo	<i>Bougainvillea glabra</i>	M
Herbs				
1.	Indian Catmint Plant	Pei viratti	<i>Anisomeles malabarica</i>	M
2.	Bara Gokhru	Yanai Nerunchi	<i>Pedaliium murex</i>	M
3.	Tridax daisy	Veetukaayapoondur	<i>Tridax procumbens</i>	M
4.	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	M
5.	Indian Copperleaf	Kuppaimeni	<i>Acalypha indica</i>	M
6.	Fish poison	Kolunchi	<i>Tephrosia purpurea</i>	M
7.	Indian doab	Arugampul	<i>Cynodon dactylon</i>	E
8.	Asthma-plant	Ammanpacharisi	<i>Euphorbia hirta</i>	M
9.	Common Wireweed	Arivalmanai poondur	<i>Sida acuta</i>	M
10.	Carrot grass	Partiniyam	<i>Parthenium hysterophorus</i>	NE
11.	Mexican prickly poppy	Kudiyotti	<i>Argemone mexicana</i>	M
12.	Common leucas	Thumbai	<i>Leucas aspera</i>	M
13.	Prickly chaff flower	Nayuruv	<i>Achyranthes aspera</i>	M
14.	Spiny amaranth	Mullu keerai	<i>Amaranthus spinosus</i>	M
15.	Flannel Weed	Sida mutti	<i>Sida cordifolia</i>	M
16.	Green amaranth	Mulai keerai	<i>Amaranthus viridis</i>	M
17.	Marsh barbel	Neermulli	<i>Hygrophila auriculata</i>	M
18.	Yellow-fruit nightshade	Kandakathirika	<i>Solanum surattense</i>	M
19.	Common Purslane	Paruppu keerai	<i>Portulaca oleracea</i>	M
20.	Water willow	Kodakasalai	<i>Justicia procumbens</i>	M
21.	Threadstem carpetweed	Parpatakam	<i>Mollugo cerviana</i>	M
22.	Node Flower	Kumattikkirai	<i>Allmania nodiflora</i>	M

23.	Sessile Joyweed	Ponnankanni	<i>Alternanthera sessilis</i>	M
24.	Fish poison	Kolinchai	<i>Tephrosia purpurea</i>	M
25.	Pignut	Nattapoochedi	<i>Hyptis suaveolens</i>	M
26.	Aloe barbadensis	Katrazhai	<i>Aloe vera</i>	EM
27.	Madagascar Periwinkle	Nithykalyani Podi	<i>Catharanthus roseus</i>	E
28.	Asian spiderflower	Naaikaduku	<i>Cleome viscosa L</i>	M
29.	Coat buttons	Thatha poo	<i>Tridax procumbens</i>	M
30.	Mountain knotgrass	Thengaipoo kirai	<i>Aerva lanata</i>	M
31.	Bindii	Nerunchi	<i>Tribulus terrestris</i>	M
32.	Shameplant	Thottachenunki	<i>Mimosa pudica</i>	M
33.	Tomato	Thakkali	<i>Solanum lycopersicum</i>	EM
34.	False daisy	Karisalankanni	<i>Eclipta alba</i>	M
35.	Chilli	Milakai	<i>Capsicum annuum</i>	EM
36.	Red Spiderling	Mukirattai	<i>Boerhavia diffusa</i>	M
37.	Eggplant	Kathrikkai	<i>Solanum melongena</i>	EM
38.	Indian mint	Karpura valli	<i>Coleus amboinicus</i>	EM
Climber/ Creepers				
1.	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	M
2.	Wild bitter	Pavarkai	<i>Momordica charantia</i>	EM
3.	Pointed gourd	Kovakkai	<i>Trichosanthes dioica</i>	EM
4.	Ivy gourd	Kovai	<i>Coccinia grandis</i>	M
5.	Butterfly pea	Sangu poo	<i>Clitoria ternatea</i>	M
6.	Wild jasmine	Malli	<i>Jasminum augustifolium</i>	EM
7.	Rosary Pea	Gundumani	<i>Abrus precatorius</i>	M
8.	Bottle Guard	Sorakkai	<i>Lagenaria siceraria</i>	EM
Grass				
1.	Jungle rice	Kozhikalpul	<i>Echinochloa colona</i>	NE
2.	Mauritian Grass	Moongil pul	<i>Apluda mutica</i>	NE
3.	Swollen Windmill Grass	Kondai Pul	<i>Chloris barbata</i>	NE
4.	Needle Grass	Thodappam	<i>Aristida adscensionis</i>	E
5.	Eragrostis	Pullu	<i>Eragrostis ferruginea</i>	E
6.	Windmill grass	Chevvarakupul	<i>Chloris barbata</i>	NE

Sources: Species observation in the field study and secondary data

Floristic Study On Angiosperms Surrounding the Medavakkam Lake, Chengalpattu District, Tamil Nadu, India



a. *Azadirachta indica*



b. *Psidium guajava*



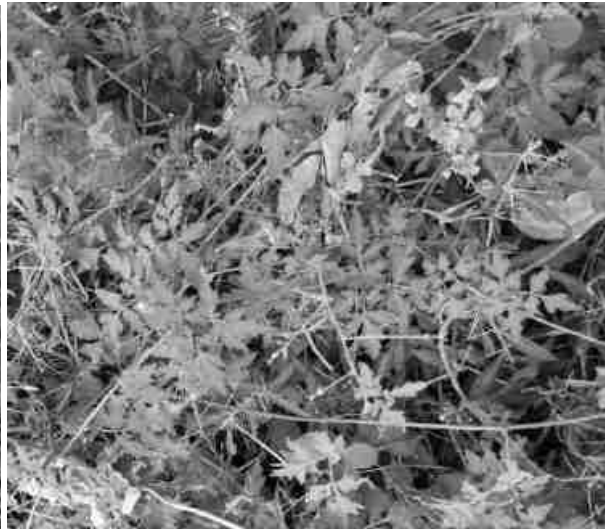
c. *Jatropha curcas*



d. *Musa paradisiaca*



e. *Abutilon indicum*



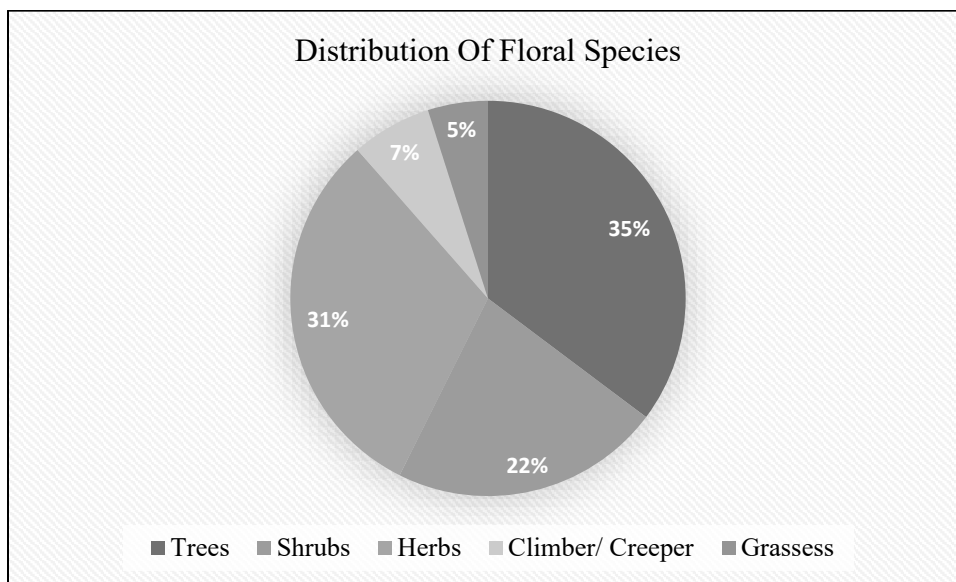
f. *Cardiospermum halicacabum*

Fig No: 3.27. Flora species observation in the Buffer zone area**3.5.6. Flora Composition in the Buffer Zone (Primary data & Secondary data)**

Buffer zone flora sampling was conducted between 10.30 am to 1.00 pm in eight different locations in 10 km radius as per the ToR. The most important and widely used methods for a general assessment is belt transect/quadrant methods. The study area was divided according to habitat types followed the random sampling methods in the selected area. For plant biodiversity study in the ecosystems, the quadrat methods were followed. The proposed project site there are 122 species in the buffer zone study area in total, based on records. The floral (122) varieties among them Trees 43, Herbs 38, Shrubs 27, Climbers/ Creepers 8 and Grasses 6 were identified. The result of the buffer zone of flora studies shows that Fabaceae and Cucurbitaceae, Euphorbiaceae is the main dominating species in the study area mentioned in Table No.3.25. There are no impacts due to this mining activity. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. Apart from the proposed project area, there is agricultural land. Horticulture and agricultural land are untouched. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. A list of floral species has been prepared based on primary survey (site observations) and discussion with local people. The total number of different plant life forms under trees, shrubs, herbs, and climbers is shown in Table No 3.26 and their % distribution is shown in Figure No 3.28.

Table 3.25: Number of floral life forms in the Study Area

S. No	Plant Life Form	Number of Species
1	Trees	43
2	Shrubs	27
3	Herbs	38
4	Climber/ Creeper	8
6	Grasses	6
Total No. of Species		122

**Fig No. 3.28: Diagram showing % distribution of floral life forms****3.5.7. The vegetation in the RF / PF areas, ecologically sensitive areas**

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

There are no protected or ecologically sensitive areas such as National parks or Important Bird Areas (IBAs), or Wetlands or migratory routes of fauna or water bodies or human settlements within the proposed mine lease area. There are no Biosphere reserves or wildlife sanctuaries or National parks or Important Bird Areas (IBAs), or migratory routes of fauna. Thus, the area under study (Mine lease area and the 10 Km buffer zone) is not ecologically sensitive. It is away from the proposed project site. There are neither forests nor forest dwellers nor forest-dependent communities in the mine lease area. There shall be no forest-impacted families (PF) or people (PP). Thus, the rights of Traditional Forest Dwellers will not be compromised on account of the project.

3.6. Fauna

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

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

Core zone fauna samplings were conducted between 12.30 pm to 1.30 pm in two locations. A total of 17 varieties of species were observed in the Core zone of Nelvaipalayam Village, Rough stone and gravel quarry (Table No.3.27) among them numbers of Insects 5, Reptiles 2, Mammals 2 and Avian 7. A total of 17 species belonging to 13 families have been recorded from the core mining lease area. The percentage of distribution of fauna life forms in Core Zone is given in Fig No.3.38. None of these species are threatened or endemic in the study area and surroundings. There is no Schedule I species and six species are under schedule IV according to the Indian wild life Act 1972. A total of 8 species of bird were sighted in the mining lease area.

There are no critically endangered, endangered, vulnerable and endemic species were observed. Details of fauna in core zone with the scientific name were mentioned in Table No. 3.27.

Table No: 3.26. Fauna in the Core zone of Nelvaipalayam Village, Rough stone and Gravel quarry, Cheyyur Taluk, Chengalpattu District (Primary data)

SI. No	Common Name/English Name	Scientific Name	Schedule list wildlife Protection act 1972
Insects/Butterflies			
1.	Common Tiger	<i>Danaus genutia</i>	Schedule IV
2.	Mottled emigrant	<i>Catopsilia pyranthe</i>	NL
3.	Striped tiger	<i>Danaus plexippus</i>	Schedule IV
4.	Danaid egg fly	<i>Hypolimnasmisippus</i>	Schedule IV
5.	Red-veined darter	<i>Sympetrum fonscolombii</i>	NL
Reptiles			
1.	Garden lizard	<i>Calotes versicolor</i>	Schedule IV
2.	Common skink	<i>Mabuya carinatus</i>	Schedule IV
Mammals			
1.	Indian Field Mouse	<i>Mus booduga</i>	Schedule IV
2.	Common rat	<i>Rattus rattus</i>	Schedule IV
Aves			
1.	Common myna	<i>Acridotheres tristis</i>	Schedule IV
2.	Asian green bee-eater	<i>Meropsorientalis</i>	Schedule IV
3.	Black drongo	<i>Dicrurus macrocercus</i>	Schedule IV
4.	Koel	<i>Eudynamys</i>	Schedule IV
5.	House crow	<i>Corvus splendens</i>	Schedule IV
6.	Cattle egret	<i>Bubulcus ibis</i>	Schedule IV
7.	Common quail	<i>Coturnix coturnix</i>	Schedule IV
8.	Sunbird	<i>Cinnyrisasiaticus</i>	Schedule IV

(Sources: Species observation in the field study)

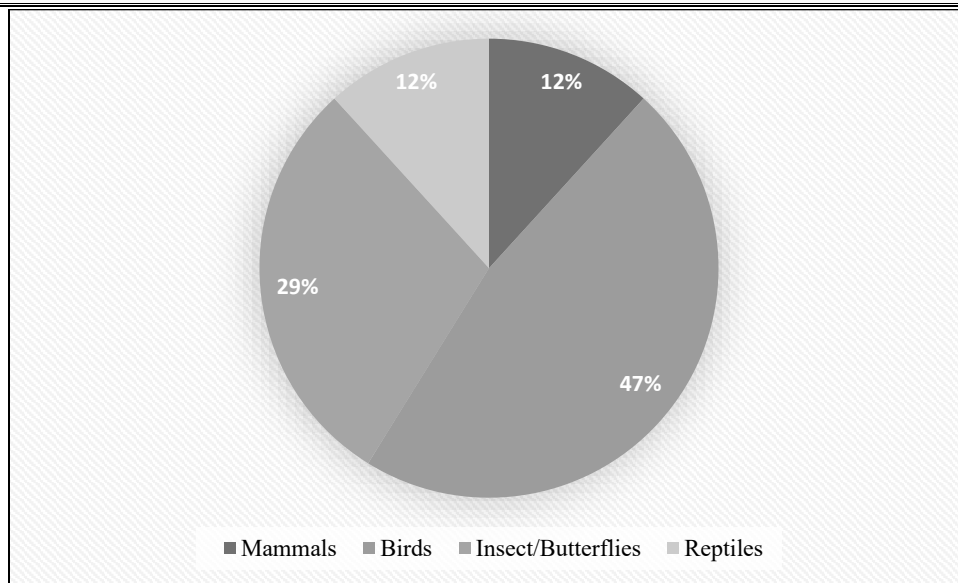


Fig No. 3.29. Graph Showing % Distribution of Fauna Life Forms (Core Zone)

3.6.2. Fauna Composition in the Buffer Zone

The Buffer zone fauna samplings were conducted between 3.00 pm to 6.00 pm in different locations. As animals, especially vertebrates move from place to place in search of food, shelter, mate or other biological needs, separate lists for core and buffer areas are not feasible however, a separate list of fauna pertaining to core and buffer zone are listed separately. Though there are no reserved forests in the buffer zone. As such there are no chances of occurrence of any rare or endangered or endemic or threatened (REET) species within the core or buffer area.

There are no Sanctuaries, National Parks, Tiger Reserve or Biosphere reserves or Elephant Corridor or other protected areas within 10 km radius of from the core area. It is evident from the available records, reports, and circumstantial evidence that the entire study area including the core and buffer areas were free from any endangered animals. There were no resident birds other than common bird species such as Bee-eaters, Mynas, Reed Kites and Drongos etc.

The list of Mammals (*directly sighted animals & Secondary data) is given in table No.3.27. The list of bird species recorded during the field survey and literature from the study area are given in Table 3.28. The list of reptilian species recorded during the field survey and literature from the study area is given in Table 3.29. The list of insect species recorded during the field survey and literature from the study area are given in Table 3.30. The list of Butterflies species recorded during the field survey and literature from the study area are given in Table 3.31. 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 71 species recorded were from the buffer zone area. Based on habitat classification the majority of species were birds 33, followed by Butterflies 22, Reptiles 6, Insects 5, Mammals 5, and Amphibians 4. There are two Schedule II species, two species are under the schedule III and sixty-two species are under Schedule IV according to the Indian Wildlife Act 1972. A total of 33 species of bird were sighted in the study area. There are no critically endangered, endangered, vulnerable, and endemic species were observed. There are no impacts on nearby fauna species.

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

Table No: 3.27. List of Fauna & Their Conservation Status,**Mammals: (*directly sighted animals & Secondary data)**

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

Table No: 3.28. Listed birds (Primary & Secondary data)

SI. No	Common Name/English Name	Scientific Name	Schedule list wildlife Protection act 1972
1.	Indian robin	<i>Saxicoloides fulicatus</i>	Schedule IV
2.	Asian Koel	<i>Eudynamys</i>	Schedule IV
3.	Cattle egret	<i>Bubulcus ibis</i>	Schedule IV
4.	Black Kite	<i>Milvus migrans</i>	Schedule IV
5.	Rock pigeon	<i>Columbidae</i>	Schedule IV
6.	White Throated Kingfisher	<i>Halcyon pileata</i>	Schedule IV
7.	Common myna	<i>Acridotheres tristis</i>	Schedule IV
8.	House crow	<i>Corvus splendens</i>	Schedule V
9.	Brown headed Barbet	<i>Megalaima zeylanica</i>	Schedule IV
10.	Red Vented Bulbul	<i>Pycnonotus cafer</i>	Schedule IV
11.	Ashy Drongo	<i>Dicrurus leucophaeus</i>	Schedule IV
12.	Small Bee Eater	<i>Merops orientalis</i>	Schedule IV
13.	Purple sunbird	<i>Cinnyris asiaticus</i>	Schedule IV
14.	Large Wood shrike	<i>Tephrodornis gularis</i>	Schedule IV
15.	House sparrow	<i>Passer domesticus</i>	Schedule IV
16.	Brahman myna	<i>Temenuchus pagodarum</i>	Schedule IV
17.	Small blue Kingfisher	<i>Alcedo atthis</i>	Schedule IV
18.	Little Cormorant	<i>Phalacrocorax niger</i>	Schedule IV
19.	Rose-ringed parakeet	<i>Psittacula krameri</i>	Schedule IV
20.	Common quail	<i>Coturnix coturnix</i>	Schedule IV
21.	Pond herons	<i>Ardeola grayii</i>	Schedule IV
22.	Black drongo	<i>Dicrurus macrocercus</i>	Schedule IV
23.	Woodpecker bird	<i>Picidae</i>	Schedule IV
24.	Weaver bird	<i>Ploceus philippines</i>	Schedule IV
25.	Two-tailed Sparrow	<i>Dicrurus macrocercus</i>	Schedule IV
26.	Grey drongo	<i>Dicrurus longicaudatus</i>	Schedule IV
27.	Bush Quail	<i>Perdica asiatica</i>	Schedule IV
28.	Wood Sandpiper	<i>Tringa glareola</i>	Schedule IV
29.	Blue-Tailed Bee Eater	<i>Merops philippinus</i>	Schedule IV
30.	Indian Roller	<i>Coracias benghalensis</i>	Schedule IV
31.	Common Swallow	<i>Hirundo rustica</i>	Schedule IV
32.	Purple Rumped Sunbird	<i>Leptocoma zeylonica</i>	Schedule IV
33.	Purple Sunbird	<i>Cinnyris asiaticus</i>	NL

Reference: Ali, S. (2002). The Book of Indian Birds (13th revised edition). Oxford University Press, New Delhi. 326pp.
<https://ebird.org/region/IN-TN-CP>

Table No: 3.29. List of Reptiles either spotted or reported from the study area

(*indicates direct observations & Secondary data)

SI. No	Common Name	Scientific Name	Schedule list wildlife Protection act 1972
1.	Oriental garden lizard	<i>Calotes versicolor</i>	III
2.	House lizards	<i>Hemidactylus flaviviridis</i>	Schedule IV
3.	Green vine snake	<i>Ahaetulla nasuta</i>	Schedule IV
4.	Rat snake	<i>Ptyas mucosa</i>	III
5.	Common krait	<i>Bungarus caeruleus</i>	Schedule IV
6.	Common skink	<i>Mabuya carinatus</i>	NL

Table No: 3.30. List of insects either spotted or reported from the study area

SI. No	Common Name	Scientific Name	Schedule list wildlife Protection act 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>	-

Table No: 3.31. List of Butterflies reported from the study area and Secondary data

SI. No	Common Name	Scientific Name	Schedule
1.	Indian palm bob	<i>Suastusgremius</i>	Schedule IV
2.	Common Mormon	<i>Papilio polytes</i>	Schedule IV
3.	Lemon Pansy	<i>Junonia lemonias</i>	Schedule IV
4.	Common Crow	<i>Euploea core</i>	Schedule IV
5.	Common rose	<i>Pachlioptaaristolochiaee</i>	Schedule IV
6.	Spotless grass yellow	<i>Eurema laeta</i>	Schedule IV
7.	Common Evening Brown	<i>Melanitis leda</i>	Schedule IV
8.	Peacock Royal	<i>Tajuria cippus</i>	Schedule IV
9.	Common Tiger	<i>Danaus genutia</i>	Schedule IV
10.	Lime Butterfly	<i>Papilio demoleus</i>	Schedule IV
11.	Blue Mormon	<i>Papilio polymnestor</i>	Schedule IV
12.	Danaid Eggfly	<i>Hypolimnas misippus</i>	Schedule IV
13.	Great Eggfly	<i>Hypolimnas bolina</i>	Schedule IV
14.	Common emigrant	<i>Catopsiliapomona</i>	Schedule IV
15.	Tiny Grass Blue	<i>Zizula hylax</i>	Schedule IV
16.	Blue Tiger	<i>Tirumala limniace</i>	Schedule IV
17.	Crimson tip	<i>Colotisdanae</i>	Schedule IV
18.	Common Indian crow	<i>Euploea core</i>	Schedule IV
19.	Lime Butterfly	<i>Papilio demoleus</i>	Schedule IV
20.	Yellow Pansy	<i>Junonia hierta</i>	Schedule IV
21.	Chocolate Pansy	<i>Junonia iphita</i>	Schedule IV

22.	Double-branded Black Crow	<i>Euploea sylvester</i>	Schedule IV
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Sources: Butterfly diversity of Chengalpattu and Thiruvallur districts in Tamil Nadu, India by Vikas Madhav Nagarajan and Hari Theivaprakasham <https://doi.org/10.22271/j.ento.2020.v8.i6j.7933>

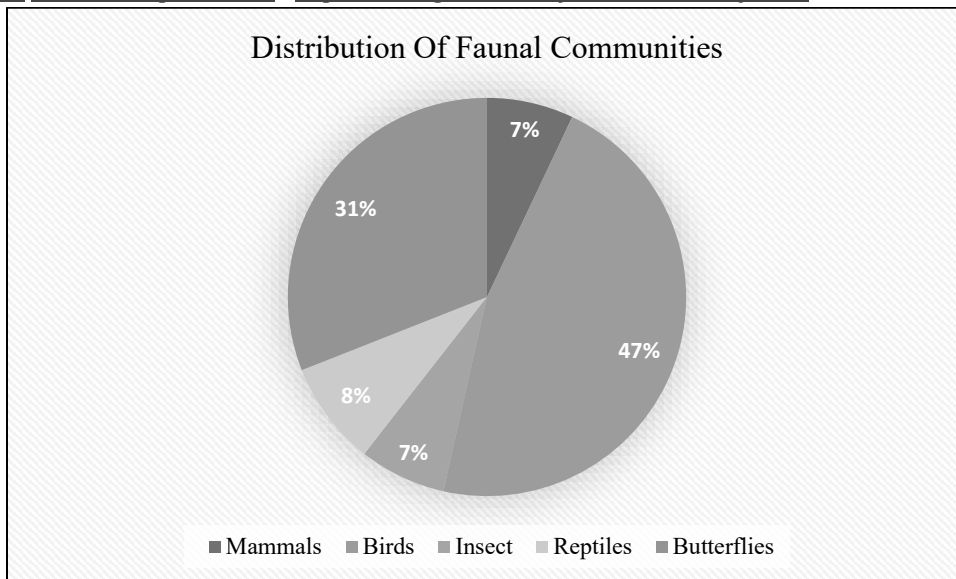
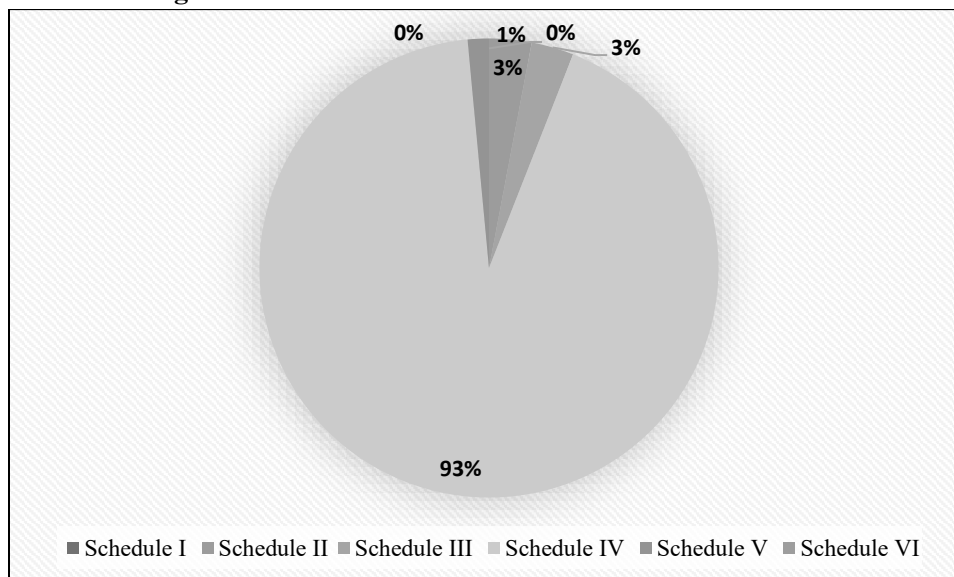


Fig No. 3.30: Diagram showing % distribution of faunal life forms

Livestock like cattle, buffalo, goat, poultry, duck and pig are reared for dairy products, meat, and egg and for agriculture purpose. Majority of cattle and buffalo are of local variety. Backyard poultry farms are mostly common in this area; however, some commercial poultry farms are also recorded in the study area. The study area is marked with moderate population of flora and fauna. With reference to the Wildlife Protection Act 1972 total number of wildlife tabulated in this study can be characterized as given in the Table No 3.32.

Table No: 3.32. Characterization of Fauna in the Study Area (As Per W.P Act, 1972)

S.No	Schedule of Wildlife Protection Act 1972	No. of species	Remark
1.	Schedule I	0	-
2.	Schedule II	2	-
3.	Schedule III	2	-
4.	Schedule IV	62	-
5.	Schedule V	1	-
6.	Schedule VI	0	-

Fig No: 3.31. Schedule Of Wildlife Protection Act 1972**Table No: 3.33. Description of Flora & Fauna**

S.No	Type of Species	Name	Local Name
Flora			
1.	Endangered species	None	None
2.	Threatened species	None	None
3.	Near Threatened species	None	None
4.	Vulnerable species	None	None
Fauna			
5.	Endangered species	None	None
6.	Threatened species	None	None
7.	Near Threatened species	None	None
8.	Vulnerable species	None	None
9.	Migratory Corridors & Flight Paths	No corridors & flight paths	-
10.	Breeding & Spawning grounds	None	-

A comprehensive Central Legislation namely Wild Life (Protection) Act was enforced in 1972 to provide protection to wild animals. Schedule-I of this act contains the list of rare and endangered species, which are completely protected throughout the country. The list of wild animals and their conservation status as per Wild Life Act (1972) presented in Table 3.67 are the species recorded/reported from the study area, out of which 2 species belongs to schedule-II, 2 species belong to schedule-III, 1 species belongs to Schedule-V and rest of the species belongs to schedule-IV of Wildlife Protection Act, 1972.

3.6.3. Aquatic Ecology

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

3.6.3.1. Objectives of Aquatic Studies

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

3.6.3.2. Macrophytes

The macrophytes observed within the study area are tabulated in Table 3.34

Table No.3.34 Description of Macrophytes (Primary data & Secondary data)

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

Sources: Species observation in the field study

3.6.3.3. Aquatic Faunal Diversity

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

Table No. 3.35. Amphibians Observed/Recorded from the Study Area & Secondary data

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

3.6.3.4. Other Aquatic Fauna

3.6.3.5. Fishes

The study area has low aquatic diversity, with few types of fish living. The species of fish reported during the primary visit are Rohu, Catla, Catfish, etc. Species of fish reported in the study area are given in Table No 3.36.

Table No 3.36. Based on Actual Sighting, based on inputs from locals and Perused from Secondary Data

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

6.8. 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.

S.No	Ecological sensitive habitat	Direction and Distance from the project site
1.	National Parks/ Wildlife Sanctuary/ Biosphere reserves/ Elephant Reserve/ Any Other Reserve	Nil.

2.	Reserved Forests	Nil
3.	Wildlife Corridors & Routes	No notified wildlife corridors are present in 10 km vicinity.
4.	Wetlands / Water bodies	-
5.	Ramsar Site	Nil
6.	Important Bird Habitats	Nil
7.	Breeding/nesting areas of endangered species	Not present
8.	Mangroves	None

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.

3.9. Conclusion

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

Sources:

[Invasive Alien Species | IUCN](https://ebird.org/region/IN-TN-CP)

<https://ebird.org/region/IN-TN-CP>

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

Bird Life International 2012. In: IUCN 2012. *IUCN Red List of Threatened Species*. Version 2012.

3.6 SOCIO ECONOMIC ENVIRONMENT

The major developmental activities in Mining sector are required for economic development as well as creation of employment opportunities (direct and indirect) and to meet the basic/modern needs of the society, which ultimately results in overall improvement of the quality of life through upliftment of social, economic, health, education and nutritional status in the project region, state as well as the country. In this manner all developmental projects have direct as well as indirect relationships with socioeconomic aspects, which also include public acceptability for new/proposed developmental projects.

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

The primary objectives of the Social Impact Assessment study are:

- To assess the impact on socio-economic environment due to the project
- Understanding the baseline socio-economic environment obtaining in the impact zone.
- Identifying the key stakeholders who are likely to be impacted by the establishment of the proposed project.
- Predicting the positive and negative impacts of the project on the socioeconomic environment in the area.
- Suggesting mitigation measures to minimize the negative impacts.

3.6.2 Scope of Work

In keeping with its objectives, the scope of the study extends to:

- Making a reconnaissance of the villages and human settlements within the 10km radius from the proposed project site.
- Understanding the overall socio-economic profile of the impact area.
- Assessing the baseline socio-economic environment prevailing in the impact area focusing the core and buffer zones.
- Identifying key economic sectors and major sources of livelihood in the study area.
- Understanding social structures and lifestyles of people in the area who are likely to be affected the most by the proposed project.
- Assessing physical and social infrastructure facilities accessible to inhabitants in the project impact area.
- Predicting the likely socio-economic impacts as a consequence of establishing the project.
- Suggesting adverse impact mitigation measures in line with the felt needs, aspirations and expectations of the project affected population.
- Preparing an appropriate Socio-Economic Environment Management Plan.

3.6.3 Approach & Methodology

The basic approach for carrying out the SIA is focused on:

- Zeroing-in on the project impact area, covering all the villages and other habitations falling within the 10 km radius from the project site.
- Collecting basic information with respect to constituent villages in terms of census village code, name of the Tehsil in which a particular village falls, number of households, population level (as per Census 2011) and growth of village population during the last decade, distance from the proposed project site etc.
- Identifying critical knowledge/information gaps which impede an objective and reliable assessment of the socio-economic impacts of the project.
- Zeroing-in on the data/information to be collected for a fair impact assessment and deciding upon the sources and means to collecting the same.
- Identifying the key stakeholders and potential respondents for collecting the required information.
- Drawing a sampling frame and sample size specifying villages and number of households to be contacted for primary data/information collection and agencies to be contacted for eliciting information on various aspects relevant to the study.

3.6.4 Methodology

- The Social Impact Assessment (SIA) of the proposed project is relied on a judicious mix of Secondary (i.e., Census 2011, Govt. Dept., Maps and Literature Research) and Primary data (i.e., Field survey and Interview / Interactions) collected from different sources.
- Various socio-economic aspects considered for impact assessment include livelihoods, relocation and rehabilitation, incomes, employment, skills, education, health and overall lifestyles. The cultural aspects considered are archaeological, historical, religious and aesthetic places of importance, arts and crafts etc.

The SIA was carried out in the three distinct stages:

- Desktop review / research
- Field Survey
- Data Analysis & its interpretation

3.6.5 Project Impact Zones

The geographical area for impact assessment extends over 10 Kms. Radius from the project site and comprises of 40 census Villages. To facilitate a more realistic and objective assessment, the 40 villages / towns Panchayat are categorized into three zones: Table No.3.37, 3.38

- Core zone (within 0 -3 Kms.) Radial distance from the project site)
- Buffer zone (> 3 – 7 Kms.)
- Transition/Outer zone (> 7 – 10 Kms.)

It is obvious from the above data that only 3 no. of villages fall in core impact zone, accounting for just 5 % of the total population in the study area. 18 no. of villages accounting for 38% of the total population fall in buffer impact zone, while 19 no. of villages accounting for 57% of the total population fall in transition zone.

Table 3.37 Percentage of Impact zone around 10km Radius

Impact Zone	No of villages	in %
0-3km	3	5
3-7km	18	38
7-10km	19	57
Total	40	100%

Source: census 2011.

Given the nature of the project, its socio-economic impacts will be more pronounced on the people inhabiting the core and buffer impact zones rather than on the transition zone. Hence the study focus was more on the socio-economic conditions obtaining among the households in the core and buffer zones.

The key demographic features of the villages / towns in the three impact zones are shown below:

Table.3.38 Demographic characteristics (0-10km Radius)

S.no	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	Nonworkers
0-3km																					
1	Pachambakkam	224	950	475	475	89	47	42	513	248	265	8	3	5	617	340	277	482	310	172	468
2	Kadugupattu	450	1765	874	891	196	105	91	908	459	449	0	0	0	1022	561	461	991	879	112	774
3	Nelvoyalayam	116	454	224	230	41	20	21	257	127	130	11	5	6	278	151	127	199	69	130	255
	Total	790	3169	1573	1596	326	172	154	1678	834	844	19	8	11	1917	1052	865	1672	1258	414	1497
3-7km																					
1	Parasanallur	161	595	317	278	43	26	17	226	119	107	0	0	0	358	212	146	338	267	71	257
2	Koovathur	1127	4534	2272	2262	487	254	233	1787	871	916	69	37	32	3201	1728	1473	2129	1581	548	2405
3	Thondamanallur	571	2187	1098	1089	260	125	135	1271	644	627	133	63	70	1296	726	570	1204	641	563	983
4	Kalkulam	276	1208	620	588	113	68	45	844	437	407	0	0	0	721	413	308	493	459	34	715
5	Vadakkuvayaloor	164	641	326	315	62	31	31	460	233	227	0	0	0	342	196	146	406	382	24	235
6	Lathur	333	1273	662	611	148	78	70	980	504	476	0	0	0	775	431	344	720	335	385	553
7	Pavunjur	351	1409	729	680	145	78	67	395	209	186	8	4	4	966	541	425	649	482	167	760
8	Thiruvadur	462	1887	949	938	200	112	88	929	457	472	16	12	4	1193	660	533	868	470	398	1019
9	Vadapattinam	348	1299	628	671	168	66	102	752	373	379	18	8	10	813	440	373	536	356	180	763
10	Akkinambattu	691	2553	1236	1317	223	107	116	837	412	425	26	13	13	1547	850	697	1401	708	693	1152
11	Iranyasidhi	189	712	368	344	75	41	34	285	153	132	0	0	0	419	252	167	412	180	232	300
12	Nemanadam	153	538	267	271	50	26	24	37	17	20	0	0	0	312	189	123	321	245	76	217
13	Pakkavancheri	87	357	181	176	31	16	15	59	28	31	0	0	0	211	122	89	204	11	193	153
14	Sengattur	412	1745	875	870	154	77	77	888	436	452	0	0	0	1322	727	595	1085	605	480	660
15	Thirupurakoil	42	211	112	99	19	10	9	0	0	0	0	0	0	153	86	67	136	102	34	75
16	Madayambakkam	309	1193	586	607	120	57	63	696	351	345	11	5	6	831	447	384	863	125	738	330
17	Atchivilagam	10	56	21	35	27	9	18	0	0	0	56	21	35	17	7	10	28	1	27	28
18	Pakkur	326	1229	599	630	111	56	55	636	300	336	15	9	6	760	423	337	582	273	309	647
	Total	6012	23627	11846	11781	2436	1237	1199	11082		5538	352	172	180	15237	8450	6787	12375	7223	5152	11252
7-10km																					
1	Chinnavenmani	207	794	388	406	66	33	33	385	183	202	15	5	10	549	291	258	520	518	2	274
2	K.Nelvoy	148	542	272	270	64	29	35	301	150	151	20	11	9	329	187	142	177	167	10	365
3	Veppancheri	73	279	133	146	33	16	17	126	60	66	2	1	1	163	85	78	126	125	1	153
4	Pekkarantai	146	582	296	286	60	28	32	510	262	248	9	4	5	353	194	159	316	53	263	266
5	Seevadi	284	1205	602	603	116	59	57	781	389	392	0	0	0	734	395	339	697	680	17	508
6	Punnamai	130	528	273	255	40	17	23	46	21	25	0	0	0	357	214	143	244	242	2	284
7	Periavelikadu	198	802	410	392	107	57	50	540	266	274	0	0	0	533	282	251	501	128	373	301
8	Chinnavelikadu	305	1152	585	567	114	71	43	200	104	96	1	1	0	695	392	303	646	253	393	506
9	Kodapattinam	33	127	68	59	10	8	2	0	0	0	0	0	0	92	53	39	61	48	13	66
10	Kanathur	169	642	319	323	79	47	32	333	161	172	0	0	0	386	211	175	328	225	103	314
11	Kodur	775	2867	1442	1425	269	149	120	1846	944	902	60	28	32	1912	1046	866	1544	1114	430	1323
12	Paramankeni	847	3325	1615	1710	349	172	177	1154	584	570	23	14	9	1943	1081	862	1500	740	760	1825
13	Cheyur	2626	10664	5274	5390	1024	535	489	5188	2549	2639	131	65	66	7936	4190	3746	4610	2383	2227	6054
14	Ammanur	589	2334	1167	1167	219	104	115	940	449	491	10	7	3	1622	915	707	1340	630	710	994
15	Nerumbur	627	2578	1281	1297	303	152	151	1019	520	499	64	29	35	1641	911	730	1564	1365	199	1014
16	Sooradimangalam	269	953	496	457	131	68	63	297	163	134	178	89	89	530	314	216	507	492	15	446
17	Vittlapuram	759	2854	1432	1422	270	144	126	1477	739	738	60	31	29	1942	1055	887	1146	626	520	1708
18	Merkandai	197	792	391	401	87	43	44	615	306	309	0	0	0	482	273	209	394	266	128	398
19	Vasavasamudram	441	1792	904	888	198	107	91	227	118	109	15	9	6	1186	657	529	853	779	74	939
	Total	8823	34812	17348	17464	3539	1839	1700	15985	7968	8017	588	294	294	23385	12746	10639	17074	10834	6240	17738
	G.Total	15625	61608	30767	30841	6301	3248	3053	28745	8802	14399	959	474	485	40539	22248	18291	31121	19315	11806	30487

Source: Census 2011, Kancheepuram district, Tamil Nadu

3.6.5.1 Desktop Review / Research

A fairly comprehensive desk research to understand the socio-economic setting of the project area was the first initiative towards carrying out SIA. Accordingly, published and unpublished information available on the subject was referred, reviewed and critical information gaps identified by the SIA team.

It was during this stage, the key stakeholders were identified and study instruments – schedules and checklists – prepared, tested and finalized. Similarly, the sampling frame and sample size were also designed and finalized. The sampling frame for the study consisted of villages, households and District and Tehsil level officials, key informants as also local opinion leaders.

3.6.5.2 Baseline Data and Analysis of Surveyed Villages

A proportional random sampling technique was followed to select the sample villages and households. Accordingly, the sample villages were picked up at random from the three impact zones considered – Core, Buffer and Transition. The number of households to be contacted in each sample village was determined on the basis of the size of population of the respective village. In the absence of household level information, the respondent households were selected randomly during the course of visit to the respective village. However, while selecting the respondent households, emphasis was on contacting households, who are economically poor, susceptible to shifts in livelihood patterns and belonged to vulnerable social communities.

To ensure the accuracy of the primary data collected from the study area, all the village specific information was verified from the data of Census 2011 and secondary information collected from various Govt. Dept., Map, Literature etc.

Accordingly following no. of 10 villages have been selected:

Table 3.39 Random sampling Villages and Population

Sno	Name of the Village	Population	Distance and direction
1	Pachambakkam	950	2.5km-NW
2	Kadugupattu	1765	2.0km-SW
3	Nelvoypalayam	454	1.6km-NE
4	Kalkulam	1208	6.5km-NW
5	Vadakkuvayaloor	641	6.5km-NW
6	Lathur	1273	6.0km-NW
7	Pavunjur	1409	5.2km-NW
8	Koovathur	4534	5.0km-NE
9	K.Nelvoy	542	8.5km-NW
10	Veppancheri	279	8.5km-NE
	Total	13,055	

Source: Google earth image and Census 2011.

3.6.6 Field survey

Field survey helped in collecting fairly reliable primary data with respect to the major livelihood sources, education, health status, basic amenities and standard of living. It also helped in eliciting information from the natives about the negative environmental impacts of industrial units already existing in the area and the measures initiated by them (industrial units) to mitigate the impacts.

The potential respondents in the sample households were approached personally by members of the core **study team and Field Investigators** who explained the purpose of the visit and asked their participation by sharing

the intended information unbiasedly. The study team clarified the doubts and addressed the apprehensions expressed by the respondents. Once the respondents were willing and ready to participate,

household level socio-economic information was collected with the help of a structured questionnaire. A number of questions were open ended to facilitate capturing perceptions of the respondents objectively.

In addition, Participatory Rapid Assessment (PRA) tools comprising Villages / Town Transect Walks, Focus Group Discussions (FGD), Key Informant Interviews and Local Opinion Leader interviews were used for collecting qualitative information with regards to key socio-economic challenges of the area.

3.6.6.1 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.

3.6.7 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 3.40 Total Population of Study Area

Sl No.	Population in 2001	Population in 2011
1	53,351	61,608

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

Table 3.41 Population Projection of Study Area

S. No	Year	Projected Population (Approximately)
1.	2021	69,865
2.	2031	78,122
3.	2041	86,379
4.	2051	94,636

Source: Calculated by SPSS v23, 2022.

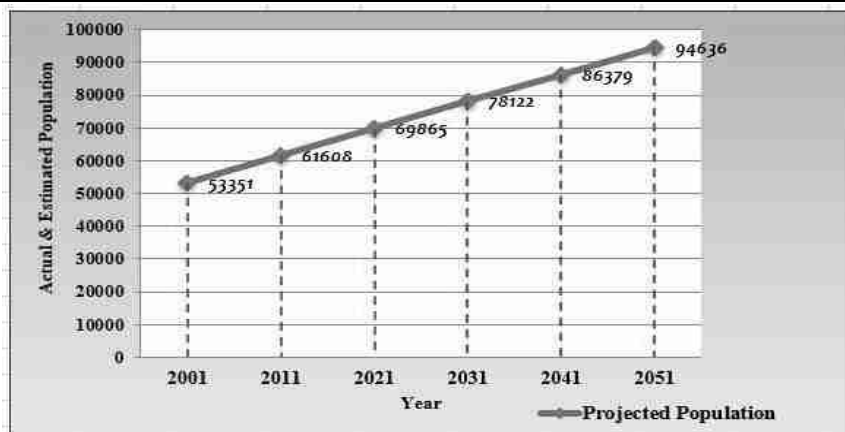


Fig 3.32 Graph Showing Population Projection

Following formula has been used for the projection of population.

$$Y=a+bt$$

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>

3.6.8 Population Growth of the Study Area

Table. 3.42 Population Growth rate in Study area

Year	Actual Population	Growth Rate %
2001	53,351	-
2011	61,608	11.55
2021	69,865	11.34
2031	78,122	11.18
2041	86,379	11.06
2051	94,636	10.96

Source: Compiled by Author-2022

Above table no 3.41 is showing the growth rate of population since 2001, as per census in 2001 the population of study area was 53,351 and 2011 it was 61,608 if the population growth rate is 11.55%, it will approximately 69,865 in year 2021 and 94,636 in the year of 2051. It has approximately population growth rate decline will be 10.96%.

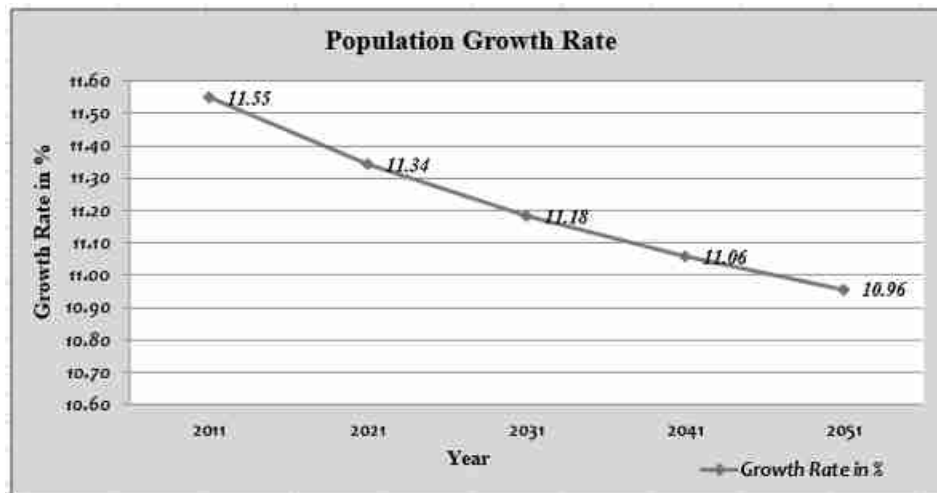


Figure.3.33 Graph Showing Population Growth Rate

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>

3.6.9 Data Analysis & Its Interpretation

3.6.9.1 Population Distribution and Composition of Study Area

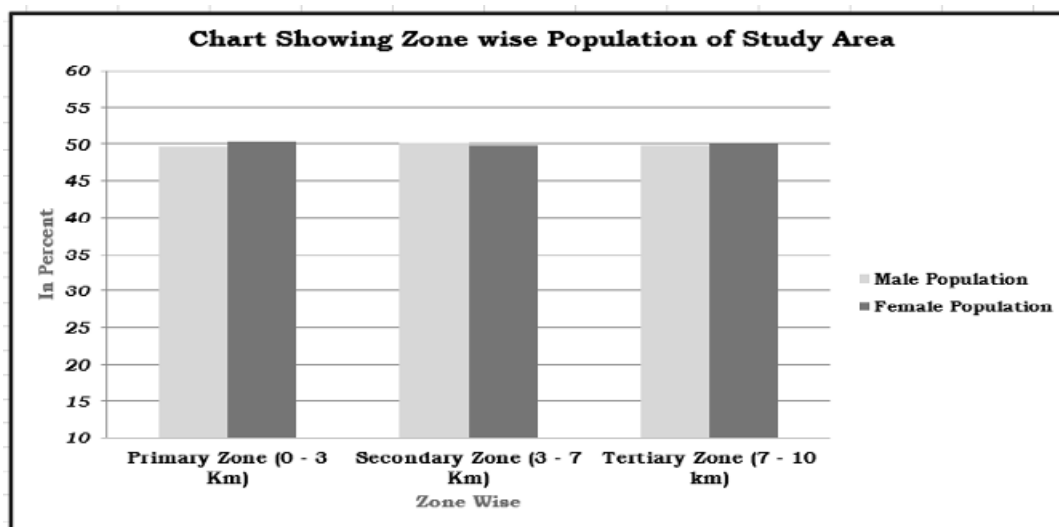
The population as per 2011 Census records is 61,608 (for 10 km radius buffer zone). Total no. of household is 790, 6012 and 8823 respectively, in primary, secondary and tertiary zone. Sex ratio is 1015, 995 and 1007 (females per 1000 males) observed in primary, secondary and tertiary zone respectively. SC population distribution is 1678, 11082 and 15985 respectively in primary, secondary and tertiary zone. ST population distribution is 19,352 and 588 respectively in primary, secondary and tertiary. Average household size is 4. Zone wise Demographic profile of study area is given in the table below:

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

Table.3.43 Zone wise Demographic Profile of Study Area

Zone	No. of Villages	Total Household	Total Population	Male Population	%	Female Population	%
Primary Zone (0 - 3 Km)	3	790	3169	1573	49.64	1596	50.36
Secondary Zone (3 - 7 Km)	18	6012	23627	11846	50.14	11781	49.86
Tertiary/Outer Zone (7 - 10 km)	19	8823	34812	17348	49.83	17464	50.17
Study Area (0-10 km)	40	15625	61608	30767	49.94	30841	50.06

Source: Census of India, 2011

**Figure.3.34 Population of study area**

- ✓ Above table identifies the presence of villages and their subsequent population divided under three zones from Mine lease boundary (i.e., Primary, secondary and Outer zone)
- ✓ Primary zone has 3 village where as much as 790households with 3169 population are located. Mostly lying on Built-up land for their livelihood and substance.
- ✓ Secondary and tertiary zone both comprise of 18 and 19villages having a total population of 23,627 and 34,812 respectively.

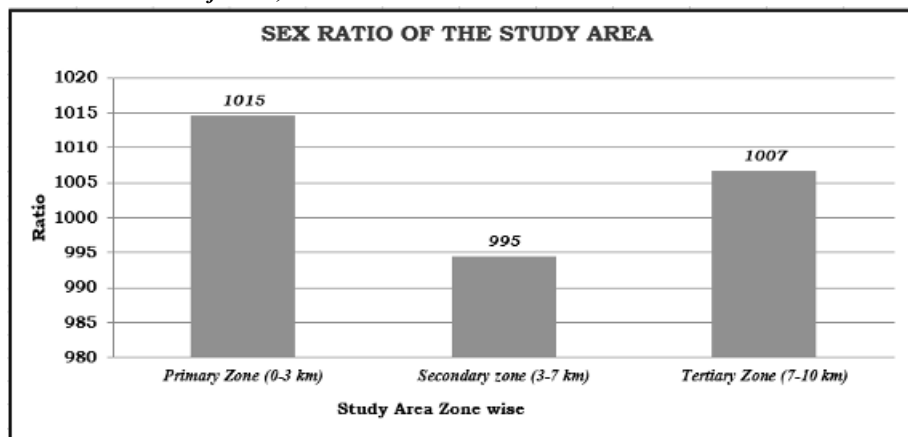
3.6.9.2 Gender and Sex Ratio

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 1002 females per 1000 males. Gender and sex ratio determine the Human Development Index (HDI) of an area thereby understanding the status of women in that region. Following table entails information about sex ratio of 14 villages lying in study area (buffer zone) as primary, secondary and tertiary zone.

Table.3.44 Sex ratio of the study area

S. No.	Buffer Zone	Sex Ratio of Study area Female/ 1000 Male
1	Primary Zone (0-3 km)	1015
2	Secondary zone (3-7 km)	995
3	Tertiary/Outer Zone (7-10 km)	1007

Source: Census of India, 2011

**Figure.3.35 Sex Ratio within 10 Km study area**

3.6.9.3 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 10km radius of study area demonstrates a literacy rate of 70% as per census data 2011. The male literacy rate in the study area indicates 80% whereas the female literacy rate, which is an important indicator for social change is observed to be 61% as per the census data 2011. This needs to focus on the region and enhance further development focusing on education.

Table no.3.45 Literacy Rate of the Study Area

Zone	No. of Villages	Male Literacy Population	Male literacy Rate	Female Literacy Population	Female literacy Rate	Total Literacy	Total Literacy Rate
Primary Zone (0 - 3 Km)	3	1052	75.09	865	59.99	1917	67.43
Secondary Zone (3 - 7 Km)	18	8450	79.65	6787	64.14	15237	71.90
Tertiary/Outer Zone (7 - 10 Km)	19	12746	82.18	10639	67.49	23385	74.78
Study Area (0-10km)	40	22248	80.85	18291	65.82	40539	73.30

Source: Census of India, 2011

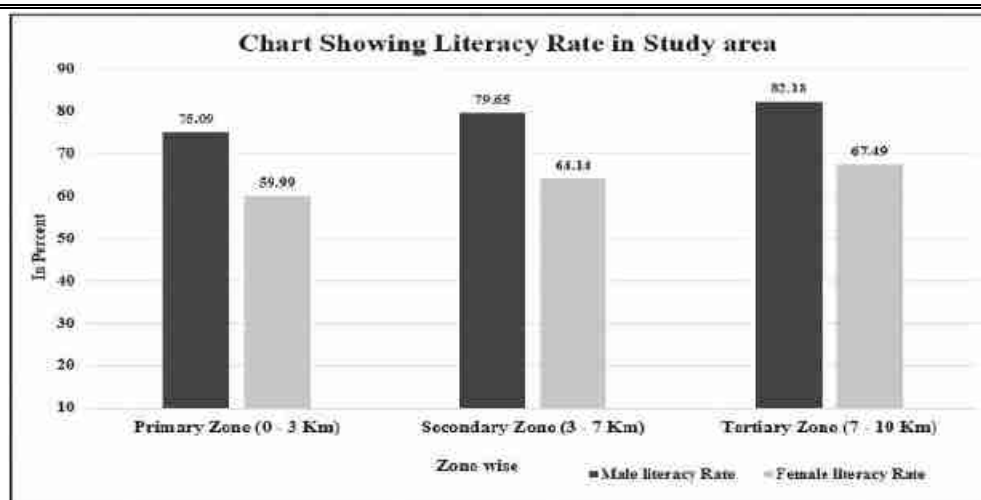


Figure.3.36 Gender wise Literacy Rate in the study area

3.6.9.4 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 4 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.

3.6.9.5 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 47% and Schedule Tribe population 1.56%, Other Population is 52% in the total study area.

Table.3.46 vulnerable groups of the study area

Zone	No. of Villages	Vulnerable Groups					
		SC Population	%	ST Population	%	Other Population	%
Primary Zone (0 - 3 Km)	3	1678	52.95	19	0.60	1472	46.45
Secondary Zone (3 - 7 Km)	18	11082	46.90	352	1.49	12193	51.61
Tertiary Zone (7 - 10 Km)	19	15985	45.92	588	1.69	18239	52.39
Total area (10km)	40	28745	46.66	959	1.56	31904	51.79

Source: Census of India, 2011

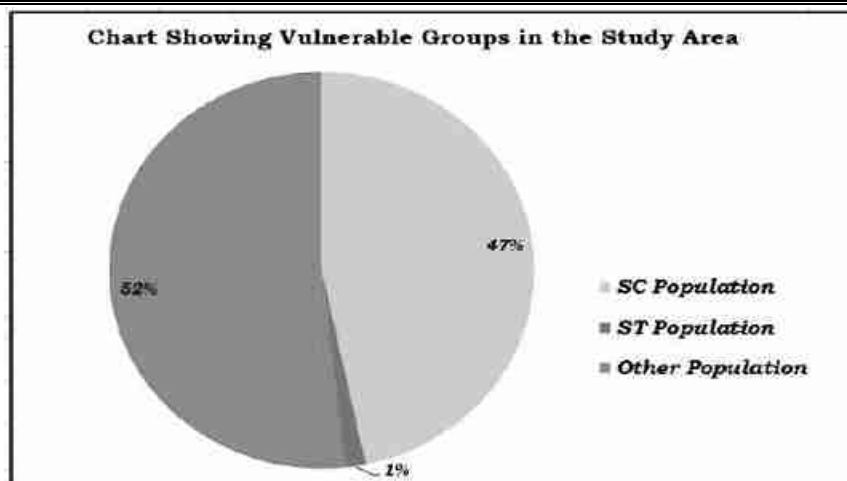


Figure. 3.37 vulnerable groups

3.6.9.6 Economic Activities

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

Table.3.47 Shows the work force of the study area

Zone	No. of Villages	Total Workers	%	Main Workers	%	Marginal Workers	%	Non-Workers	%
Primary Zone (0 - 3 Km)	3	1672	52.76	1258	39.70	414	13.06	1497	47.24
Secondary Zone (3 - 7 Km)	18	12375	52.38	7223	30.57	5152	21.81	11252	47.62
Tertiary Zone (7 - 10 Km)	19	17074	49.05	10834	31.12	6240	17.92	17738	50.95
Study Area (10 Km)	40	31121	50.51	19315	31.35	11806	19.16	30487	49.49

Source: Census of India, 2011.

The above table shows that out of the total working population, the percentage of main workers is 31.35 % while 19.16% are marginal workers. Number of working populations is 50.51% and non-working population is 49.49% in the study area. As per the data obtained from the survey (as mentioned previously in occupational structure) most of these people are employed for major period of the year. Also, to mention the natural environment also restricts the people in finding stable business is performed for only certain months. Thus, proposed project will act as possible exposure for them to get enrol and earn sustain livelihood.

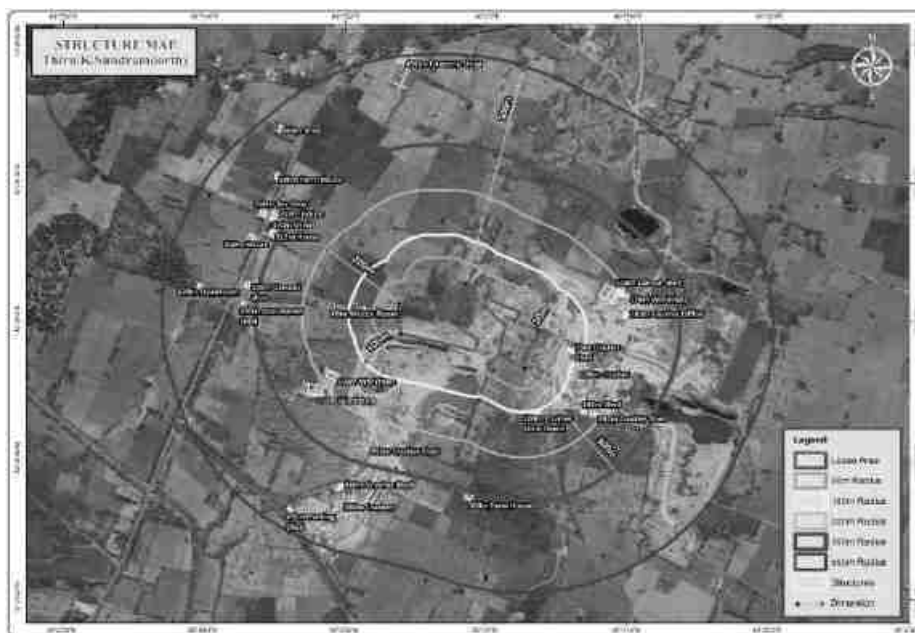
Figure.3.38 Working population in the study area**3.6.9.6 Structures studies around 0-500m Radius****Table.3.48 Shows the Structure details around 500m Radius**

Distance Range	No. of Structures	Type of Structures (Kuchcha/ Brick/ Cement/ RCC/ Framed Structures)	Usage/ Purpose	No. of occupants	Ownership (Belongs to PP/ Not belongs to PP)	Remarks
0-50m	Nil					
50-100m	2	Sheet shed-2 Nos	Motor Room &Crusher Shed	Nil	Not belongs to PP	Nil
100-200m	7	Workshop-2 Nos Labour Shed-1 No Crusher Shed &office-2 Nos Crusher Store Room-1 No Crusher	Mine Vehicle Workshop, Labour House Crushing Unit	Nil	Belongs to PP	All the structure within 100 – 200m usage for mine purpose only
200-300m	2	Workshop-1 No Crusher Shed-1No	Mine Vehicle Workshop, Security Purpose	Nil	Not belongs to PP	No persons residing in the sheds within the radius of 200-300m
300-400m	11	Farmhouse-2 Nos Abandoned Shed-1 No Temporary Shed & Crusher Shed-3 Nos Cement Shop-1 No Tea Shop-1 No Houses-3 No	Agriculture Purpose Temporary Usage Crusher Unit	11 Nos of peoples residing	Not belongs to PP	Nil
400-500m	5	Crusher & Parking Shed-2 Nos Store Room-1 No	Crusher Unit	Nil	Not belongs to PP	Nil

		Farmhouse and Shed-1 No	Goods Storage Purpose only Agriculture Purpose			
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Source: Field visit, Chengalpattu district.

FIGURE.3.39 GOOGLE EARTH IMAGE WITH DETAILS OF SENSITIVITIES LOCATED WITHIN (50m,100m, 200m, 300m & 500m RADIUS)



3.6.9.7 Other Issues in the Study Area

1. Agriculture Land decreases
2. Lack of awareness among vulnerable groups for their welfare
3. Medical facilities and PHC need for the impact zone area
4. Environmental clean with solid wastage pin each village.
5. Need proper drainage system with public toilet men and women separately.
6. Road damage when load carriage way.
7. Issue of noise and air dust nearest house.
8. Employment and wages issue during quarry operation.

3.6.9.8 Interpretation

Based on the data, following inferences could be drawn:

- Total literacy rate in the study area is 73%.
- 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 1% and Scheduled Caste forms 47% of the total population of study area.
- The Other Population forms 52% 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.

3.6.10 Recommendation and Suggestions

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

- **Women empowerment**– Home based income generation activities, vocational training programs and common education centre for increasing the literacy rate.
- **Education** – Free uniform, construction of common rooms and library, computer education and physical education, additional schools for girls, furniture and equipment in schools, up-gradation of existing school infrastructure.
- **Agriculture/livestock** – Infrastructure such as agricultural practices, electricity connections, assistance with buying improved tools and equipment, capacity building, supply and/or knowledge of better variety of seeds, pasture land development and trainings on animal husbandry& facility of veterinary doctor.
- **Health** – Improvements in sanitary conditions of villages, assistance with construction of latrines, improvement in drainage system, health camps and awareness campaigns for diseases like Covid-19, malaria, typhoid, tuberculosis, yellow fever and pneumonia. Repairing of PHCs and Anganwadi centers.
- **People with disability** – Establishment of center for special education, sensitization of the community towards disabled and awareness on Government schemes.
- While **Developing an Action Plan**, it is very important to identify the population who falls under the marginalized and vulnerable groups. So that special attention can be given to these groups with special provisions while making action plans.
- **Connectivity** –Transport connectivity to easiness accessibility to the region.

3.6.11 Conclusion

To evaluate the impacts of Proposed quarry project on the surrounding area, it is vital to assess the baseline status of the environmental quality in the locality of the site. Hence it can be concluded that the present environment status of the study area will not be affected by the project as **Thiru. K. Sundramoorthy** 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.

4. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.0 GENERAL

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

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

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

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

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

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

4.1 LAND ENVIRONMENT:

4.1.2 Anticipated Impact

- 1.63.98Ha of the land will be under mining sine the Permanent or temporary change on land use and land cover will occur
- Movement of heavy vehicles sometimes cause problems to agricultural land, human habitations due to dust, noise and it also causes traffic hazards.
- Due to degradation of land by pitting the aesthetic environment of the core zone may be affected.
- Earthworks during the rainy season increase the potential for soil erosion and sediment laden water entering the water ways.

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

4.1.2 Mitigation Measures

- The 1.63.98Ha of the land will be converted into temporary reservoir which will full fill the water scarcity in the drought season and the nearby agriculture land will benefitted by the supply of water
- About 1200 Nos of trees will be planted in the lease area and approach road will retain the eco system
- The mining activity will be gradual confined in blocks and excavation will be undertaken progressively along with other mitigative measures like phase wise development in the production
- Construction of garland drains all around the quarry pits and construction of silt trap at strategic location in lower elevations to prevent erosion due to surface runoff during rainfall and also to collect the storm water for various uses within the proposed area.
- Green belt development along the boundary within safety zone. The small quantity of water stored in the mined-out pit will be used for greenbelt.
- Thick plantation will be carried out on unutilized area, top benches of mined out pits, on safety barrier, etc.,
- Fencing will be constructed before starting the mining operation and it will be maintained in the conceptual stage Security will be posted round the clock, to prevent inherent entry of the public and cattle.

4.1.3 Soil Environment

4.1.4 Impact on Soil Environment

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

4.1.5 Mitigation Measures

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

4.1.6 Waste Dump Management

There is no waste anticipated in this rough stone and Gravel quarrying operation. The entire quarried out materials will be utilized (100%).

4.2 WATER ENVIRONMENT

4.2.1 Anticipated Impact

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

4.2.2 Mitigation Measures

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

4.3 AIR ENVIRONMENT

4.3.1. Anticipated Impact

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

4.3.1.1. Modelling of Incremental Concentration from all Proposed Projects

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

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

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

AERMOD Software.

Prediction of impacts on air environment has been carried out taking into consideration cumulative production all the quarries fall in the Cluster. Air environment and net increase in emissions by Open pit source modelling in AERMOD Software AERMOD 12.0

4.3.2.1 Emission Estimation

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

The general equation for emissions estimation is:

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

Where:

E = emissions;

A = activity rate;

EF = emission factor, and

ER = overall emission reduction efficiency, %

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

4.3.2 Frame work of Computation & Model details

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

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

TABLE 4.1: ESTIMATED EMISSION RATE

PM ₁₀			
Activity	Source type	Value	Unit
Drilling	Point Source	0.066429933	g/s
Blasting	Point Source	0.000312920	g/s
Mineral Loading	Point Source	0.040162431	g/s
Haul Road	Line Source	0.00248787	g/s/m
Overall Mine	Area Source	0.054764655	g/s
SO ₂			
Activity	Source type	Value	Unit
Overall Mine	Area Source	0.000378403	g/s
NO _x			
Overall Mine	Area Source	0.000019765	g/s

FIGURE 4.1: AERMOD TERRAIN MAP

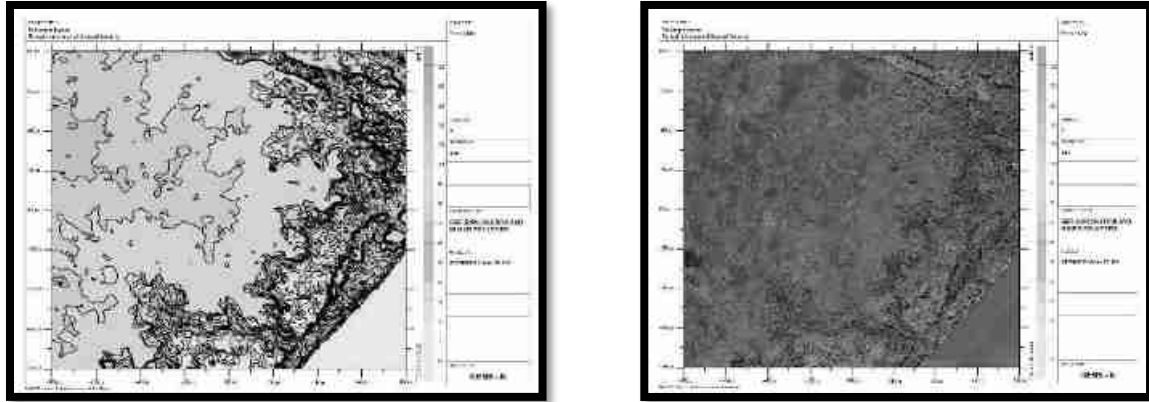


FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF PM₁₀

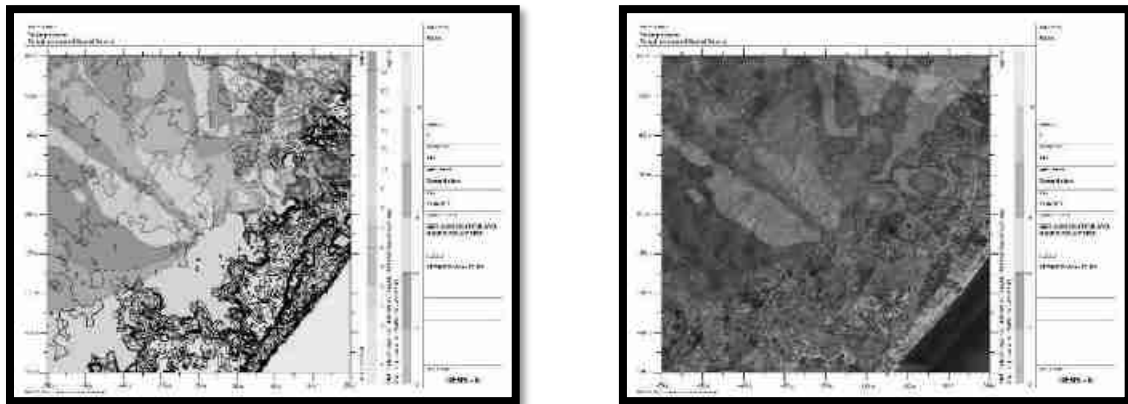


FIGURE 4.3: PREDICTED INCREMENTAL CONCENTRATION OF PM_{2.5}

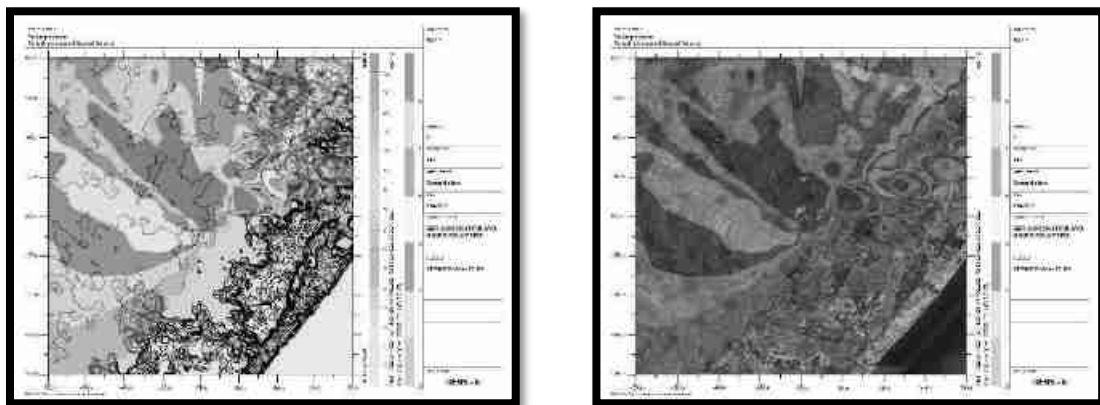


FIGURE 4.4: PREDICTED INCREMENTAL CONCENTRATION OF NO_x

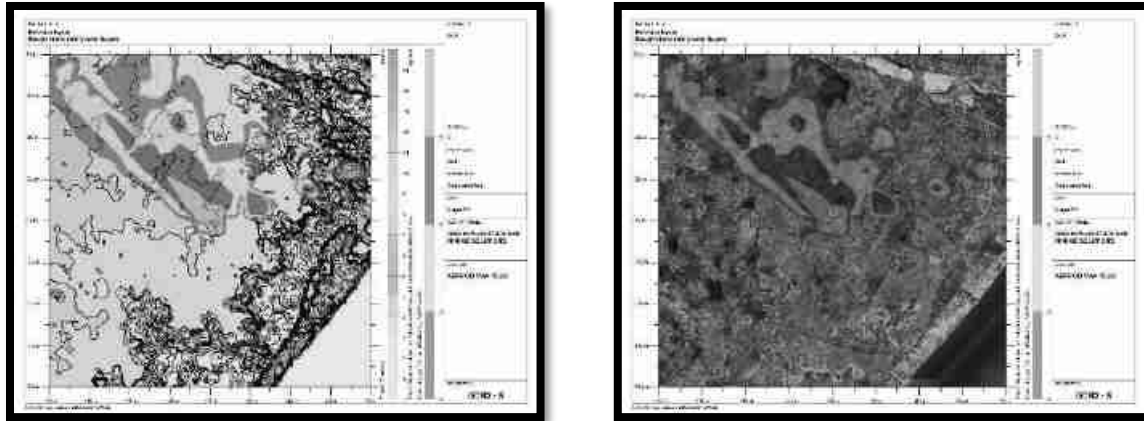


FIGURE 4.5: PREDICTED INCREMENTAL CONCENTRATION OF SO₂

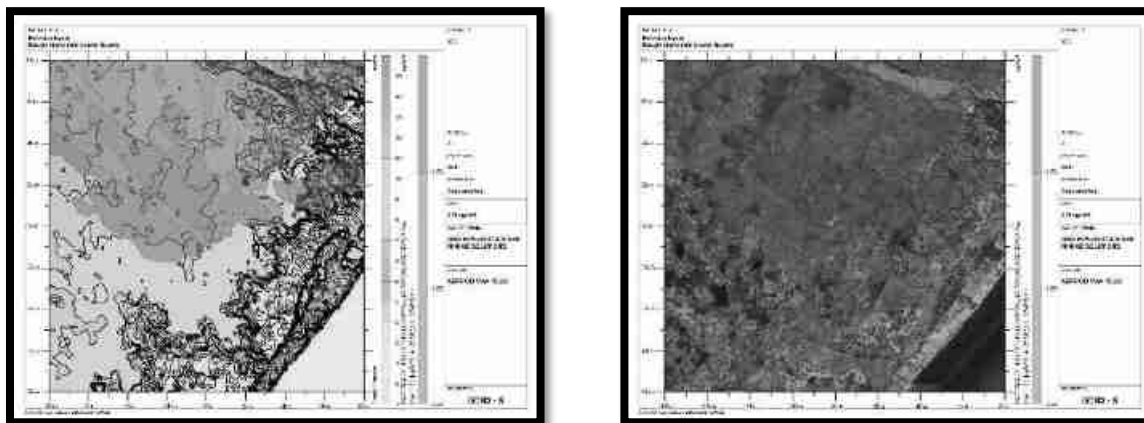
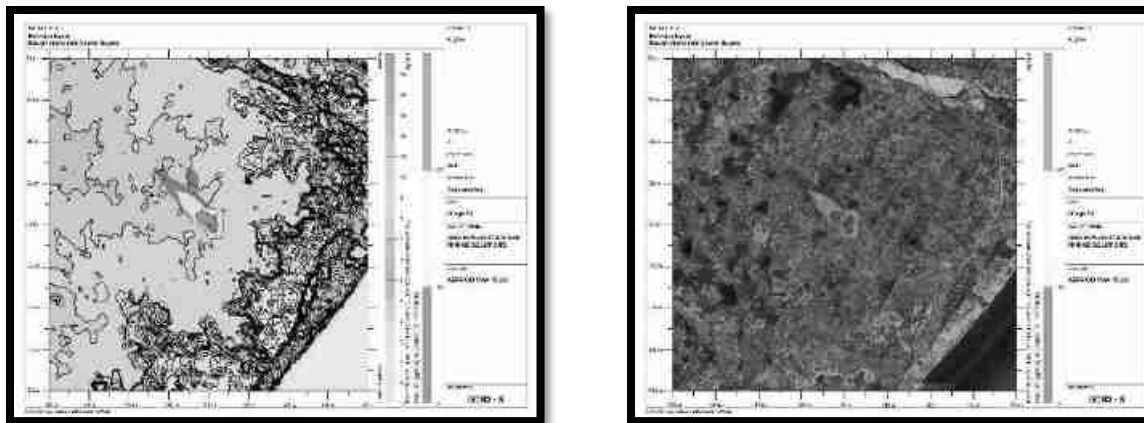


FIGURE 4.6: PREDICTED INCREMENTAL CONCENTRATION OF FUGITIVE DUST



4.3.2.1 Model Results

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

TABLE 4.2: INCREMENTAL & RESULTANT GLC OF PM₁₀

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM ₁₀ (µg/m ³)	Incremental value of PM ₁₀ due to mining (µg/m ³)	Total PM ₁₀ (µg/m ³)
AAQ1	12°25'59.33"N 80° 2'54.15"E	-75	-49	45.7	14.9	60.6
AAQ2	12°26'1.95"N 80° 2'58.58"E	60	36	43.0	14.5	57.5
AAQ3	12°25'54.07"N 80° 2'50.29"E	-191	-212	46.3	13	59.3
AAQ4	12°26'51.17"N 80° 3'1.18"E	141	1544	46.1	13.89	60.0
AAQ5	12°24'46.75"N 80° 4'38.96"E	3098	-2279	40.2	0	40.2
AAQ6	12°28'40.82"N 80° 0'44.26"E	-4006	4915	40.2	10	50.2
AAQ7	12°24'24.69"N 80° 1'40.83"E	-2295	-2959	44.4	1	45.4

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

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM _{2.5} (µg/m ³)	Incremental value of PM _{2.5} due to mining (µg/m ³)	Total PM _{2.5} (µg/m ³)
AAQ1	12°25'59.33"N 80° 2'54.15"E	-75	-49	21.7	6.95	28.7
AAQ2	12°26'1.95"N 80° 2'58.58"E	60	36	21.1	6.74	27.8
AAQ3	12°25'54.07"N 80° 2'50.29"E	-191	-212	21.8	6.12	27.9
AAQ4	12°26'51.17"N 80° 3'1.18"E	141	1544	22.1	6.43	28.5
AAQ5	12°24'46.75"N 80° 4'38.96"E	3098	-2279	40.2	0	40.2
AAQ6	12°28'40.82"N 80° 0'44.26"E	-4006	4915	43.2	5.6	48.8
AAQ7	12°24'24.69"N 80° 1'40.83"E	-2295	-2959	21.8	1.5	23.3

TABLE 4.4: INCREMENTAL & RESULTANT GLC OF SO₂

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline SO ₂ (µg/m ³)	Incremental value due to mining (µg/m ³)	Total SO ₂ (µg/m ³)
AAQ1	12°25'59.33"N 80° 2'54.15"E	-75	-49	5.8	1.79	7.6
AAQ2	12°26'1.95"N 80° 2'58.58"E	60	36	5.1	1.76	6.9
AAQ3	12°25'54.07"N 80° 2'50.29"E	-191	-212	6.7	1.7	8.4
AAQ4	12°26'51.17"N 80° 3'1.18"E	141	1544	6.3	1.73	8.0
AAQ5	12°24'46.75"N 80° 4'38.96"E	3098	-2279	6.4	0	6.4
AAQ6	12°28'40.82"N 80° 0'44.26"E	-4006	4915	6.6	1.12	7.7
AAQ7	12°24'24.69"N 80° 1'40.83"E	-2295	-2959	6.1	0	6.1

TABLE 4.5: INCREMENTAL & RESULTANT GLC OF NO_x

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline NO _x (µg/m ³)	Incremental value due to mining (µg/m ³)	Total NO _x (µg/m ³)
AAQ1	12°25'59.33"N 80° 2'54.15"E	-75	-49	24.4	9.77	34.1
AAQ2	12°26'1.95"N 80° 2'58.58"E	60	36	25.2	9.33	34.6
AAQ3	12°25'54.07"N 80° 2'50.29"E	-191	-212	26.2	5.8	32.0
AAQ4	12°26'51.17"N 80° 3'1.18"E	141	1544	25.9	7.3	33.2
AAQ5	12°24'46.75"N 80° 4'38.96"E	3098	-2279	23.8	0	23.8
AAQ6	12°28'40.82"N 80° 0'44.26"E	-4006	4915	25.4	2	27.4
AAQ7	12°24'24.69"N 80° 1'40.83"E	-2295	-2959	25.7	0	25.7

TABLE 4.6: PREDICTED GLC OF FUGITIVE AT RECEPTOR LOCATIONS

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline NO _x (µg/m ³)	Incremental value due to mining (µg/m ³)	Total NO _x (µg/m ³)
AAQ1	12°25'59.33"N 80° 2'54.15"E	-75	-49	65.87	27.67	93.5
AAQ2	12°26'1.95"N 80° 2'58.58"E	60	36	66.08	27	93.1
AAQ3	12°25'54.07"N 80° 2'50.29"E	-191	-212	67.71	0	67.7
AAQ4	12°26'51.17"N 80° 3'1.18"E	141	1544	68.25	0	68.3
AAQ5	12°24'46.75"N 80° 4'38.96"E	3098	-2279	58.51	0	58.5
AAQ6	12°28'40.82"N 80° 0'44.26"E	-4006	4915	66.18	0	66.2
AAQ7	12°24'24.69"N 80° 1'40.83"E	-2295	-2959	66.38	0	66.4

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

4.3.4. Mitigation Measures

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

Advantages of Wet Drilling: -

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

Blasting –

- Establish time of blasting to suit the local conditions and water sprinkling on blasting face
- Avoid blasting i.e., when temperature inversion is likely to occur and strong wind blows towards residential areas
- Controlled blasting includes Adoption of suitable explosive charge and short delay detonators, adequate stemming of holes at collar zone and restricting blasting to a particular time of the day i.e., at the time lunch hours, controlled charge per hole as well as charge per round of hole
- Before loading of material water will be sprayed on blasted material
- Dust mask will be provided to the workers and their use will be strictly monitored

Haul Road & Transportation –

- Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation
- Transportation of material will be carried out during day time and material will be covered with tarpaulin
- The speed of tippers plying on the haul road will be limited below 20 km/hr to avoid generation of dust.
- Water sprinkling on haul roads & loading points will be carried out twice a day
- Main source of gaseous pollution will be from vehicle used for transportation of mineral; therefore, weekly maintenance of machines improves combustion process & makes reduction in the pollution.
- The un-metaled 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 –

- 1200 Nos of trees will be planted through this project in the lease area and village roads (Approach Road) to prevent the generation of dust due to movement of dumpers/trucks
- Green belt of adequate width will be developed around the project areas

Occupational Health –

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

4.4 NOISE ENVIRONMENT

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

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

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

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

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

Where:

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.

$$Lp_{total} = 10 \log \{10^{(Lp1/10)} + 10^{(Lp2/10)} + 10^{(Lp3/10)} + \dots\}$$

4.4.1 Anticipated Impact

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

- Source data
- Receptor data
- Attenuation factor

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

TABLE 4.7: ACTIVITY AND NOISE LEVEL PRODUCED BY MACHINERY

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

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

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

TABLE 4.8: PREDICTED NOISE INCREMENTAL VALUES

Location ID	N1	N2	N3	N4	N5	N6	N7	N8
Maximum Monitored Value (Day) dB(A)	47.2	46.7	47.3	46.6	46.2	47.10	45.10	45.90
Incremental Value dB(A)	66.1	60.1	54.1	36.6	28.5	24.3	29.2	26.1
Total Predicted Noise level dB(A)	66.2	60.3	54.9	47.0	46.3	47.1	45.2	45.9

The incremental noise level is found within the range of 60.1-66.1 dB (A) in Core Zone and 24.3-54.1 dB (A) in Buffer zone. The noise level at different receptors in buffer zone is lower due to the distance involved and other topographical features adding to the noise attenuation. The resultant Noise level due to monitored values and calculated values at the receptors are based on the mathematical formula considering attenuation due to Green Belt as 4.9 dB (A) the barrier effect. From the above table, it can be seen that the ambient noise levels at all the locations are within permissible limits of Industrial area (core zone) & Residential area (buffer zone) as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (The Principal Rules were published in the Gazette of India, vide S.O. 123(E), dated 14.2.2000 and subsequently amended vide S.O. 1046(E), dated 22.11.2000, S.O. 1088(E), dated 11.10.2002, S.O. 1569 (E), dated 19.09.2006 and S.O. 50 (E) dated 11.01.2010 under the Environment (Protection) Act, 1986.).

4.4.2 Mitigation Measures

The following noise mitigation measures are proposed for control of Noise

- Usage of sharp drill bits while drilling which will help in reducing noise;
- Secondary blasting will be totally avoided and hydraulic rock breaker will be used for breaking boulders;
- Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will be maintained;
- Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise;

- Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise;
- Silencers / mufflers will be installed in all machineries;
- Green Belt/Plantation will be developed around the project area and along the haul roads. The plantation minimizes propagation of noise;
- Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM and their use will be ensured through training and awareness.
- Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects

4.4.3 Ground Vibrations

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

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

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

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

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

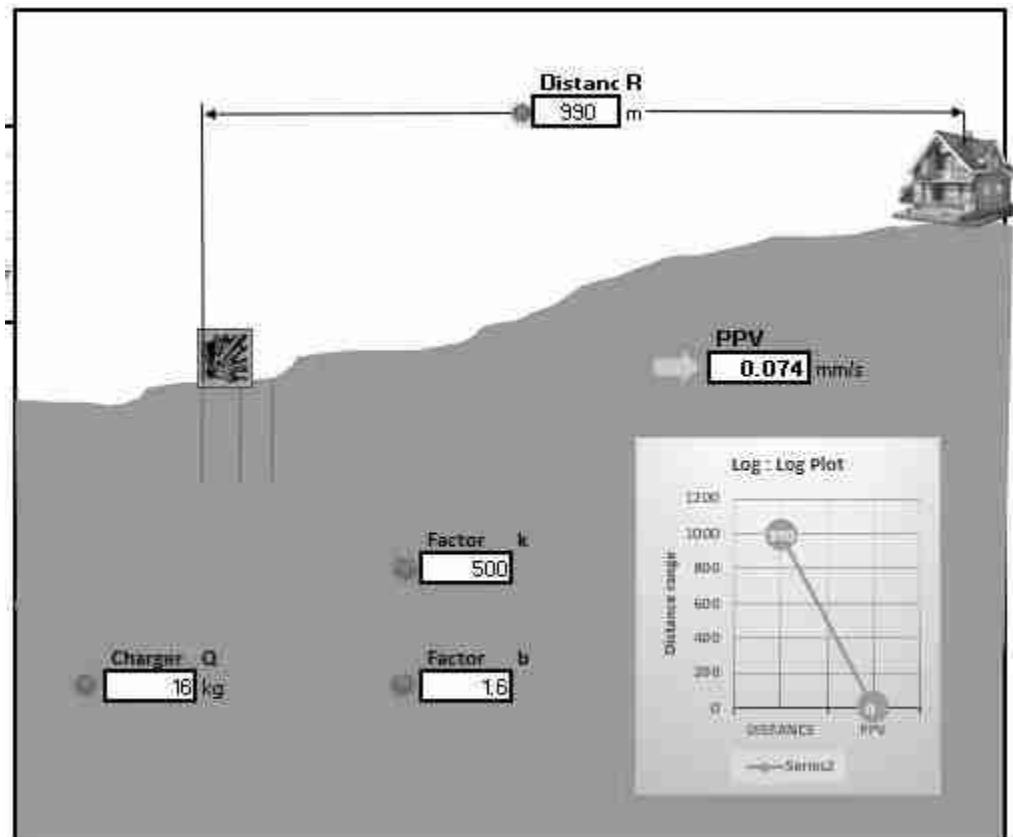
Q = maximum instantaneous charge (kg)

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

R = distance from charge (m)

TABLE 4.9: PREDICTED PPV VALUES DUE TO BLASTING

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	16	990-SW	0.074

FIGURE 4.6: GROUND VIBRATION PREDICTION

From the above graph, the total charge for blast of 16kg and it will used as 30kgs per shot, there will be four set of blasting is well below the Peak Particle Velocity of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997. But the all the project proponents ensure that the charge per blast shall be less than 85 kg and carry out blasting twice or thrice a day based on the onsite conditions under the supervision of competent person employed. However, as per statutory requirement control measures will be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

4.4.3.1 Mitigation Measures

- It is proposed to carry out blasting operation 30kg per round so that the vibration will be minimal
- The mining operation will be carried out without deep hole drilling, 25mm small dia cartridge will be utilized for the blasting
- The blasting operations in the project site without deep hole drilling and blasting using delay detonators, which reduces the ground vibrations;
- Proper quantity of explosive, suitable stemming materials and appropriate delay system will be adopted to avoid overcharging and for safe blasting;
- Adequate safe distance from blasting will be maintained as per DGMS guidelines;
- Blasting shelter will be provided as per DGMS guidelines;
- Blasting operations will be carried out only during day time;
- The charge per delay will be minimized and preferably a greater number of delays will be used per blasts;
- During blasting, other activities in the immediate vicinity will be temporarily stopped;
- Drilling parameters like depth, diameter and spacing will be properly designed to give proper blast;
- A fully trained explosives blast man (Mining Mate, Mines Foreman, 2nd Class Mines Manager/ 1st Class Mines Manager) will be appointed.

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

4.5 IMPACT ON THE BIOLOGICAL ENVIRONMENT

4.5.1. Anticipated Impact on agricultural land associated with flora

1. Dust particle settle on neighbouring agricultural land, it is located about 150m on the west side. Mostly dust emission from nearby crusher unit and during operation and minerals are transported in approach roads.
2. Dust deposition on leaf observed on nearby lease boundary local plant species which may result in decline the rate of photosynthesis and retards the plant growth.

4.5.2 Mitigation Measures

4.5.2.1. General Guidelines for Green Belt Development

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

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

4.5.3.2. Proposed Green Belt

Extensive green belt development will be started during the construction phase, which will continue till the operation of the plant. About 1500-2000 trees will be planted per hectare all around the plant, approach roads, and township premises. Locally available types of trees that are resistant to pollutants will be planted. In addition to the above, all open spaces available within the premises will be developed as nurseries, parks, gardens, and other forms of greenery. 5 m wide greenbelt will be developed along the plant premises, as per land available.

4.5.3.3. Development of Green Belt

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

4.5.3.4. Selection of Plant Species for Green Belt Development

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

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

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

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

(*Source: Term of Reference-ToR)

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

S. No	Botanical name	Common name
1	<i>Azadirachta indica</i>	Vembhu maram
2	<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	Tamarindus indica	Puliyamaram
7	Mangifera indica	Manga maram
8	Harwickia binata	Anjan maram
9	Delonix regia	Neruppu Kondrai
10	Cassia Fistula	Sara Kondrai

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

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

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

4.5.4. Anticipated Impact on Fauna

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

4.5.4.1. Measures for protection and conservation of wildlife species

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

4.5.3. Impact on Aquatic Biodiversity

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

Table No. 4.12. Overall Ecological impact assessments of Nelvaipalayam Village, Rough stone and gravel quarry, Cheyyur Taluk, Chengalpattu District and Tamil Nadu.

S.No	Attributes	Assessment
1	Activities of the project affect the breeding/nesting sites of birds and animals	No breeding and nesting site was identified in the mining lease site. The fauna sighted mostly migrated from the buffer area.

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

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

TABLE 4.13: RECOMMENDED SPECIES FOR GREENBELT DEVELOPMENT PLAN

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

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

TABLE 4.14: GREENBELT DEVELOPMENT PLAN

Year	No. of tress proposed to be planted	Area to be covered in m ²	Name of the species

I	1200	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development.	Neem, Pongamia Pinnata etc.,
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4.6 SOCIO ECONOMIC

4.1 Construction Phase

Anticipated Impacts:

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

Mitigation measures:

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

4.2 Operation Phase:

Anticipated Impacts:

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

Mitigation Measures:

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

♣ For emergency, proposed to develop an occupational health center for its employees and nearby villagers.

4.3 Impact Evaluation:

Table 4.15 Impact Evaluation

Impact Evaluation Element	Impact on socio economics due to the proposed for rough stone and Gravel quarry over an extent of 1.63.98ha of Patta lands in S.F.Nos. 88/1, 2A and 4A of Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu State.			
Potential Effect/ Concern	Proposed project will provide direct & indirect employment opportunities to the local residents, which will help to increase their earning and better living standard as well as further up-liftment of socio-economic status of the area.			
Characteristics of Impacts				
Nature	Positive		Negative	Netural
	✓			
Type	Direct	Indirect	Cumulative	
			✓	
Extent	Project area	Local	Zonal	Regional
	✓			
Duration	Short time		Long term	
			✓	
Intensity	Low		Medium	High
			✓	
Frequency	Remote (R)	Occasional (O)	Periodic (P)	Continuous (C)
			✓	
Significance of Impact				
Significance	Insignificant	Minor	Moderate	Major
			✓	

4.7 OCCUPATIONAL HEALTH AND SAFETY

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

- Respiratory hazards

- Noise
- Physical hazards
- Explosive storage and handling

4.7.1 Respiratory Hazards

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

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

4.7.2 Noise

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

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

4.7.3 Physical Hazards

The following measures are proposed for control of physical hazards

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

4.7.4 Occupational Health Survey

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

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

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

4.8 MINE WASTE MANAGEMENT

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

4.9 MINE CLOSURE

The ultimate depth of the mine is 22m and the life of the mine is 10 years, after completion of mining operation the following action will be taken in the project site as a part of Mine closure plan

- The total Mined out land would be around 1.63.98Ha this land will be converted into temporary water reservoir which will facilitate to collect the rain water
- The stagnant water will be supplied to the nearby agriculture land during drought seasons
- Fencing will be re constructed around the pit after closure, the warning/ danger display board will be placed on all the sides of the project site
- The un utilized area and haul roads will be converted as plantation area, fruit bearing trees will be planted to retain the eco system of the area
- Final Mine closure plan will be prepared and submitted to the concerned authority

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

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

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

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

4.9.1 Mine Closure Criteria

The criteria involved in mine closure are discussed below:

4.9.1.1 Physical Stability

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

4.9.1.2 Chemical Stability

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

4.9.1.3 Biological Stability

The stability of the surrounding environment is primarily dependent upon the physical and chemical characteristics of the site, whereas the biological stability of the mine site itself is closely related to rehabilitation and final

land use. Nevertheless, biological stability can significantly influence physical or chemical stability by stabilizing soil cover, prevention of erosion/wash off, leaching, etc.,

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

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

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

5. ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

5.0 INTRODUCTION

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

5.1 FACTORS BEHIND THE SELECTION OF PROJECT SITE

The surrounding areas already undergone quarrying operation, there are 1 Crushers within the radius of 1km. Most of the quarries in the regions are abandoned and lease expired quarries. Hence this quarry will feed the rough stone and Gravel material to the crushing units.

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

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

5.2 ANALYSIS OF ALTERNATIVE SITE

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

5.3 FACTORS BEHIND SELECTION OF PROPOSED TECHNOLOGY

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

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

5.4 ANALYSIS OF ALTERNATIVE TECHNOLOGY

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

6. ENVIRONMENTAL MONITORING PROGRAMME

6.0 GENERAL

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

6.1 METHODOLOGY OF MONITORING MECHANISM

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

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

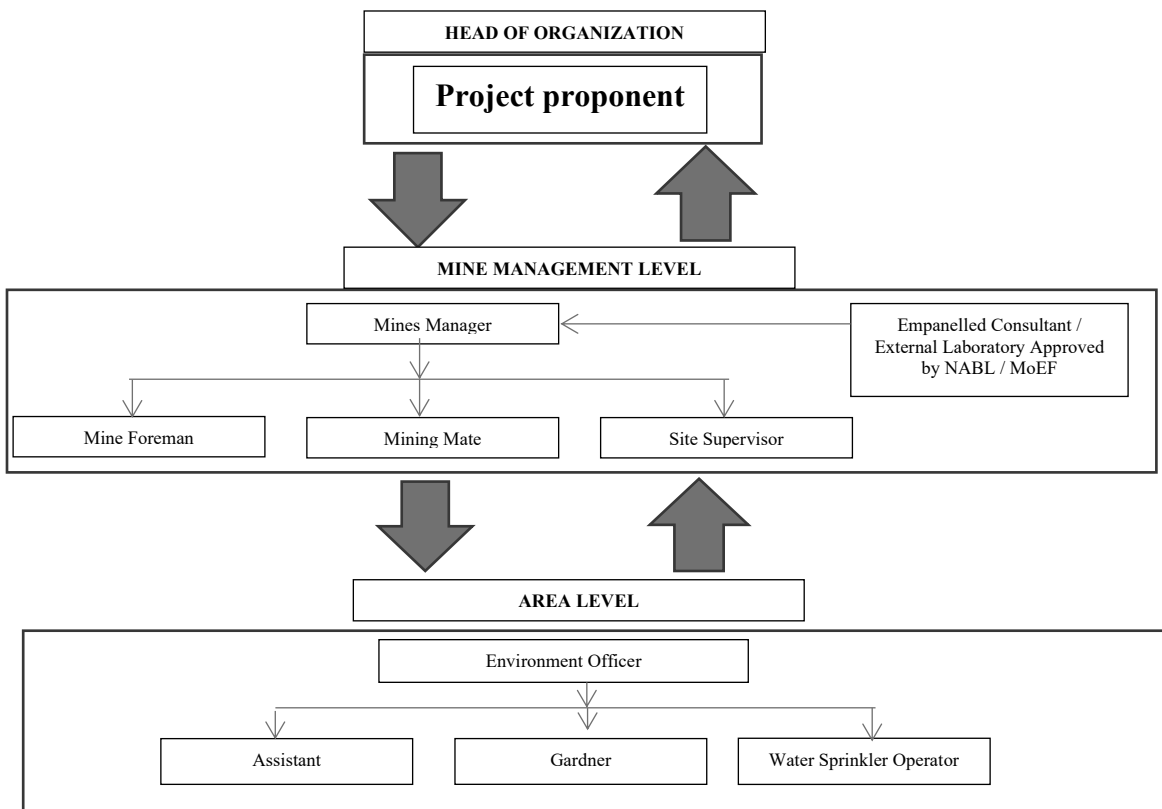
The responsibilities of this cell will be:

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

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

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

FIGURE 6.1: PROPOSED ENVIRONMENTAL MONITORING CELL P1



6.2 IMPLEMENTATION SCHEDULE OF MITIGATION MEASURES

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

TABLE 6.1 IMPLEMENTATION SCHEDULE

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

6.3 MONITORING SCHEDULE AND FREQUENCY

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

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

The details of monitoring are detailed in Table 6.2

TABLE 6.2: PROPOSED MONITORING SCHEDULE POST EC FOR P1

S.No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	
1	Air Quality	2 Locations (1 Core & 1 Buffer)	24 hours	Once in 6 months	Fugitive Dust, PM _{2.5} , PM ₁₀ , SO ₂ and NO _x .
2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall
3	Water Quality Monitoring	2 Locations (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 BUDGETARY PROVISION FOR EMP

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

The proposed capital cost for Environmental Monitoring Programme is Rs 76,000/- and the recurring cost is Rs 7,60,000/- per annum for this Project.

TABLE 6.3 ENVIRONMENT MONITORING PROGRAM BUDGET

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

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

Source: Approved Mining Plan

6.5 REPORTING SCHEDULES OF MONITORED DATA

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

Periodical reports to be submitted to: -

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

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

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

7. ADDITIONAL STUDIES

7.0 GENERAL

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

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

7.1. PUBLIC CONSULTATION

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

7.2 RISK ASSESSMENT

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

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

Factors of risks involved due to human induced activities in connection with these proposed mining & allied activities with detailed analysis of causes and control measures for the mine is given in below Table 7.1.0

TABLE 7.1 RISK ASSESSMENT& CONTROL MEASURES

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

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

		Operator of truck leaving his cabin when it is loaded.	
6	Natural calamities	Unexpected happenings	Escape Routes will be provided to prevent inundation of storm water Fire Extinguishers & Sand Buckets
7	Failure of Mine Benches and Pit Slope	Slope geometry, Geological structure	Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m height.

Source: Analysed and Proposed by FAE & EC

7.3 DISASTER MANAGEMENT PLAN

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

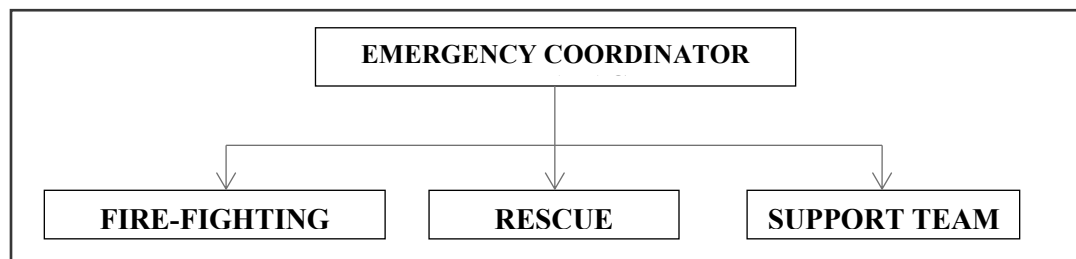
The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.

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

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

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

FIGURE 7.1: DISASTER MANAGEMENT TEAM LAYOUT



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

TABLE 7.2: PROPOSED TEAMS TO DEAL WITH EMERGENCY SITUATION

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

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

Roles and responsibilities of emergency team –

(a) Emergency coordinator (EC)

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

(b) Incident controller (IC)

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

(c) Communication and advisory team

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

(d) Roll call coordinator

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

(e) Search and rescue team

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

(f) Emergency security controller

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

Emergency control procedure –

The onset of emergency, will in all probability, commence with a major fire or explosion or collapse of wall along excavation and shall be detected by various safety devices and also by members of operational staff on duty. If

located by a staff member on duty, he (as per site emergency procedure of which he is adequately briefed) will go to nearest alarm call point, break glass and trigger off the alarms. He will also try his best to inform about location and nature of accident to the emergency control room. In accordance with work emergency procedure the following key activities will immediately take place to interpret and take control of emergency.

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

Proposed fire extinguishers at different locations –

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

TABLE 7.3: PROPOSED FIRE EXTINGUISHERS AT DIFFERENT LOCATIONS

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

Alarm system to be followed during disaster –

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

7.4 CUMULATIVE IMPACT STUDY

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

TABLE 7.4: LIST OF QUARRIES WITHIN 500 METER RADIUS

PROPOSED QUARRIES					
CODE	Name of the Owner	Mineral	S.F. Nos	Extent in Ha	Status
P1	Thiru. K. Sundramoorthy	Rough stone and Gravel	88/1, 2A and 88/4A (1.63.98 ha)	2.35.98	Under processing Present application (ToR obtained Lr No.SEIAA-TN/F.No.10479/S EAC/ToR-1654/2024 Dated: 08.02.2024)
			75/6, 75/7,75/8, 75/9,85/1, 2 (0.72.0 ha)		
P2	M/s.Naraj Blue Metals P Ltd.	Rough stone and Gravel	264/2(P),264/3 A(P),267/1B,2 67/2(P),267/3.	4.32.10	EC Granted
TOTAL EXTENT				6.68.08	
EXISTING QUARRIES					
CODE	Name of the Owner	Mineral	S.F. Nos	Extent in Ha	Status
E-1	Thiru.S. Balaji	Rough stone and Gravel	264/1A(P)	1.62.0	Lease Period 30.09.2020 – 29.09.2025
E-2	Tvl.Uma Blue Metals	Rough stone and Gravel	270/1, 2, 272/4, 5A	3.20.0	Lease Period 20.07.2023 – 19.07.2025 (18 months)
TOTAL EXTENT				4.82.0	
ABANDONED QUARRIES					
A-1	Tmt.S. Manonmani	Rough stone and Gravel	264/1A	2.83.50	17.10.2009 – 16.10.2014
A-2	Thiru.D. Venunathan	Rough stone and Gravel	272/5A	0.88.0	05.09.2013-04.09.2018
A-3	Thiru.R. Ranganathan	Rough stone and Gravel	268/1B1B	1.24.50	06.02.2014-05.02.2019
A-4	Tmt.S. Manonmani	Rough stone and Gravel	266/3	1.21.0	16.03.2015-15.03.2020
TOTAL EXTENT				6.17.0 ha	
TOTAL CLUSTER EXTENT				11.50.08 ha	

- Cluster area is calculated as per MoEF & CC Notification – S.O. 2269 (E) Dated: 01.07.2016
- * Homogeneous Minerals will be taken for calculating the Cluster Area.

TABLE 7.5: SALIENT FEATURES OF PROPOSAL “P1”

Name of the Project	Thiru. K. Sundramoorthy Rough stone and Gravel Quarry	
S.F. No.	88/1, 88/2A and 88/4A	
Extent	2.35.98 ha (1.63.98 ha is Mining Area & 0.72 is Dump and Green belt Area)	
Village Taluk and District	Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu State.	
Land Type	Patta Land	
Existing quarry operation	Nil, it is a Fresh area	
Toposheet No	66 D/03	
Latitude between	12°25'56.6724"N to 12°26'02.8961"N	
Longitude between	80°02'53.5538"E to 80°03'03.8121"E	
Elevation of the area	100m AMSL	
Water Level	49m bgl	
Lease period	10 Years	
Mining Plan period	10 years	
Proposed Depth for current mining plan	22m bgl	
Geological Resources	Rough stone	Gravel in m³
	3,27,960	32,796
Mineable Reserves	90,980	18,482
For First Five Year Production	66,025	18,482
For Second Five Year Production	24,955	-
Peak Production	13,705	6,346
Ultimate Pit Dimension	Block-1: 99m (L) x 147m (W) x 22m(D) Bgl	
Method of Mining	Opencast Mechanized Mining Method involving small drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area is exhibiting plain terrain. The area has gentle sloping towards Northeast side and altitude of the area is 100m above from Mean Sea Level. The area is covered by 2m thickness of Gravel and followed by Massive Charnockite which is clearly inferred from the outcrops.	
Machinery proposed	Jack Hammer	2Nos
	Compressor	1 No
	Excavator with Bucket and Rock Breaker	1 No
	Tipper	2 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough stone and Gravel.	
Proposed Manpower Deployment	20 Nos	
A. Operational Cost	Rs. 64,77,000/-	
B. EMP cost	Rs. 7,60,000/-	
Total Project cost	Rs.72,37,000/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Tank	370m SE
	Tank	800m South

	Tank	810m SW
	Tank	850m North
	Tank	1km NE
	Canal	4.5km East
	Pallavankulam Lake	5.4km North
	odiyur Lake	6.8km South
	Palar River	7.3km NE
Greenbelt Development Plan	Proposed to plant 1200 Nos of trees considering 500 Nos of trees/ Ha criteria The plantation will be developed around the project site and nearby village roads	
Proposed Water Requirement	1.7 KLD	
Nearest Habitation	990m-SW	
Nearest Reserve Forest	Polavar Puriyambakkam II R.F – 14.03km (Source - TNGIS)	
Nearest Wild Life Sanctuary	Vedanthangal Birds Sanctuary -5km Belt = 19 Km - NW	

Source: Approved Mining Plan

TABLE 7.6: SALIENT FEATURES OF PROPOSAL “E1”

Name of the Quarry	Thiru.S. Balaji Rough stone and Gravel Quarry	
EC copy	Lr. SEIAA-TN/F.No.7052/1(a)/EC. No:4346/2020 Dated: 10.09.2020	
S.F.Nos	264/1A(P)	
Extent	1.62.0 Ha	
Lease Period	5 Years	
Toposheet No	66 D/03	
Latitude between	12°25'54.84"N to 12°25'58.60"N	
Longitude between	80°02'50.76"E to 80°02'56.77"E	
Geological Resources	Rough stone m ³	Gravel m ³
	7,26,140 m ³	33,660
EC Approved Quantity	3,31,500 m ³	3,400 m ³
Ultimate Pit Dimension	142(L) * 95 (W) * 47(D) Bgl	
Existing Quarry Pit	74 (L) * 68 (W) * 2 (D) Bgl	
Depth of Mining (Approved EC)	42m (12 Agl +30m Bgl)	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Machinery proposed	Jack Hammer	8 Nos
	Compressor	2 No
	Hydraulic Excavator	1 No
	Tipplers	3Nos
Proposed Manpower Deployment	33	
Total Project Cost	Rs.76,92,360/-	
CER Cost @ 2% of Project Cost	Rs. 1,61,500/-	
Nearest Habitation	320m-NW	

Source: Approved Mining Plan

TABLE 7.7: SALIENT FEATURES OF PROPOSAL “E2”

Name of the Quarry	Tvl. Uma Blue Metals Rough stone and Gravel Quarry
EC applied Proposal No	SIA/TN/MIN/449481/2023
S.F. Nos	270/1, 2, 272/4, 5A
Extent	3.20.0 Ha
Toposheet No	66 D/03

Lease period	5Years	
Latitude between	12°25'41"N - 12°25'50"N	
Longitude between	80°03'09"E - 80°03'17" E	
Geological Resources	Rough stone and Gravel in m ³	Gravel in m ³
	23,55,842 m ³	-
Mineable Reserves	Rough stone in m ³	Gravel in m ³
	7,63,760 m ³	37,022
Year wise Production	Rough stone and Gravel in m ³	Gravel in m ³
	7,63,760 m ³	37,022
Depth of mining	62.0m Bgl	
Ultimate Pit Dimension	237 (L) * 131(W) * 62.0 (D) Bgl	
Existing Pit Dimension	PitI:37 (L) * 23 (W) * 14.0 (D) Bgl PitII:66 (L) * 61(W) * 14.0 (D) Bgl	
Water Level depth	70-75m	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Machinery proposed	Jack Hammer	6Nos
	Compressor	2 No
	Hydraulic Excavator	2No
	Tipplers	4Nos
Proposed Manpower Deployment	16	
Project Cost	Rs.52,50,000/-	

Source: Approved Mining Plan

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

Air Environment –

Calculating the Cumulative Load of Mining within the cluster is as shown in table 7.10 & 7.11.

TABLE 7.8: CUMULATIVE PRODUCTION LOAD OF ROUGH STONE

Quarry	Production for five/Ten year plan period	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day
P1	90,980	9,098	30	3
Total	90,980	9,098	30	3
E1	3,31,500	66,300	221	18
E2	7,63,760	1,52,752	509	42
Total	10,95,260	2,19,052	730	60
Grand Total	11,86,240	2,28,150	760	63

TABLE 7.9: CUMULATIVE PRODUCTION LOAD OF GRAVEL

Quarry	Production for one, two- three-year plan period	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Week
P1	18,482	6,161	21	2
Total	18,482	6,161	21	2
E1	3,400	3,400	11	1
E2	37,022	18,511	62	5

Total	40,422	21,911	73	6
Grand Total	58,904	28,072	94	8

On a cumulative basis considering the proposed quarry, it can be seen that the overall production of Rough stone and Gravel is 854m³ per day and overall production with a capacity of 63 trips of Rough stone and Gravel per day from the cluster.

Note: Per day production of rough stone and Gravel is calculated for 10 Years Lease Period and for Topsoil production with 1 year 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 3 mines includes various activities like ground preparation, excavation, handling and transport of ore. These activities have been analysed systematically basing on USEPA-Emission Estimation Technique Manual, for Mining AP-42, to arrive at possible emissions to the atmosphere and estimated emissions are given in Table 7.10.

TABLE 7.10: EMISSION ESTIMATION FROM QUARRIES WITHIN 500 METER RADIUS

EMISSION ESTIMATION FOR QUARRY "P1"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.066429933	g/s
	Blasting	Point Source	0.000312920	g/s
	Mineral Loading	Point Source	0.040162431	g/s
	Haul Road	Line Source	0.00248787	g/s/m
	Overall Mine	Area Source	0.047344183	g/s
	Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000364877
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000013735	g/s
EMISSION ESTIMATION FOR QUARRY "E1"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.094622010	g/s
	Blasting	Point Source	0.001834743	g/s
	Mineral Loading	Point Source	0.043294420	g/s
	Haul Road	Line Source	0.002494261	g/s/m
	Overall Mine	Area Source	0.048362274	g/s
	Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000813826
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000030824	g/s
EMISSION ESTIMATION FOR QUARRY "E2"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.119176081	g/s
	Blasting	Point Source	0.005815137	g/s
	Mineral Loading	Point Source	0.047496381	g/s
	Haul Road	Line Source	0.002512717	g/s/m
	Overall Mine	Area Source	0.067753477	g/s
	Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.002047831
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000149429	g/s

Source: Emission Calculation

TABLE 7.11: INCREMENTAL & RESULTANT GLC WITHIN CLUSTER

PM₁₀ in µg/m³	
Background	45.7

Incremental	14.9
Resultant	60.6
NAAQ Norms	100 µg/m³
PM_{2.5} in µg/m³	
Background	21.7
Incremental	6.95
Resultant	28.7
NAAQ Norms	60 µg/ m³
So₂ in µg/m³	
Background	5.8
Incremental	1.79
Resultant	8.79
NAAQ Norms	80 µg/ m³
No₂ in µg/m³	
Background	24.4
Incremental	9.77
Resultant	34.1
NAAQ Norms	80 µg/ m³

Noise Environment –

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

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

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

Where:

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.

$$Lp_{total} = 10 \log \{10^{(Lp1/10)} + 10^{(Lp2/10)} + 10^{(Lp3/10)} + \dots\}$$

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 7.12: PREDICTED NOISE INCREMENTAL VALUES MINES

Location ID	N1	N2	N3	N4	N5	N6	N7	N8
Maximum Monitored Value (Day) dB(A)	47.2	46.7	47.3	46.6	46.2	47.10	45.10	45.90
Incremental Value dB(A)	66.1	60.1	54.1	36.6	28.5	24.3	29.2	26.1
Total Predicted Noise level dB(A)	66.2	60.3	54.9	47.0	46.3	47.1	45.2	45.9

Source: Lab Monitoring Data

The incremental noise level is found within the range of 24.3 – 54.1 dB (A) in Buffer zone. The noise level at different receptors in buffer zone is lower due to the distance involved and other topographical features adding to the noise attenuation. The resultant Noise level due to monitored values and calculated values at the receptors are based on the mathematical formula considering attenuation due to Green Belt as 4.9 dB (A) the barrier effect. From the above table, it can be seen that the ambient noise levels at all the locations 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 3 Mines within cluster are anticipated due to operation of Mining Machines like Excavators, drilling and blasting, transportation vehicles, etc. However, the major source of ground vibration from the all the 6 mines is blasting. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease area. The kuchha houses are more prone to cracks and damage due to the vibrations induced by blasting whereas RCC framed structures can withstand more ground vibrations. Apart from this, the ground vibrations may develop a fear factor in the nearby settlements nearby the mining areas and may cause injury to persons or damage to the structures. Nearest Habitations from 3 mines respectively are as in below Table 7.13.

TABLE 7.13: NEAREST HABITATION FROM EACH MINE

Location ID	Distance & Direction
Habitation Near P1	990m-SW
Habitation Near E1	320m-NW
Habitation Near E2	675m-E

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 7.14: GROUND VIBRATIONS AT 3 MINES

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	16	990m-SW	0.074
E1	96	320m-NW	1.890
E2	124	675m-E	1.116

Source: Blasting Calculations

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

Socio Economic Environment –

The 3mines shall contribute towards CER and the community shall develop.

TABLE 7.15: SOCIO ECONOMIC BENEFITS FROM 3 MINES

Location ID	Project Cost	CER
P1	Rs. 77,24,000/-	Rs.5,00,000/-
E1	Rs.76,92,360/-	Rs. 1,61,500/-
E2	Rs. 52,50,000/-	Rs 5,00,000/-

Total	Rs 2,06,66,360/-	Rs. 11,61,500/-
--------------	-------------------------	------------------------

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

- Proposed Projects shall fund towards CER – **Rs 5,00,000/-**

TABLE 7.16: EMPLOYMENT BENEFITS FROM 3MINES

Description	Employment
P1	20
Total	20
E1	32
E2	16
Total	48
Grand Total	68

A total of 20 people will get employment due to 1 proposed mine in cluster and 48 people are already employed at existing mines.

TABLE 7.17: GREENBELT DEVELOPMENT BENEFITS FROM 3 MINES

CODE	No of Trees proposed to be planted	Survival %	Area Covered Sq.m	Name of the Species
P1	1200	80%	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development	Neem, Pinnata, Pongamia, Ashoka etc.,
Total	1200			
E1	810			
E2	1,600			
Total	2,410			
G. Total	3,610			

Based on the Proposed Mining Plans it's anticipated that there shall growth of native species of Neem, Pinnata et., in the Cluster at a rate of 3,610 Trees Planted over a period of 10Years with Survival Rate of 80%.

7.5 PLASTIC WASTE MANAGEMENT PLAN

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

Objective –

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

TABLE 7.18: ACTION PLAN TO MANAGE PLASTIC WASTE

Sl.No.	Activity	Responsibility
1	Framing of Layout Design by incorporating provision of the Rules, user fee to be charged from waste generators for plastic waste management, penalties/fines for littering, burning plastic waste or committing any other acts of public nuisance	Mines Manager
2	Enforcing waste generators to practice segregation of bio-degradable, recyclable and domestic hazardous waste	Mines Manager
3	Collection of plastic waste	Mines Foreman

4	Setting up of Material Recovery Facilities	Mines Manager
5	Segregation of Recyclable and Non-Recyclable plastic waste at Material Recovery Facilities	Mines Foreman
6	Channelization of Recyclable Plastic Waste to registered recyclers	Mines Foreman
7	Channelization of Non-Recyclable Plastic Waste for use either in Cement kilns, in Road Construction	Mines Foreman
8	Creating awareness among all the stakeholders about their responsibility	Mines Manager
9	Surprise checking's of littering, open burning of plastic waste or committing any other acts of public nuisance	Mine Owner

Source: Proposed by FAE's and EC

8.PROJECT BENEFITS

8.0 GENERAL

The Proposed Project for Quarrying Rough stone and Gravel at Nelvaipalayam Village aims to produce **90,980 m³** rough stone over a period of 10 Years and Gravel 18,482 m³ for period of 3 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 20 persons for carrying out mining operations and give preference to the local people in providing employment in the three proposed quarries in the cluster. In addition, there will be opportunity for indirect employment to many people in the form of contractual jobs, business opportunities, service facilities etc. the economic status of the local people will be enhanced due to mining project.

8.2 SOCIO-ECONOMIC WELFARE MEASURES PROPOSED

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

8.3 IMPROVEMENT IN PHYSICAL INFRASTRUCTURE

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

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

8.4 IMPROVEMENT IN SOCIAL INFRASTRUCTURE

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

8.5 OTHER TANGIBLE BENEFITS

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

- Indirect employment opportunities to local people in contractual works like construction of infrastructural facilities, transportation, sanitation, for supply of goods and services to the mine and other community services.

- Additional housing demand for rental accommodation will increase
- Cultural, recreation and aesthetic facilities will also improve
- Improvement in communication, transport, education, community development and medical facilities and overall change in employment and income opportunity
- The State Government will also benefit directly from the proposed mine, through increased revenue from royalties, cess, DMF, GST etc.,

CORPORATE SOCIAL RESPONSIBILITY

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

CSR Cost Estimation

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

CORPORATE ENVIRONMENT RESPONSIBILITY

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

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

TABLE 8.1 CER – ACTION PLAN

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

9. ENVIRONMENTAL COST BENEFIT ANALYSIS

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

10. ENVIRONMENTAL MANAGEMENT PLAN

10.0. GENERAL

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

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

10.1. ENVIRONMENTAL POLICY

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

The Proponent Thiru.K. Sundramoorthy will –

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

Description of the Administration and Technical Setup –

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

The said team will be responsible for:

- Monitoring of the water/ waste water quality, air quality and solid waste generated
- Analysis of the water and air samples collected through external laboratory
- Implementation and monitoring of the pollution control and protective measures/ devices which shall include financial estimation, ordering, installation of air pollution control equipment, waste water treatment plant, etc.
- Co-ordination of the environment related activities within the project as well as with outside agencies
- Collection of health statistics of the workers and population of the surrounding villages
- Green belt development
- Monitoring the progress of implementation of the environmental monitoring programme
- Compliance to statutory provisions, norms of State Pollution Control Board, Ministry of Environment and Forests and the conditions of the environmental clearance as well as the consents to establish and consents to operate.

10.2. LAND ENVIRONMENT MANAGEMENT –

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

TABLE 10.1. PROPOSED CONTROLS FOR LAND ENVIRONMENT

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

Source: Proposed by FAE's & EIA Coordinator.

10.3. SOIL MANAGEMENT

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

TABLE 10.2. PROPOSED CONTROLS FOR SOIL MANAGEMENT

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

Source: Proposed by FAE's & EIA Coordinator

10.4. WATER MANAGEMENT

In the proposed quarrying project, no process is involved for the effluent generation, only oil & grease from the machinery wash is anticipated and domestic sewage from mines office. The quarrying operation is proposed up to a depth of 22m the water table in the area is 49m below ground level, hence the proposed projects will not intersect the Ground water table during entire quarry period.

TABLE 10.3. PROPOSED CONTROLS FOR WATER ENVIRONMENT

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

Source: Proposed by FAE's & EIA Coordinator

10.5. AIR QUALITY MANAGEMENT

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

TABLE 10.4. PROPOSED CONTROLS FOR AIR ENVIRONMENT

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

Source: Proposed by FAE's & EIA Coordinator

10.6. NOISE POLLUTION CONTROL

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

TABLE 10.5.: PROPOSED CONTROLS FOR NOISE ENVIRONMENT

CONTROL	RESPONSIBILITY
Development of thick greenbelt all along the Buffer Zone (7.5 Meters) of the project area to attenuate the noise and the same will be maintained	Mines Manager
Preventive maintenance of mining machinery and replacement of worn-out accessories to control noise generation	Mines Foreman
Deployment of mining equipment with an inbuilt mechanism to reduce noise	Mines Manager
Provision of earmuff/ ear plugs to workers working in noise prone zones in the mines	Mining Mate

Provision of effective silencers for mining machinery and transport vehicles	Mines Manager
Provision of sound proof AC operator cabins to HEMM	Mines Manager
Sharp drill bits are used to minimize noise from drilling	Mines Foreman
Controlled blasting technologies are adopted by using delay detonators to minimize noise from blasting	Mines Manager
Annual ambient noise level monitoring are carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring	Mines Manager
Reduce maximum instantaneous charge using delays while blasting	Mining Mate
Change the burden and spacing by altering the drilling pattern and/or delay layout, or altering the hole inclination	Mines Manager
Undertake noise or vibration monitoring	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.7. GROUND VIBRATION AND FLY ROCK CONTROL

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

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

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

Source: Proposed by FAE's & EIA Coordinator

10.8. BIOLOGICAL ENVIRONMENT MANAGEMENT

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

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

- Greenbelt development all along the safety barrier of the project area
- It is also proposed to implement the greenbelt development programme and post plantation status will be regularly checked for every season.
- The main attributes that retard the survival of sapling is fugitive dust, this fugitive dust can be controlled by water sprinkling on the haul roads and installing a sprinkler unit near the newly planted area.
- Year wise greenbelt development will be recorded and monitored
 - Based on the area of plantation.
 - Period of plantation
 - Type of plantation
 - Spacing between the plants
 - Type of manuring and fertilizers and its periods

- Lopping period, interval of watering
- Survival rate
- Density of plantation
- The ultimate reclamation planned leaves a congenial environment for development of flora & immigration of small fauna through green belt and water reservoir. The green belt and water reservoir developed within the Project at the end of mine life will attract the birds and animals towards the project area in the post mining period.

10.8.1. Green Belt Development Plan

About 1200nos. of saplings is proposed to be planted for the Mining plan period in safety barrier of applied mine lease area with survival rate 80%. The greenbelt development plan has been prepared keeping in view the land use changes that will occur due to mining operation in the area.

TABLE 10.7: PROPOSED GREENBELT ACTIVITIES

Year	No. of trees proposed to be planted	Area to be covered in m ²	Name of the species
I	1200	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development.	Neem, Pongamia Pinnata etc.,

Source: Approved Mining plan

The objectives of the greenbelt development plan are –

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

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

10.8.2. Species Recommended for Plantation

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

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

TABLE 10.8. RECOMMENDED SPECIES FOR THE PLANTSAITON

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

Source: Proposed by FAE's & EIA Coordinator

10.9. OCCUPATIONAL SAFETY & HEALTH MANAGEMENT

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

10.9.1. Medical Surveillance and Examinations –

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

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

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

TABLE 10.9. MEDICAL EXAMINATION SCHEDULE

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

10.9.2 Proposed Occupational Health and Safety Measures –

- The mine site will have adequate drinking water supply so that workers do not get dehydrated.
- Lightweight and loose-fitting clothes having light colours will be preferred to wear.
- Noise exposure measurements will be taken to determine the need for noise control strategies.
- The personal protective equipment will be provided for mine workers.
- At noisy working activity, exposure time will be minimized.
- Dust generating sources will be identified and proper control measure will be adopted.
- Periodic medical examinations will be provided for all workers.
- In respect of contract work, safety code for contractors and workers will be implemented. They will be allowed to work under strict supervision of statutory person/officials only after they will impart training at vocational training centres. All personal protective equipment's will be provided to them.

- A safety committee meeting every month will be organized to discuss the safety of the mines and the persons employed.
- Celebration of annual mines safety week and environmental week in order to develop safety awareness and harmony amongst employees and co quarry owners.

FIGURE 10.1.: PERSONAL PROTECTIVE EQUIPMENT TO THE MINE WORKERS



10.9.3: Health and Safety Training Programme

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

10.9.4.: Budgetary Provision for Environmental Management

Adequate budgetary provision has been made by the Company for execution of Environmental Management Plan. The Table 10.11 gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures.

TABLE 10.10: EMP BUDGET FOR PROPOSED PROJECT

Activities	Mitigation Measure	Provision for Implementation	Capital	Recurring
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	16398	16398
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	800000	50000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	5000
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance - 2 Units	50000	5000
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Truck/Dumper deployed - 2 Units	10000	500
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5000
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	32796
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0

	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / 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	118274
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	5000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Mine Closure	1. Progressive Closure Activity - Surface Runoff management	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	16398	5000
	2. Progressive Closure Activity Barbed Wire Fencing to quarry area will be provisioned.	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	327960	10000

	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 2500 Trees - (1100 Inside Lease Area & 100 Outside Lease Area)	Site clearance, preparation of land, digging of pits / trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	220000	33000
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	30000	3000
	4. Implementation of Final Mine Closure Activity as per Approved Mining Plan on Last Year	Few activities already covered as progressive closure activities as greenbelt development, wire fencing, garland drain. *For Final Closure Activities 15% of the proposed closure cost will be spent during the final mine closure stage - Last Year	103950	0
	5. Contribution towards Green Fund. As per TNMMCR 1959, Rule 35 A	The Contribution towards Green Funds @ 10% of Seigniorage fee are indicated as part of EMP Budge and not necessarily implemented in the Project Site	818820	0
Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	10000	1000
	Air, Water, Noise and Soil Quality Sampling every 6 Months for Compliance Report of EC Conditions	Submission of 2 Half Yearly Compliance - Lab Monitoring Report as per CPCB norms	0	50000
	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee) - 20 Employees	80000	20000

	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	20000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	3279.6
	Slope stability action plan	Slope stability action plan in the end of fourth year plan period	200000	0
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000
	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	81990	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000
	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 st Class / 2 nd Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR,1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0	780000
CER	As per MoEF &CC OM 22-65/2017-IA.III Dated 25.02.2021	Detailed Description in following slides and Budget allocation is included as per MoeEF & CC OM	500000	0
TOTAL			2492746	1234248

*Marked cost is already discussed in the mining plan hence that is not included in the total Environmental Management plan cost Total Cost for the five years. The EMP has been prepared for the entire **lease period of 10 years** for the peak production capacity of **13,705m³ of Rough Stone**.

Year	Total Cost	Year	Total Cost
1 st	₹ 37,26,994	6 th	₹ 28,21,620
2 nd	₹ 12,95,960	7 th	₹ 17,16,328
3 rd	₹ 13,60,758	8 th	₹ 18,02,145
4 th	₹ 14,28,796	9 th	₹ 18,92,252
5 th	₹ 15,00,236	10 th	₹ 20,90,815
Total ₹. 319 Lakhs			

Cost inflation 5% per annum

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

10.10.: CONCLUSION –

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

11. SUMMARY AND CONCLUSION

This EIA & EMP report prepared for the proposed rough stone and Gravel quarry project located in S.F. No 88/1, 2A and 4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District belongs to Thiru. K. Sundramoorthy the Project falls in the Cluster category consist of 2 Proposed, 2 Existing Quarries falls under “B” category as per MoEF & CC Notification S.O. 3977 (E).

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

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

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

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster quarries and formulate the effective mitigation measures for each individual leases. A detailed account of the emission sources, emissions control equipment, background Air quality levels, Meteorological measurements, Dispersion model and all other aspects of pollution like effluent discharge, Dust generation etc., have been discussed in this report. The baseline monitoring study has been carried out during the months March2024–May2024 for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suitable mitigation measures for likely adverse impacts due to the proposed project is suggested individually for the respective proposed project under Chapter 10.

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

Mining operations has positive impact on environment and socio economy such as landscape improvement, water as by-product, economy development and better public services, providing and supply of rough stone and Gravel as per market demand. Sustainable and modern mining leads us to see positive impact of mining operation and providing consistent employment for nearly 20 people directly in the proposed projects and indirectly around 50 people.

As discussed, it is safe to say that the proposed quarries are not likely to cause any significant impact to the ecology of the area, as adequate preventive measures will be adopted to keep the various pollutants within the permissible limits. Green belt development around the area will also be taken up as an effective pollution mitigate technique, as well as to serve as biological indicators for the pollutants released from the Thiru.K. Sundramoorthy Rough Stone and Gravel Quarry 2.35.98Ha.

12. DISCLOSURE OF CONSULTANT

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

Name and address of the consultancy:

GEO EXPLORATION AND MINING SOLUTIONS

No 17, Advaita Ashram Road,

Alagapuram, Salem – 636 004

Tamil Nadu, India

Email: infogeoexploration@gmail.com

Web: www.gemssalem.com

Phone: 0427 2431989.

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

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

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

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA/EMP

This EIA/EMP for Thiru.K. Sundramoorthy Rough Stone and Gravel Quarry in Extent of 2.35.98Ha in Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District of Tamil Nadu is prepared as per the Generic Structure of EIA Guidelines manual. It is also certified that information furnished in the above EIA study are true and correct to the best of our knowledge.

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

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

Designation: **EIA Coordinator**

Date & Signature:




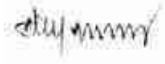

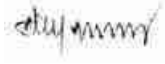














Period of Involvement: **January 2023 to till date**

Associated Team Member with EIA Coordinator:

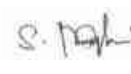
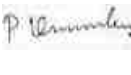

1. Mr. S. Nagamani
2. Mr. P. Viswanathan
3. Mr. M. Santhoshkumar
4. Mr. S. Ilavarasan

FUNCTIONAL AREA EXPERTS ENGAGED IN THE PROJECT

Sl. No	Functional Area	Involvement	Name of the Expert/s	Signature
1	AP	<ul style="list-style-type: none"> ▪ Identification of different sources of air pollution due to the proposed mine activity ▪ Prediction of air pollution and propose mitigation measures / control measures 	Mr. A. Jagannathan	
2	WP	<ul style="list-style-type: none"> ▪ Suggesting water treatment systems, drainage facilities ▪ Evaluating probable impacts of effluent/waste water discharges into the receiving environment/water bodies and suggesting control measures. 	Dr. M. Ifthikhar Ahmed	
			Mr. N. Senthilkumar	
3	HG	<ul style="list-style-type: none"> ▪ Interpretation of ground water table and predict impact and propose mitigation measures. ▪ Analysis and description of aquifer Characteristics 	Dr. P. Thangaraju	
4	GEO	<ul style="list-style-type: none"> ▪ Field Survey for assessing the regional and local geology of the area. ▪ Preparation of mineral and geological maps. ▪ Geology and Geo morphological analysis/description and Stratigraphy/Lithology. 	Dr. M. Ifthikhar Ahmed	
			Dr. P. Thangaraju	
5	SE	<ul style="list-style-type: none"> ▪ Revision in secondary data as per Census of India, 2011. ▪ Impact Assessment & Preventive Management Plan ▪ Corporate Environment Responsibility. 	Mrs. K. Anitha	

6	EB	<ul style="list-style-type: none"> ▪ Collection of Baseline data of Flora and Fauna. ▪ Identification of species labelled as Rare, Endangered and threatened as per IUCN list. ▪ Impact of the project on flora and fauna. ▪ Suggesting species for greenbelt development. 	Mrs. Amirtham	
			Mr. Alagappa Moses	
7	RH	<ul style="list-style-type: none"> ▪ Identification of hazards and hazardous substances ▪ Risks and consequences analysis ▪ Vulnerability assessment ▪ Preparation of Emergency Preparedness Plan ▪ Management plan for safety. 	Mr. N. Senthilkumar	
			Mr. S. Pavel	
			Mr. J. R. Vikram Krishna	
8	LU	<ul style="list-style-type: none"> ▪ Construction of Land use Map ▪ Impact of project on surrounding land use ▪ Suggesting post closure sustainable land use and mitigative measures. 	Mr. A. Allimuthu	
9	NV	<ul style="list-style-type: none"> ▪ Identify impacts due to noise and vibrations ▪ Suggesting appropriate mitigation measures for EMP. 	Mr. A. Jagannathan	
10	AQ	<ul style="list-style-type: none"> ▪ Identifying different source of emissions and propose predictions of incremental GLC using AERMOD. ▪ Recommending mitigations measures for EMP 	Mr. N. Senthilkumar	
11	SC	<ul style="list-style-type: none"> ▪ Assessing the impact on soil environment and proposed mitigation measures for soil conservation 	Dr. M. Iftikhar Ahmed	
12	SHW	<ul style="list-style-type: none"> ▪ Identify source of generation of non-hazardous solid waste and hazardous waste. ▪ Suggesting measures for minimization of generation of waste and how it can be reused or recycled. 	Mr. A. Jagannathan	
			Mr. J. R. Vikram Krishna	

LIST OF TEAM MEMBERS ENGAGED IN THIS PROJECT

Sl.No.	Name	Functional Area	Involvement	Signature
1	Mr. S. Nagamani	AP; GEO; AQ	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Provide inputs & Assisting FAE with sources of Air Pollution, its impact and suggest control measures ▪ Provide inputs on Geological Aspects ▪ Analyse & provide inputs and assist FAE with meteorological data, emission estimation, AERMOD modelling and suggesting control measures 	
2	Mr. Viswathanan	AP; WP; LU	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Provide inputs & Assisting FAE with sources of Air Pollution, its impact and suggest control measures ▪ Assisting FAE on sources of water pollution, its impacts and suggest control measures ▪ Assisting FAE in preparation of land use maps 	
3	Mr. Santhoshkumar	GEO; SC	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Provide inputs on Geological Aspects ▪ Assist in Resources & Reserve Calculation and preparation of Production Plan & Conceptual Plan ▪ Provide inputs & Assisting FAE with soil conservation methods and identifying impacts 	

4	Mr. Umamahesvaran	GEO	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Provide inputs on Geological Aspects ▪ Assist in Resources & Reserve Calculation and preparation of Production Plan & Conceptual Plan 	<i>S. Chandrasekhar</i>
5	Mr. A. Allimuthu	SE	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE with collection of data's ▪ Provide inputs by analysing primary and secondary data 	<i>allimuthu</i>
6	Mr. S. Ilavarasan	LU; SC	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assisting FAE in preparation of land use maps ▪ Provide inputs & Assisting FAE with soil conservation methods and identifying impacts 	<i>S. Ilavarasan</i>
7	Mr. E. Vadivel	HG	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE & provide inputs on aquifer characteristics, ground water level/table ▪ Assist with methods of ground water recharge and conduct pump test, flow rate 	<i>E. Vadivel</i>
8	Mr. D. Dinesh	NV	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE and provide inputs on impacts due to proposed mine activity and suggest mitigation measures ▪ Assist FAE with prediction modelling 	<i>D. Dinesh</i>
9	Mr. Panneer Selvam	EB	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE with collection of baseline data ▪ Provide inputs and assist with labelling of Flora and Fauna 	<i>P. Panneer Selvam</i>
10	Mrs. Nathiya	EB	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE with collection of baseline data ▪ Provide inputs and assist with labelling of Flora and Fauna 	<i>T. Ganapathy</i>

DECLARATION BY THE HEAD OF THE ACCREDITED CONSULTANT ORGANIZATION

I, Dr. M. Ifthikhar Ahmed, Managing Partner, Geo Exploration and Mining Solutions, hereby, confirm that the above-mentioned Functional Area Experts and Team Members prepared the EIA/EMP for Thiru.K. Sundramoorthy Rough Stone and Gravel Quarry in Extent of 2.35.98Ha in Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District of Tamil Nadu. It is also certified that information furnished in the EIA study are true and correct to the best of our knowledge.

Signature& Date:



Name:

Dr. M. Ifthikhar Ahmed

Designation:

Managing Partner

Name of the EIA Consultant Organization:

M/s. Geo Exploration and Mining Solutions

NABET Certificate No & Issue Date:

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

Validity:

Valid till 06.08.2025

ANNEXURE

THIRU.K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY

Block I- S.F. Nos:

88/1, 88/2A and 88/4A

Extent: 1.63.98Ha (Mining area)

Block-II S.F Nos:

75/6, 75/7,75/8,75/9,85/1, 2

Extent: 0.72.0 Ha

(Stocking the mined material or dumping the waste/reject material or
for parking vehicles or establishing mine office)

Nelvaipalayam Village, Cheyyur Taluk,

Chengalpattu District.

ToR obtained vide

Lr No. SEIAA-TN/F.No.10479/SEAC/ToR-1654/2024 Dated: 08.02.2024

Project Proponent

Thiru.K. Sundramoorthy,

S/o. Kanniyappan,

No.1/31, Lingamedu street, Manamai village,

Thirukazhukkundram Taluk,

Chengalpattu District.

LIST OF ANNEXURES

ANNEXURES	DESCRIPTION	PAGE NOS
P1 THIRU.K. SUNDRAMOORTHY	COPY OF TERMS OF REFERENCE	1A – 25A
	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	26A – 27A
	COPY OF MINING PLAN APPROVED LETTER	28A – 29A
	COPY OF APPROVED MINING PLAN WITH PLATES	30A – 139A
	COPY OF HYDROGEOLOGICAL REPORT	140A – 147A
	COPY OF INSPECTION REPORT	148A – 160A
	COPY OF EXPLOSIVES LETTER	161A – 164A
	COPY OF 300m & VAO ATTESTATION LETTER	165A – 166A
E1 THIRU.S. BALAJI	COPY OF ENVIRONMENTAL CLEARANCE	167A – 184A
E2 TVL.UMA BLUE METALS	COPY OF MINING PLAN APPROVED LETTER	185A – 187A
	COPY OF BASE LINE MONITORING DATA	188A – 229A
	COPY OF CONSULTANT ACCREDITATION CERTIFICATE	230A



THIRU. A.R. RAHUL NADH, I.A.S.
MEMBER SECRETARY

**STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY-TAMILNADU**

3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai - 600 015.
Phone No. 044-24359973
Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr No.SEIAA-TN/F.No.10479/SEAC/ToR-1654/2024 Dated:08.02.2024.

To

Thiru. K. Sundramoorthy,
S/o. Kanniyappan,
No.1/31, Lingamedu street,
Manamai village,
Thirukazhukkundram Taluk,
Chengalpattu District – 603 102.

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for the Proposed Rough Stone quarry lease over an extent of 1.63.98 Ha in S.F.Nos. 88/1, 88/2A and 88/4A, of Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu by Thiru. K. Sundramoorthy - under project category – “B1” and Schedule S.No.1(a) – ToR issued along with Public Hearing - preparation of EIA report – Regarding.

- Ref:**
1. Online proposal No. SIA/TN/MIN/448716/2023, dt:13/10/2023.
 2. Your application submitted for Terms of Reference dated:17.10.2023.
 3. Minutes of the 436th meeting of SEAC held on 29.12.2023.
 4. Minutes of the 693rd meeting of SEIAA held on 08.02.2024.

Kindly refer to your proposal submitted to the State Level Impact Assessment Authority for Terms of Reference.

**MEMBER SECRETARY
SEIAA-TN**

The proponent, **Thiru. K. Sundramoorthy** has submitted application seeking **Terms of Reference (ToR)**, in Form-I, Pre-Feasibility report for the Proposed Rough Stone quarry lease over an extent of 2.35.98 Ha in S.F.Nos. 75/6, 75/7, 75/8, 75/9, 85/1, 85/2, 88/1, 88/2A and 88/4A, of Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

Proposed Rough Stone and Gravel quarry over an extent of 1.63.98 Ha in S.F.Nos. 85/1, 85/2, 88/1, 88/2A and 88/4A, of Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu by Thiru. K. Sundramoorthy - For Terms of Reference. (SIA/TN/MIN/448716/2023, dt: 13/10/2023)

The proposal was placed in this 436th meeting of SEAC held on 26.12.2023. The Project Proponent made a detailed presentation on the proposed project. The details of the project furnished by the proponent are available on the PARIVESH web portal (parivesh.nic.in). The SEAC noted the following among other things:

1. The Project Proponent, **Thiru. K. Sundramoorthy** has applied seeking **Terms of Reference** for EIA study for the proposed Rough Stone Gravel quarry over an extent of 2.35.98 Ha in S.F.Nos. 75/6, 75/7, 75/8, 75/9, 85/1, 85/2, 88/1, 88/2A and 88/4A, of Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu.
2. The proposed quarry/activity is covered under Category "B1" of Item I(a) "Mining Projects" of the Schedule to the EIA Notification, 2006 as amended.
3. The mine lease area is non-contiguous.

Based on the document and details furnished by the project proponent, SEAC decided to grant **Terms of Reference (ToR) with Public Hearing** subject to the following ToRs, in addition to (i) the standard terms of reference for EIA study shown in **Annexure-I** and (ii) the Standard ToR for non-coal mining projects and details issued by the MoEF&CC to be included in EIA/EMP Report:

1. Mining is permitted only in Block I bearing S.F.Nos. 88/1, 88/2A and 88/4A. Hence the PP shall furnish revised mining plan detailing the corresponding production quantity along with the EIA report.
2. No mining is permitted in Block II bearing S.F.Nos. 75/6, 75/7, 75/8, 75/9, 85/1, 85/2 and the area shall only be used for stocking the mined material or dumping the waste/reject material or for parking vehicles or establishing mine office.
3. The Proponent shall provide garland drain around the boundary of the proposed quarry and the photographs indicating the same shall be shown during the EIA appraisal.


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4. The Proponent shall justify the selection of the site for carrying out the stone quarrying with the total volume arrived for the excavation & production adequate details such as lithology of the deposit, reserve estimation, place for waste dump/mined mineral storage, end-use of mined materials, identified potential customers/end-users and travel path.
5. 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 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.
6. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc located within 1 km of the proposed quarry.
7. 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.
8. The Proponent shall carry out Bio diversity study through Department of Ecology and Environmental Sciences, Pondicherry University and the same shall be included in EIA Report.
9. 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.

ANNEXURE-I

1. The PP shall furnish the letter obtained from the AD (Mines) indicating the existing pit dimensions and pit conditions showing the details on mine having worked during the earlier lease period.
2. The PP shall furnish 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.
3. The PP shall provide individual notice regarding the Public Hearing to the nearby house owners located in the vicinity of the project site. The Proponent shall justify the selection of the site for carrying out the stone quarrying with the total volume arrived for the excavation & production adequate details such as lithology of the deposit, reserve estimation, place for waste dump/mined mineral storage, end-use of mined materials, identified potential customers/end-users and travel path.



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4. The PP shall also justify the selection of mining methodology (conventional or non-conventional) adopting blasting techniques/non-explosive techniques with proper ground reality & laboratory testing.
5. The proponent shall submit the "Blast Design Parameters for controlling the vibration and fly rock from the quarry blasting" considering the existence of sensitive structures including habitations within 500 m from the lease boundary.
6. The PP shall justify the estimation of HEMM population for excavation and transportation in the proposed quarries with proper calculation methodology adopted.
7. The PP shall enumerate the environmental settings situated within a radial distance of 1 km such rivers/water bodies/reserve forests/ grazing land/existence of the hospitals and educational institutions/structures.
8. The PP shall provide the details of the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.
9. 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 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.
10. The PP shall submit a 'Slope Stability Action Plan' for the proposed quarry where the proposed depth exceeds 30 m and it shall cover the aspects of stability of quarry walls including the access ramp keeping the benches intact.
11. If the blasting operation is to be carried out, the PP shall present a conceptual design for carrying out the NONEL initiation based controlled blasting operation including the line drilling & muffle blasting techniques and a Simulation Model indicating the anticipated Blast-induced Ground Vibration levels in the proposed quarry as stipulated by the DGMS Circular No.7 of 1997, during the EIA Proposal.
12. 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.
13. The PP shall give an affidavit stating that no contractual persons provided by the explosive suppliers will be employed for carrying out the blasting operations in the proposed quarry.s


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14. The PP shall also give an affidavit that no highly sensitive structure such as fire-cracker manufacturing units, Gas godown/explosive Magazine, LPG Bottling Units, etc are located within a radial distance of 300 m from the lease boundary of the proposed quarry.
15. 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 20 m from the blast site.
16. 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.
17. The PP shall provide the environmental mitigation measures implemented for the crusher(s) located within the mining lease.
18. 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,
 - a. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
 - b. Quantity of minerals mined out.
 - c. Highest production achieved in any one year
 - d. Detail of approved depth of mining.
 - e. Actual depth of the mining achieved earlier.
 - f. Name of the person already mined in that leases area.
 - g. If EC and CTO already obtained, the copy of the same shall be submitted.
 - h. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
19. 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.
20. 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).
21. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,


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22. 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.
23. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
24. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
25. 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.
26. 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.
27. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
28. 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.
29. 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.



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30. 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.
31. If the Village road/State highway/National highway are located within a radial distance of 500 m from the lease boundary of the quarry proposal, the PP shall carry out traffic studies to indicate impact on local transport infrastructure due to the Project and mitigation measures.
32. 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.
33. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
34. Public Hearing points raised and commitments 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 and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.
35. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.
36. The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.
37. 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.
38. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the **appendix-I** in consultation with the DFO, State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
39. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site-specific choices. The proponent shall earmark the greenbelt area with GPS



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- coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
40. 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.
 41. 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.
 42. 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.
 43. 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.
 44. 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.
 45. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
 46. 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.
 47. 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.
 48. 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.
 49. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.




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Appendix

List of Native Trees Suggested for Planting

1. *Aegle marmelos* – Vilvam
2. *Adenaanthera pavonina* - Manjadi
3. *Albizia lebbbeck* – Vaagai
4. *Albizia amara* - Usil
5. *Bauhinia purpurea* - Mantharai
6. *Bauhinia racemosa* - Aathi
7. *Bauhinia tomentosa* – Iruvathi
8. *Buchanania axillaris* - Kattuma
9. *Borassus flabellifer* - Panai
10. *Butea monosperma* - Murukka maram
11. *Bobax ceiba* – Ilavu, Sevvilavu
12. *Calophyllum inophyllum* - Punnai
13. *Cassia fistula* - Sarakondrai
14. *Cassia roxburghii*- Sengondrai
15. *Chloroxylon sweitenia* - Purasa maram
16. *Cochlospermum religiosum* – Kongu, Manjal Ilavu
17. *Cordia dichotoma* – Mookuchali maram
18. *Creteva adansonii* – Mavalingum
19. *Dillenia indica* – Uva, Uzha
20. *Dillenia pentagyna* – Siru Uva, Sitruzha
21. *Diospyros ebenum* - Karungali
22. *Diospyros chloroxylon* – Vaganai
23. *Ficus amplissima* – Kal Itchi
24. *Hibiscus tiliaceus* – Aatru poovarasu
25. *Hardwickia binata* – Aacha
26. *Holoptelia integrifolia* - Aayili
27. *Lannea coromandelica* - Odhiam
28. *Lagerstroemia speciosa* - Poo Marudhu
29. *Lepisanthus tetraphylla* - Neikottai maram
30. *Limonia acidissima* - Vila maram



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31. *Litsea glutinosa* –Pisin pattai
32. *Madhuca longifolia* - Illuppai
33. *Manilkara hexandra* – Ulakkai Paalai
34. *Mimusops elengi* - Magizha maram
35. *Mitragyna parvifolia* - Kadambu
36. *Morinda pubescens* – Nuna
37. *Morinda citrifolia* – Vellai Nuna
38. *Phoenix sylvestre* - Eachai
39. *Pongamia pinnata* – Pungam
40. *Premna mollissima* – Munnai
41. *Premna serratifolia* – Narumunai
42. *Premna tomentosa* - Purangai Naari, Pudanga Naari
43. *Prosopis cinerea* - Vanni maram
44. *Pterocarpus marsupium* - Vengai
45. *Pterospermum canescens* – Vennangu, Tada
46. *Pterospermum xylocarpum* - Polavu
47. *Puthranjiva roxburghii* – Puthranjivi
48. *Salvadora persica* – Uгаа Maram
49. *Sapindus emarginatus* - Manipungan, Soapu kai
50. *Saraca asoca* - Asoca
51. *Streblus asper* - Piraya maram
52. *Strychnos nuxvomica* – Yetti
53. *Strychnos potatorum* - Therthang Kottai
54. *Syzygium cumini* - Naval
55. *Terminalia bellerica* - Thandri
56. *Terminalia arjuna* - Ven marudhu
57. *Toona ciliate* – Sandhana vembu
58. *Thespesia populnea* - Puvarasu
59. *Walsuratrifoliata* – valsura
60. *Wrightia tinctoria* – Veppalai
61. *Pithecellobium dulce* – Kodukkapuli



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Discussion by SEIAA and the Remarks:-

Proposed Rough Stone and Gravel quarry over an extent of 1.63.98 Ha in S.F.Nos. 88/1, 88/2A and 88/4A, of Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu by Thiru. K. Sundramoorthy - For Terms of Reference. (SIA/TN/MIN/448716/2023, dt: 13/10/2023) The subject was placed in this 693rd meeting of Authority held on 08.02.2023. The Authority noted that the subject was placed in the 436th meeting of SEAC held on 22.12.2023. Based on the document and details furnished by the project proponent, SEAC decided to grant **Terms of Reference (ToR) with Public Hearing** subject to the conditions stated therein inter alia the following:

1. **Mining is permitted only in Block I bearing S.F.Nos. 88/1, 88/2A and 88/4A.** Hence the PP shall furnish revised mining plan detailing the corresponding production quantity along with the EIA report.
2. **No mining is permitted in Block II bearing S.F.Nos. 75/6, 75/7, 75/8, 75/9, 85/1, 85/2** and the area shall only be used for stocking the mined material or dumping the waste/reject material or for parking vehicles or establishing mine office.

After detailed discussions, the Authority accepted the recommendation of SEAC and decided to grant **Terms of Reference (ToR) with Public Hearing** based on studies, assessments and records to be produced as sought by the SEAC and SEIAA, for undertaking the Environment Impact Assessment Study and preparation of Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions and conditions in **Annexure 'D'** of this minutes and the following:

1. **Mining is permitted only in Block I bearing S.F.Nos. 88/1, 88/2A and 88/4A.** Hence the PP shall furnish revised mining plan detailing the corresponding production quantity along with the EIA report.
2. **No mining is permitted in Block II bearing S.F.Nos. 75/6, 75/7, 75/8, 75/9, 85/1, 85/2** and the area shall only be used for stocking the mined material or dumping the waste/reject material or for parking vehicles or establishing mine office.

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Annexure 'B'**Cluster Management Committee**

1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.
2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,
3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.
4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.
5. The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.
6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.
7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.
8. The committee shall furnish the Emergency Management plan within the cluster.
9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.
10. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
11. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.

Impact study of mining

12. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
 - a) Soil health & soil biological, physical land chemical features .
 - b) Climate change leading to Droughts, Floods etc.



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- c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
- d) Possibilities of water contamination and impact on aquatic ecosystem health.
- e) Agriculture, Forestry & Traditional practices.
- f) Hydrothermal/Geothermal effect due to destruction in the Environment.
- g) Bio-geochemical processes and its foot prints including environmental stress.
- h) Sediment geochemistry in the surface streams.

Agriculture & Agro-Biodiversity

- 13. Impact on surrounding agricultural fields around the proposed mining Area.
- 14. Impact on soil flora & vegetation around the project site.
- 15. Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.
- 16. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.
- 17. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
- 18. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.

Forests

- 19. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
- 20. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
- 21. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
- 22. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.



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Water Environment

23. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.
24. Erosion Control measures.
25. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
27. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.
28. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.
29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.

Energy

31. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.

Climate Change

32. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.
33. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.



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Mine Closure Plan

34. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.

EMP

35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.

36. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.

Risk Assessment

37. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.

Disaster Management Plan

38. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.

Others

39. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.

40. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.

41. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

A. STANDARD TERMS OF REFERENCE

1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had


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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.



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- 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,

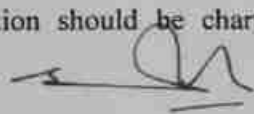

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endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, 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


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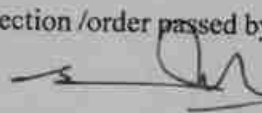
- be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality 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



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- 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


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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.


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- 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./


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



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- 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.


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Copy to:

1. The Additional Chief Secretary to Government, Environment, Climate Change and Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9.
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.

3. The Chairman, Tamil Nadu Pollution Control Board,
76, Mount Salai, Guindy, Chennai - 600 032.
4. The APCCF (C), Regional Office, MoEF & CC (SZ), 34, HEPC Building, 1st & 2nd Floor,
Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC,
Paryavaran Bhavan, CGO Complex, New Delhi - 110 003.
6. The District Collector, Chengalpattu District.
7. Stock File.



From
A. Arumuganainar, M.Sc.,
Assistant Director(i/c),
Dept. of Geology and Mining,
Chengalpattu.

To
K. Sundramoorthy,
S/o. Kanniyappan,
No.1/21, Lingamedu Street,
Manamai Village,
Thirukazhukundram Taluk,
Chengalpattu District.

Rc.No.185/Mines/2023, Dated.25.09.2023

Sir,

Sub: Mines and Quarries – Rough stone and Gravel - Chengalpattu District – Cheyyur Taluk – Nelvaipalayam Village - S.F. Nos.75/6, 75/7, 75/8, 75/9, 85/1, 85/2, 88/1, 88/2A and 88/4A - over an extent of 2.35.98 Hectares of patta lands – Quarry lease application preferred by Thiru. K.Sundramoorthy S/o. Kanniyappan – Details of quarries situated within 500 meter radial distance – furnished - reg.

- Ref: 1. Precise are notice issued by the Assistant Director (i/c), Geology and Mining, Chengalpattu in Rc.No.185/Mines/ 2023, dated.22.09.2023.
2. Representation of Thiru. K. Sundramoorthy S/o. Kanniyappan, dated.25.09.2023.

With reference to your letter in the reference 2nd cited, the details of existing, proposed and abandoned quarries located within 500 meter radius from the proposed Rough Stone and Gravel quarry of patta lands in S.F. Nos.75/6 (0.15.50), 75/7 (0.10.50), 75/8 (0.16.00), 75/9 (0.09.00), 85/1 (0.05.00), 85/2 (0.16.00), 88/1 (1.00.00), 88/2A(0.34.62), 88/4A(0.29.36) over an extent of 2.35.98 hectares of Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District are as follows.

I. Existing quarries:

Sl. No.	Name of the lessee / permit holder	Name of the Mineral	Taluk & Village	S.F. Nos.	Extent (in hecets)	Lease period	Remarks
1.	S. Balaji, S/o.K.Sundaramoorthy, Manamai Village and Post, Kalpakkam, Thirukazhukundram Taluk, Chengalpattu District – 603 102	Roughstone & Gravel	Cheyyur, Akkinampattu	264/1A(P)	1.62.00	30.09.2020 to 29.09.2025	Operation

2.	Tvl.Uma Blue Metals, Vettaikarakuppam, Kodur Post, Cheyyur Taluk, Kancheepuram 603 305	Roughstone & Gravel	Cheyyur, Akkinampattu	270/1, 270/2, 272/4, 272/5A	3.20.00	20.07.2023 to 19.07.2025 (18 Months)	Operation
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II. Proposed Quarries :

Sl. No.	Name of the lessee / permit holder	Name of the Mineral	Taluk & Village	S.F. Nos.	Extent (in hecets)	Remarks
1.	K. Sundramoorthy, S/o. Kanniyappan, No.1/21, Lingamedu Street, Manamai Village, Thirukazhukundram Taluk, Chengalpattu District.	Roughstone & Gravel	Cheyyur, Nelvaipalayam	75/6, 75/7, 75/8, 75/9, 85/1, 85/2, 88/1, 88/2A, 88/4A	2.35.98	Under Processing (Present Application)
2.	M/s. Naraj Blue Metals Pvt. Ltd., Thiru. P. Naresh (Director), Plot No.109&110, Kamatchi Amman Nagar East, Mangadu, Chennai – 600 122.	Roughstone & Gravel	Cheyyur, Akkinampattu	264/2(P), 264/3A(P), 267/1B, 267/2(P), 267/3,	4.32.10	Under Processing

III. Abandoned quarries :

Sl. No.	Name of the lessee / permit holder	Name of the Mineral	Taluk & Village	S.F. Nos.	Extent (in hecets)	Lease period
1.	S. Manonmani, Manamai Village, Kalpakkam 603 102, Thirukalukundram, Kancheepuram 603 102	Roughstone & Gravel	Cheyyur, Akkinampattu	264/1A	2.83.50	17.10.2009 To 16.10.2014
2.	D.Venunathan, Vettaikarankuppam, Kodur Post, Cheyyur Taluk	Roughstone & Gravel	Cheyyur, Akkinampattu	272/5A	0.88.00	05.09.2013 To 04.09.2018
3.	R. Ranganathan M/s.Uma Blue Metals, Vettaikarakuppam, Kodur Post, Cheyyur Taluk,	Roughstone & Gravel	Cheyyur, Akkinampattu	268/1B1B	1.24.50	06.02.2014 To 05.02.2019
4.	S. Manonmani, Manamai Village, Kalpakkam 603 102, Thirukalukundram, Kancheepuram 603 102	Roughstone & Gravel	Cheyyur, Akkinampattu	266/3	1.21.00	16.03.2015 To 15.03.2020

Assistant Director(i/c),
Geology and Mining,
Chengalpattu.

25-5-2022

From
A. Arumuganainar, M.Sc.,
Assistant Director(i/c),
Dept. of Geology and Mining,
Chengalpattu.

To
K. Sundramoorthy,
S/o. Kanniyappan,
No.1/21, Lingamedu Street,
Manamai Village,
Thirukazhukundram Taluk,
Chengalpattu District.

Rc.No.185/Mines/2023, Dated. 25 .09.2023

Sir,

Sub: Mines and Quarries – Chengalpattu District – Cheyyur Taluk – Nelvaipalayam Village - S.F. Nos. 75/6, 75/7, 75/8, 75/9, 85/1, 85/2, 88/1, 88/2A and 88/4A - over an extent of 2.35.98 Hectares of patta lands - permission requested for Quarrying Rough stone and Gravel under rule 19(1) of Tamil Nadu Minor Mineral Concession Rules 1959 – applied by Thiru. K.Sundramoorthy S/o. Kanniyappan - Mining Plan submitted for approval – **Mining Plan approved for First Five years** - directed to obtain Environmental clearance from State Level Environment Impact Assessment Authority, Tamil Nadu -Reg.

- Ref:
1. Application of Thiru. K. Sundramoorthy S/o.Kanniyappan, No.1/21, Lingamedu Street, Manamai Village, Thirukazhukundram Taluk, Chengalpattu District, dated.05.06.2023.
 2. Precise are notice issued by the Assistant Director (i/c), Geology and Mining, Chengalpattu in Rc.No.185/Mines/2023, dated.22.09.2023.
 3. Representation of Thiru. K. Sundramoorthy S/o. Kanniyappan, dated.25.09.2023.

In the reference 1st cited, one Thiru. K. Sundramoorthy S/o.Kanniyappan, No.1/21, Lingamedu Street, Manamai Village, Thirukazhukundram Taluk, Chengalpattu District has applied for quarrying Rough stone and gravel from S.F. Nos.75/6 (0.15.50), 75/7 (0.10.50), 75/8 (0.16.00), 75/9 (0.09.00), 85/1 (0.05.00), 85/2 (0.16.00), 88/1 (1.00.00), 88/2A(0.34.62), 88/4A(0.29.36) over an extent of 2.35.98 hectares of Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District under Rule 19(1) of Tamil Nadu Minor Mineral Concession Rules, 1959.


Based on the recommendations of the Revenue Divisional Officer, Maduranthagam and Inspection report submitted by the Assistant Geologist, O/o. Assistant Director, Geology and Mining, Kancheepuram the above


application was considered for quarrying Rough stone and Gravel from the above area under rule 19(1) of Tamil Nadu Minor Mineral Concession Rules, 1959 for a period of **Ten years** subject to certain conditions and precise area has been communicated to the applicant vide reference 2nd cited.

In exercise of the power delegated under Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959, I hereby approve the mining plan submitted by Thiru. K. Sundramoorthy S/o. Kanniyappan for S.F. Nos. 75/6 (0.15.50), 75/7 (0.10.50), 75/8 (0.16.00), 75/9 (0.09.00), 85/1 (0.05.00), 85/2 (0.16.00), 88/1 (1.00.00), 88/2A(0.34.62), 88/4A(0.29.36) over an extent of 2.35.98 hectares of Nelvoipalayam Village, Cheyyur Taluk, Chengalpattu District the mineable reserves of Rough stone & Gravel after leaving safety distance has arrived as 90,980 M³ of Rough stone and 25,286 M³ of Gravel for **First Five years** upto a depth of 22 meter (BGL). This approval is subject to the following conditions:-

- i) That the Mining Plan is approved without prejudice to any other Law applicable to quarrying Rough stone and Gravel from time to time whether such laws are made by the Central Government/ State Government or any other authority.
- ii) The 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) The Mining Plan is approved without prejudice to any other order or direction from any Court of competent jurisdiction.

Encl: Approved Mining Plan


Assistant Director (i/c),
Geology and Mining,
Chengalpattu.


25.5.2023

**REVISED MINING PLAN AND PROGRESSIVE QUARRY
CLOSURE PLAN FOR NELVAIPALAYAM
ROUGH STONE AND GRAVEL QUARRY**



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

Patta Land / Lease period = Ten years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT : 2.35.98Ha
S.F.NOS. : 75/6, 7, 8, 9, 85/1, 2, 88/1, 2A, 4A.,
VILLAGE : NELVAIPALAYAM
TALUK : CHEYYUR
DISTRICT : CHENGALPATTU
STATE : TAMIL NADU

FOR

APPLICANT

Thiru. K. Sundramoorthy,

S/o. Kanniyappan,

No.1/31, Lingamedu street, Manamai village,

Thirukazhukkundram Taluk,

Chengalpattu district,

Tamil Nadu state – 603 102.

PREPARED BY

M. Santhosh Kumar, M.Sc.,

Qualified Person

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

Plot No. 3, Kattuvattam,

Near Kothukkara Samthi (Via), Kannakurichi Post,

Salem District – 636 008.

Cell: +91 97914 41745

E-Mail: santhoshgeo2004@gmail.com



ABBREVIATIONS

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

K. Sundramoorthy,
S/o. Kanniyappan,
No.1/31, Lingamedu Street, Manamai Village,
Thirukazhukkundram Taluk,
Chengalpattu District,
Tamil Nadu State – 603 102.



CONSENT LETTER FROM THE APPLICANT

The Revised Mining Plan and Progressive Quarry Closure Plan in Respect of Nelvaipalayam Rough Stone and Gravel Quarry lease applied area over an extent 2.35.98 Hectares of Patta lands in S.F.Nos. 75/6, 75/7, 75/8, 75/9, 85/1, 85/2, 88/1, 88/2A and 88/4A of Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu State has been prepared by

M. Santhoshkumar, 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 Deputy Director, Department of Geology and Mining, Chengalpattu District, Tamil Nadu State to make further correspondence regarding the modification of the Mining Plan with the said Qualified Person at his following address.

M. Santhoshkumar, M.Sc.,
Plot No. 3, Kattuvattam,
Near Kothukkara Samthi (Via), Kannakurichi Post,
Salem District – 636 008.
Cell: +91 97914 41745.

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 our knowledge and consent and shall be acceptable to me and binding on me in all respects. If there is any substantial change during operation we will carry out a Modified Mining plan and seek its approval from concerned Authorities.

Signature of the Applicant


K. Sundramoorthy

Place: Chengalpattu

Date: 22.09.2023

K. Sundramoorthy,

S/o. Kanniyappan,

No.1/31, Lingamedu Street, Manamai Village,

Thirukazhukkundram Taluk,

Chengalpattu District,

Tamil Nadu State – 603 102.



DECLARATION OF THE APPLICANT

The Revised Mining Plan and Progressive Quarry Closure Plan in Respect of Nelvaipalayam Rough Stone and Gravel Quarry lease applied area over an extent 2.35.98 Hectares of Patta lands in S.F.Nos. 75/6, 75/7, 75/8, 75/9, 85/1, 85/2, 88/1, 88/2A and 88/4A of Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu State has been prepared in full consultation with me.

I have understood its contents and agree to implement the same in accordance with Laws, Rules and Act applicable to quarry from time to time as per Tamil Nadu Minor Mineral Concession Rules, 1959.

Signature of the Applicant

K. Sundramoorthy

Place: Chengalpattu

Date: 23.09.2023



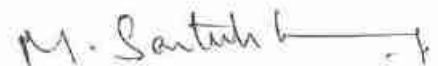
CERTIFICATE

Certified that I am, **M. Santhoshkumar, M.Sc.**, having an office at Regd. Off. Plot No. 3, Kattuvattam, Near Kothukkara Samthi (Via), Kannakurichi Post, Salem District – 636 008 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 am prepared this Revised Mining Plan and Progressive Quarry Closure Plan in Respect of Nelvaipalayam Rough Stone and Gravel Quarry over an extent 2.35.98 Hectares of Patta lands in S.F.Nos. 75/6, 75/7, 75/8, 75/9, 85/1, 85/2, 88/1, 88/2A and 88/4A of Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District and Tamil Nadu State for **Thiru. K. Sundramoorthy**, S/o. Kanniyappan, No.1/31, Lingamedu Street, Manamai Village, Thirukazhukkundram Taluk, Chengalpattu District, Tamil Nadu State – 603 102. 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


M. Santhoshkumar, M.Sc.,

Place: Salem

Date: 03.07.2024

M. Santhoshkumar, M.Sc.,

Plot No. 3, Kattuvattam,

Near Kothukkara Samthi (Via), Kannakurichi Post,

Salem District – 636 008.

Cell: +91 97914 41745.



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 Revised Mining Plan and Progressive Quarry Closure Plan for Nelvaipalayam Rough Stone and Gravel Quarry lease applied area over an extent 2.35.98 Hectares of Patta lands in S.F.Nos. 75/6, 75/7, 75/8, 75/9, 85/1, 85/2, 88/1, 88/2A and 88/4A of Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu State has been prepared for

K. Sundramoorthy,

S/o. Kanniyappan,

No.1/31, Lingamedu Street, Manamai Village,

Thirukazhukkundram Taluk,

Chengalpattu District,

Tamil Nadu State – 603 102.

Whenever specific permissions / exemptions / relaxations and approvals are required, the applicant will approach the concerned authorities of the Deputy Director, Department of Geology and Mining, Chengalpattu District, Tamil Nadu State 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

M. Santhoshkumar, M.Sc.,

Place: Salem

Date: 03.07.2024

M. Santhoshkumar, M.Sc.,

Plot No. 3, Kattuvattam,

Near Kothukkara Samthi (Via), Kannakurichi Post,

Salem District – 636 008.

Cell: +91 97914 41745.



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 Revised Mining Plan and Progressive Quarry Closure Plan for Nelvaipalayam Rough Stone and Gravel Quarry lease applied area over an extent 2.35.98 Hectares of Patta lands in S.F.Nos. 75/6, 75/7, 75/8, 75/9, 85/1, 85/2, 88/1, 88/2A and 88/4A of Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu State has been prepared for

K. Sundramoorthy,

S/o. Kanniyappan,

No.1/31, Lingamedu Street, Manamai Village,

Thirukazhukkundram Taluk,

Chengalpattu District,

Tamil Nadu State – 603 102.

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 State 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

M. Santhoshkumar M.Sc.,

Place: Salem

Date: 03.07.2024

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REVISED MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN FOR NELVAIPALAYAM ROUGH STONE AND GRAVEL.

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

1.0 INTRODUCTION AND EXECUTIVE SUMMARY

The Revised Mining Plan and Environmental Management plan is prepared in respect of Rough stone and Gravel quarry belongs to **Thiru. K. Sundramoorthy**, S/o. Kanniyappan, No.1/31, Lingamedu Street, Manamai Village, Thirukazhukkundram Taluk, Chengalpattu District, Tamil Nadu State – 603 102 for over an extent **2.35.98 Hectares** of Patta lands in S.F.Nos. 75/6, 75/7, 75/8, 75/9, 85/1, 85/2, 88/1, 88/2A and 88/4A of Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu State under Rules 19 (1) and 20 of Tamil Nadu Minor Mineral Concession Rules, 1959.

The application was processed by the Assistant Director (i/c), Department of Geology and Mining, Chengalpattu District and passed a precise area communication letter vide **Roc.No.0185/Mines/2023, Dated: 22.09.2023** to submit an approved Mining Plan and obtain Environmental Clearance from the State Level Environment Impact Assessment Authority, Tamil Nadu State with the conditions to provide (Please refer Annexure No. I):

1. The applicant should be provided a safety distance of 10 meters to the adjacent Government Poramboke, Kallanguthu Poramboke lands and 7.5 meters to the adjacent Patta lands.
2. No hindrance shall be caused to the public and their properties while quarry operations

The Mining Plan was prepared and submitted on 25.09.2023 and the same was approved by the Assistant Director (i/c), Department of Geology and Mining, Chengalpattu District vide letter **Rc.No.185/Mines/2023, Dated: 25.09.2023** (Refer Annexure No. VIII).

The applicant has applied to obtain Environment Clearance from The State Level Environmental Impact Assessment Authority (SEIAA), Tamil Nadu vide **letter. No. SEIAA – TN / F.No. 10479 / 2023, dated: 17.10.2023**.

The quarry proposal was placed for appraisal in 693rd meeting of SEIAA held on 08.02.2024, due to the Cluster of quarries within 500m radius distance is exceed 5.00.0Ha. Since, the quarry proposal is falls under **category B1 as per the EIA Notification 2006**. Hence the committee has issued Terms of Reference along with Public Hearing the proposal for the reasons stated below,



1. Mining is permitted only in block I bearing S.F.Nos. 88/1, 88/2A and 88/4A. Hence the Project proponent shall furnish revised mining plan detailing the corresponding production quantity along with the EIA report.
2. No Mining is Permitted in block II bearing SF. Nos. 75/6, 75/7, 75/8, 75/9, 85/1, 85/2 and the area shall only be used for stocking the material or dumping the waste / reject material or for parking vehicles or establishing mine office.

The lease applied area is Non-contiguous hence, the committee has recommended to **“submit the Revised Mining plan considering the S.F.Nos. 88/1, 88/2A and 88/4A of 1.63.98 Ha (Block I) for the proposed quarry activity and leaving the S.F.Nos. 75/6, 75/7, 75/8, 75/9, 85/1, 85/2 an extent of 0.72.0 Ha (Block II) from the extent of 2.35.98 Ha of Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District for the area shall only be used for stocking the material or dumping the waste / reject material or for parking vehicles or establishing mine office”** Vide Letter No. SEIAA – TN / F.No. 10479 / SEAC / ToR – 1654 / 2024, Dated: 08.02.2024 (Refer Annexure No. IX).

As per recommendation of the SEIAA, Tamil Nadu this Revised Mining Plan along with Progressive Mine closure Plan is prepared in full consultation with **Thiru. K. Sundramoorthy**, S/o. Kanniyappan, No.1/31, Lingamedu Street, Manamai Village, Thirukazhukkundram Taluk, Chengalpattu District, Tamil Nadu State – 603 102 for Rough stone and Gravel quarry over an extent **2.35.98 Hectares** of Patta lands in S.F.Nos. 75/6, 75/7, 75/8, 75/9, 85/1, 85/2, 88/1, 88/2A and 88/4A of Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District with **proposed for quarrying operation in S.F.Nos. 88/1, 88/2A and 88/4A an extent of 1.63.98 Hectares (Block I)** (Refer Plate No. III and IIIA).

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 \leq 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.

**Short Notes of Revised Mining plan:**

- a. Village Panchayat - Nelvaipalayam
- b. Panchayat Union - Lathur
- c. The Geological Resources are **3,27,960m³** of Rough stone and **32,796m³** of Gravel in the entire area.
- d. Tentative Total Mineable Reserves are **90,980m³** of Rough stone and **18,482m³** of Gravel in the entire area.
- e. The proposed quantity of reserves/ (level of production) to be mined are **90,980m³** of Rough stone (**66,025m³** for first five years and **24,955m³** for second five years period) for **ten years** and **18,482m³** of Gravel for first three years in the entire area.
- f. Total extent of the lease applied area is about 2.35.98Ha.
- g. Topography of the area = The area is exhibiting plain terrain
- h. Proposed Depth of mining = 22m below ground level
- i. Mining Plan period = Five years
- j. Lease Period = Ten years
- k. It is a fresh lease applied area, at present the area is virgin. Hence no existing pit.
- l. Method of mining / level of mechanization.
Opencast mechanized method, the quarry operation involves shallow jack hammer drilling, slurry blasting with NONEL initiation.
- m. Type of machineries proposed in the quarrying operation is given below.
Excavators attached with bucket and rock breaker.
Hand Jack hammer, Compressor (Diesel drive) (4 Jack Hammer capacity).
- n. No trees will be uprooted due to this quarry operation.
- o. The approach road from the main road to quarry is will be constructed and maintained in a good condition for the haulage of quarry materials and machineries.
- p. There is No Export of this Rough stone and Gravel.
- q. 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, archacological importance and places of worships is marked and enclosed as Plate Nos. IA & IB.



- r. The lease applied area is about 2.35.98 Ha bounded by thirty-four corners; the corners are designated as 1-34 clock-wise from the Southern corner of the Block-1 and the coordinates for all the corners are clearly marked in the Quarry Lease Plan and Surface Plan enclosed as Plate No. II.
- s. 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, III-A & IV.
- t. 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.*
- u. There is no wastage anticipated during this quarry operation, hence waste dump is not proposed in the lease applied area.
- v. Around 20 employees are proposed to deploying the quarrying operation.
- w. Total Cost of the project is about **Rs.73,82,000/-**.

**2.0 GENERAL INFORMATION**

2.1 a) Name of the Applicant : **Thiru. K. Sundramoorthy,**
: S/o. Kanniyappan,

b) Address of the Applicant (With Phone No and Aadhaar No.)

Address : No.1/31, Lingamedu Street, Manamai Village,
Thirukazhukkundram Taluk,
Chengalpattu District.

State with Pin Code : Tamil Nadu – 603 102

Mobile No : +91 94432 43299

Aadhaar No : 5671 7251 5085

E-mail : ashokconstruction@yahoo.co.in

c) Status of the Applicant (Individual / Company / Firm):

The applicant is an individual.

2.2 a) Mineral which the Applicant intends to mine:

The Applicant intends to quarry Rough stone and Gravel only.

b) Precise area communication letter details received from the Competent Authority of the Government:

The precise area communication letter was received from the Assistant Director (i/c), Department of Geology and Mining, Chengalpattu District vide **Roc. No. 0185 / Mines / 2023, Dated: 22.09.2023** to submit approved mining plan and to obtain Environmental Clearance from the State Level Environmental Impact Assessment Authority, Tamil Nadu.

c) Period of permission / lease to be granted:

Ten Years as mentioned in Precise area Communication letter.

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

Name : **M. Santhoshkumar, M.Sc.,**
Qualified Person (As Per Rule 15(I)(a) and (I)(b) of MCR, 2016)

Address : Plot No. 3, Kattuvattam,
Near Kothukkara Samthi (Via), Kannakurichi Post,
Salem District – 636 008.

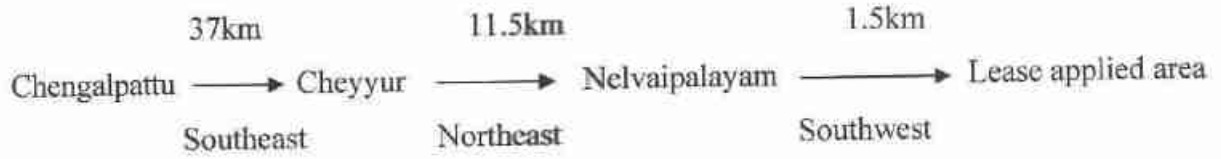
Mobile : +91 97914 41745

Email : santhoshgeo2004@gmail.com.

3.0 LOCATION

a) Details of the area with location map:

The lease applied area is located about 28km Southeast side of Chengalpattu town, 10km Northeast side of Cheyyur town and 1.5km Southwest side of Nelvaipalayam Village.



Location Map of the Lease Applied area

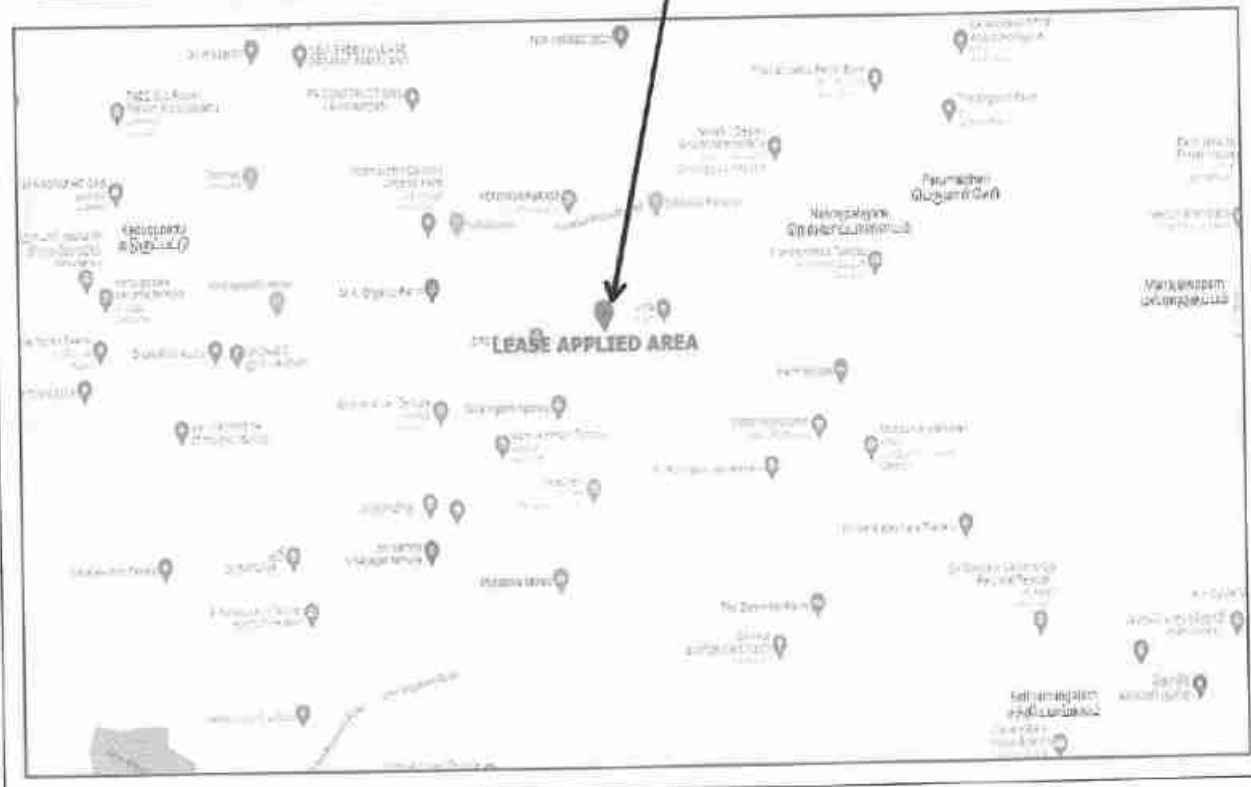
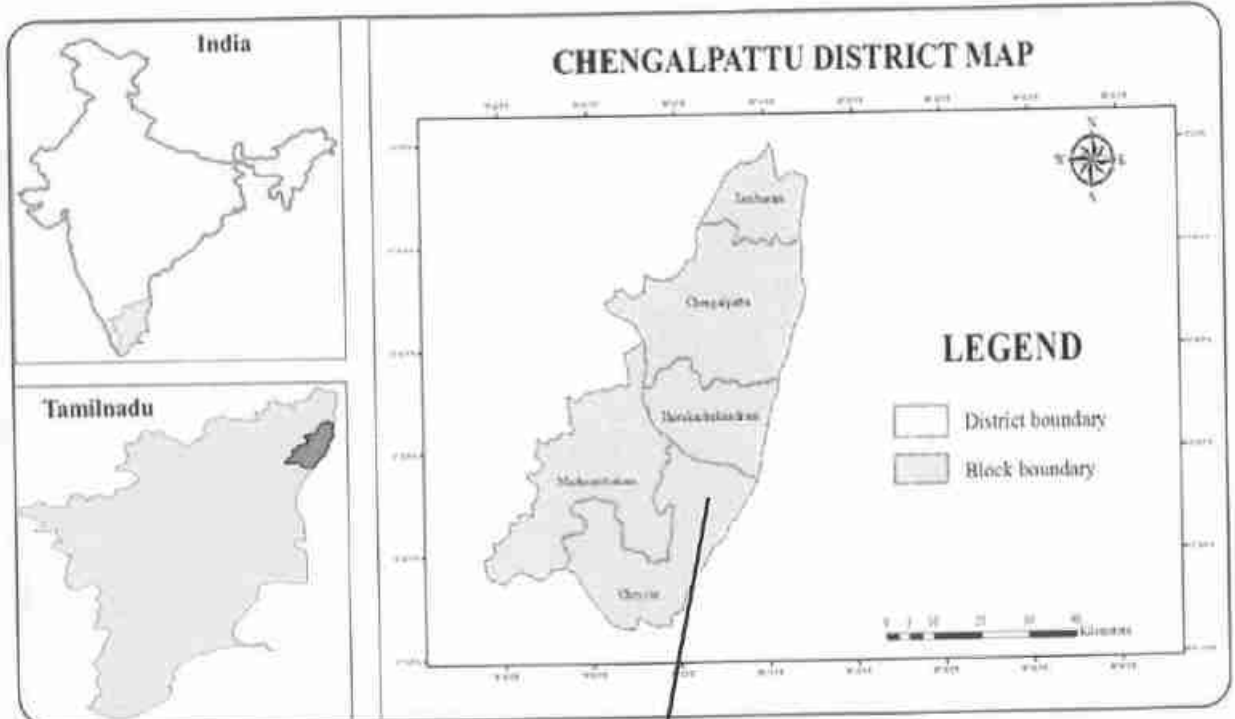




TABLE-1

District	Taluk	Village	S.F. Nos.	Area in Ha.	Patta No.
Chengalpattu	Cheyyur	Nelvaipalayam	75/6	0.15.5	652
			75/7	0.10.5	
			75/8	0.16.0	
			75/9	0.09.0	
			85/1	0.05.0	
			85/2	0.16.0	
			88/4A	0.29.36	
			88/1	1.00.0	594
			88/2A	0.34.62	598
Total Extent				2.35.98	

b) Classification of the area (Ryotwari/ Poramboke / others):

It is Patta lands, classified as Punsei (Barren land) which is not fit for vegetation/ Cultivation.

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

It is Patta lands, the S.F.No. 88/2A registered in the name of applicant (Thiru. K. Sundramoorthy) vide patta No. 598, the S.F.No. 88/1 registered in the name of Tmt. S. Manonmani vide Patta No. 594 and remaining area jointly registered in the name of applicant (Thiru. K. Sundramoorthy) and Thiru. S. Balaji vide patta No. 652 (Refer Annexure Nos. IV & VI). The applicant has obtained consent from the pattadar for the period of ten years (Refer Annexure Nos. VII).

d) Toposheet No. with latitude and longitude:

The lease applied area falls in the Toposheet No: **66 D/03** Latitude between: **12°25'56.6724"N to 12°26'02.8961"N** and Longitude between: **80°02'53.5538"E to 80°03'03.8121"E** on WGS datum-1984. Please refer the Plate Nos. I to II.

e) Existence of public road / Railway line, if any nearby and approximate distance:

The approach (cart track) road is situated on the Southwest side, which connects to the Pavunjur – Sathiamangalam village road is located at 480m on the Southern side of the lease applied area.

Road access is available from the quarry to state highways and 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 Chengalpattu - Tindivanam which is located about 18.3km on the Northwest side of the area.



PART - A

4.0 GEOLOGY AND MINERAL RESERVES

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

The lease applied area exhibits plain topography. The area has gentle sloping towards Northeastern side and altitude of the temporary bench mark is 100m above from Mean Sea Level. The area is covered by 2m thickness of Gravel and followed by Massive Charnockite which is clearly inferred from the nearby existing quarry pit. The Water level in the surrounding area is 58m – 63m below from general ground profile which is observed from the nearby bore wells. Average annual rainfall is about 1263.8mm

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

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

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

4.2 Details of exploration already carried out if any:

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

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



4.3 Estimation of Reserves:

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

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

Totally seven sections have been drawn, four sections are drawn along the strike direction as (X-Y, X1-Y1, X2-Y2 and X3-Y3) Length wise and other three cross sections are drawn perpendicular to strike as (A-B, C-D and E-F) Width wise to cover the maximum area considered for lease upto 22m depth.

The Topographical, Geological plan and sections demarcated the commercial marketable Rough stone (Charnockite) deposit has been prepared in the scale of 1:1000 (please refer the Geological plan and sections Plate Nos. III and III-A). As the sale of Rough stone are in terms of cubic metres (Volume) only and not in terms of tonnage.

Estimation of Geological Resources (Plate Nos. III & III-A):

The Geological Resources of Rough Stone and Gravel are calculated upto a depth of 22m [2m Gravel + 20m Rough stone] below ground level. The total **Geological Resources are calculated by area method**. The total geological resources are given below:

TABLE - 2

GEOLOGICAL RESOURCES				
Block	Area (m ²)	Depth in (m)	Geological Resources in Rough stone (m ³)	Gravel (m ³)
I	16398	2	-	32796
		20	327960	-
Total			327960	32796

The Geological Resources of Gravel : 32,796m³

The Geological Resources of Rough Stone : 3,27,960m³

**Estimation of Mineable Reserves:**

The mineable reserves are calculated after leaving the safety distance and Bench loss.

TABLE – 3

MINEABLE RESERVES						
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Mineable Reserves in Rough stone (m³)	Gravel (m³)
XY-AB	i	19	17	2	-	646
	ii	13	12	5	780	-
Total					780	646
X1Y1-CD	i	64	59	2	-	7552
	ii	61	53	5	16165	-
	iii	56	43	5	12040	-
	iv	51	33	5	8415	-
	v	46	23	5	5290	-
Total					41910	7552
X1Y1-EF	i	35	62	2	-	4340
	ii	32	62	5	9920	-
	iii	27	57	5	7695	-
	iv	22	52	5	5720	-
	v	17	47	5	3995	-
Total					27330	4340
X2Y2-EF	i	47	52	2	-	4888
	ii	41	49	5	10045	-
	iii	31	44	5	6820	-
	iv	21	39	5	4095	-
Total					20960	4888
X3Y3-EF	i	16	33	2	-	1056
Total					-	1056
Grand Total					90980	18482

Total Mineable Reserves of Gravel : **18,482m³**

Total Mineable Recoverable Reserves of Rough stone @ 100% : **90,980m³**

The mineable reserves have been computed as **90,980 m³** of Rough stone at the rate of 100% recovery and **18,482m³** of Gravel for a period of ten years upto a depth of 22m below ground level.



5.0 MINING

5.1. Method of mining (opencast / underground):

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

However, as far as the quarrying of Rough Stone is concerned, observance of the provisions of Regulation 106 (2) (b) is available with Director of Mines Safety. If the applicant/lessee intends to modify the dimensions of benches, relaxation and permission are available with Director of Mines Safety under 106 (2) (b) of Metalliferous Mines Regulations, 1961. 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. The relaxation will be applied and obtained after the execution of lease deed / commencement of quarry operation.

5.2. Mode of working (mechanized or manual):

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

The quarry operation involves shallow jack hammer drilling, slurry explosives in blasting, excavation, Loading and transportation of Rough stone to the needy crusher.

The production of Rough stone in this quarry involves the following method which is typical for Rough Stone quarrying in contrast to other major mineral mining.

Splitting of rock mass of considerable volume from the parent rock mass by shallow jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers.

Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting. The primary boulders thus splitted are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators. It is a conventional opencast mechanized method of mining.

5.3. Proposed Bench Height and Width:

The 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.

5.4. Indicate the overburden / mineral production expected pit wise as detailed below (composite plan and section showing pit layout, dumps, disposal of waste if any etc.):

The Composite year wise Development and production plan and sections indicating the pit lay out and green belt development are shown in Plate Nos. III and III-A.



Year wise Development and Production

TABLE - 4

YEARWISE PRODUCTION FOR FIRST FIVE YEARS

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Recoverable Reserve of Rough stone in (m ³) 100%	Gravel (m ³)
I	XY-AB	i	19	17	2	-	646
		ii	13	12	5	780	-
	X1Y1-CD	i	47	59	2	-	5546
		ii	41	53	5	10865	-
		iii	8	43	5	1720	-
Total						13365	6192
II	X1Y1-CD	i	17	59	2	-	2006
		ii	20	53	5	5300	-
		iii	23	43	5	4945	-
	X1Y1-EF	i	35	62	2	-	4340
		ii	10	62	5	3100	-
Total						13345	6346
III	X1Y1-EF	ii	22	62	5	6820	-
		iii	5	57	5	1425	-
	X1Y1-CD	iii	25	43	5	5375	-
	X2Y2-EF	i	47	52	2	-	4888
	X3Y3-EF	i	16	33	2	-	1056
Total						13620	5944
IV	X1Y1-EF	iii	22	57	5	6270	-
		iv	22	52	5	5720	-
Total						11990	-
V	X1Y1-CD	iv	51	33	5	8415	-
		v	46	23	5	5290	-
Total						13705	-
Grand Total						66025	18482

The Recoverable reserves have been computed as 66,025m³ of Rough stone at 100% recovery and 18,482m³ of Gravel for first five years upto a depth of 22m below from the ground level (Refer Plate No. III). The peak production capacity in the quarry is 13,705m³ of Rough stone on 5th year and the proposed production schedule is arrived as per applicant's requirement.



TABLE - 5

YEARWISE PRODUCTION FOR SECOND FIVE YEARS						
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Recoverable Reserve of Rough stone in (m ³) 100%
VI	X11Y1-EF	v	17	47	5	3995
		Total				3995
VII		ii	21	49	5	5145
		Total				5145
VIII		ii	20	49	5	4900
		Total				4900
IX	X2Y2-EF	iii	31	44	5	6820
		Total				6820
X		iv	21	39	5	4095
		Total				4095
Grand Total						24955

The Recoverable reserves have been computed as **24,955m³** of Rough stone at 100% recovery upto a depth of 22m below from the ground level for remaining five years of the lease period (Refer Plate No. III-A). Total excavation will be proposed **90,980m³** of Rough stone and **18,482m³** of Gravel for the period of ten years. The peak production capacity in the quarry is **13,705m³** of Rough stone on 5th year and the proposed production schedule is arrived as per applicant's requirement and the EIA and 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	=	6m ³ (approx.)
Total No of Working days	=	300 Days per year
Total quantity to be removed during the ten years lease period	=	90,980m ³
Peak production capacity during the 5 th year	=	13,705m ³
Hence total Lorry loads per day	=	13,705m ³ /6m ³
	=	2,284 Lorry loads
	=	2,284/300 days
Rough Stone (Maximum)	=	7 - 8 Lorry loads per day.



Total Gravel to be removed during the ten years lease period	=	18,482m ³
Peak production capacity during the 2 nd year	=	6,346m ³
Hence total Lorry loads per day	=	6,346m ³ /6m ³
	=	1,058 Lorry loads
	=	1,058/300 days
Gravel (Maximum)	=	3 – 4 Lorry loads per day.
Working hours = 9.00 am to 6.00 pm (with 1.00-2.00 P.M. lunch break).		

5.5. Machineries to be used:

For Mining:

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

TABLE – 6

I. DRILLING MACHINE:

S. No.	Type	Nos	Dia Hole mm	Size Capacity	Motive power
1	Jack-Hammer	2	32	1.2m to 2.0m	Compressed air
2	Compressor	1	-	400 psi	Diesel Drive

II. EXCAVATION & LOADING EQUIPMENT:

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

III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT:

S. No.	Type	Nos	Capacity	Motive Power
1	Tippers	2	20 tonnes	Diesel Drive
2	Water Sprinkling Tanker	1	3,000 litres	Diesel Drive

5.6. Disposal of Overburden/Waste:

There is no Waste anticipated during this plan period hence, disposal of waste does not arise. The overburden in the form of Gravel, the Gravel will be directly loaded into Tippers for the filling and levelling of low-lying areas. The excavated rough stone (100%) will be directly loaded into Tippers to the needy customers.

**5.7. 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.

5.8. 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 mining plan period is given below:

TABLE - 7

Block No.	Length (m) (Max.)	Width (m) (Max.)	Depth (m) (Max.)
Block-1	99	147	22m below ground level

All the base line information studies like Air quality monitoring, Noise and vibration monitoring, Water analysis studies will be carried out every year as per the MoEF & CC Norms. Please refer Plate Nos. III, III-A & IV. As per the NGT orders the applicant is directed to plant 500 trees per hectares along the quarry site and in the haul road either at the regular or the phased manner by planting native species.

There is no waste anticipated during the entire life of quarry. Hence, backfilling is not proposed in this Rough stone quarry. After completion of quarry operation the quarried out pit will be allowed to collect the seepage and rainwater and the water storage will be kept as temporary reservoir for charging the nearby wells and the water will be utilized for Green belt development purpose. The quarry area already 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). The Conceptual Mining is based upon the entire ROM proposed for the life of the quarry (Refer Plate No. IV and V).



6.0 BLASTING

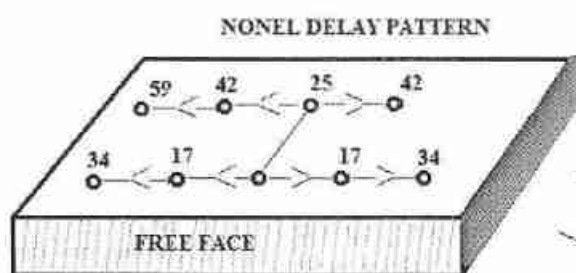
6.1 Blasting pattern:

The quarrying operation is proposed to be carried out by Mechanized Opencast Method in conjunction with conventional method of mining using shallow Jack hammer drilling and mild blasting with NONEL initiation of shattering effect for loosening the Rough stone. Nonel initiation provides a reasonably good solution to the fly rock problem. The main objectives of Nonel Blasting are to reduce the ground vibration, noise, flyrocks generated due to blasting operations. The overall cost of blasting in NONEL is very less compared to electrical blasting and hence it optimizes the cost of blasting.

Drilling and blasting parameters are as follows:

Depth of Each hole	:	1.6m
Spacing between holes	:	1.2m
Burden for hole	:	1.0m
Diameter of hole	:	32mm
Pattern of hole	:	Staggered pattern
Inclination of holes	:	80° from horizontal
Use of delay detonators	:	NONEL
Hole to Hole	:	17 milli second delay
Row to Row	:	25 milli second delay

BLASTING PATTERN DRAWING



Spacing	=	1.2m
Burden	=	1.0m
Depth of the hole	=	1.6m
No of holes proposed per day (Peak Production)	=	40 Holes

6.2 Type of explosives to be used:

Small Dia. 25mm Slurry explosives are proposed to be used for shattering and heaving effect for removal and winning of Rough stone. No deep hole drilling or secondary blasting is proposed. NONEL blasting and muffle blasting may be adopted after permission from DGMS.

6.3 Measures proposed to minimize ground vibration due to blasting:

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

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

NONEL Delay detonators:

Delay blasting (millisecond delays) permits to divide the shot in to smaller charges, which are detonated in a predetermined millisecond sequence at specific time intervals.

The major advantages of delay blasting are:

- Reduction of ground vibration.
- Reduction in air blast.
- Reduction in over break.
- Improved fragmentation.
- Better control of fly-rock.

Blasting program for the production per day (As per Peak production capacity):

Peak production (5 th Year)	= 13,705m ³ x 2.6 (Bulk Density) = 35,633 Tons
No of Holes	= 40 Holes
Yield	= 120 Tons
Powder factor	= 6 Tons/Kg of explosives
Total explosive required	= 20 Kg-Slurry explosives
Charge/ hole	= 0.5 Kg
Blasting at day time only	= 1.00 – 1.30 P.M. (whenever required)

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 – 8

Maximum Charge per day (kg)	Number of Round Blast per day	Maximum 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)	Nearest Infrastructure (m)	PPV (mm/s)
20	1	20	40	40	1 (2 Holes)	320	0.539

From the above table, the charge per blast of 20kg 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 thrice a day** 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.

6.4 Storage and safety measures to be taken while blasting:

The applicant will engage authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory foreman/Permit Mines Manager. The explosives agencies should be having the valid Blaster certificate. He will blast holes in the quarry site. After the completion of Blasting the explosives Agencies will take it out back the remaining quantity of Explosives. The Competent Qualified Statutory personnel appointed by the applicant will maintain the records of Explosives as per the Indian Explosives Act.

7.0 MINE DRAINAGE**7.1 Depth of water table (based on nearby wells and water bodies):**

The area is a plain topography; since the lease applied area consists the most common type of dendritic drainage pattern. The water table in the area is about 58m – 63m which is observed from the existing private boreholes. The lease area is fully covered by Massive Charnockite formation. The quarry operation confined to well above the water table hence, the Ground Water problem will not arise. If water seepage may occur due to the fracture, the same will be used for Greenbelt. Anyhow, Garland drain will be constructed all along the boundary to prevent surface run-off water entering into the quarry.

TABLE – 9

Type	Distance & Direction	Location
Bore Well	320m Western side	12°26'02.52"N 80°02'43.21"E

7.2 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 Green belt development areas. Besides, the water will also be used for dust suppression on haul roads during Haulage of machineries.

8.0 OTHER PERMANENT STRUCTURES (also shown in the map)

TABLE - 10

S.No.	Description	Particulars	Aerial Distance & Direction
1	Nearest National Highway	(NH-332A) Chennai - Puducherry	5.8km - SE
2	State Highways	(SH-115) Cheyyur to Vandavasi	9.8km - SW
3	Village Road	Village Road	335m - East
4	Railway station	Tiruppur Railway station	22.3km - SE
5	Airport	Chennai Airport	63km - NE
6	Nearest Habitation	320m - West	
7	Nearest Town	Cheyyur	10.8km - SW
8	Nearest Government School	Panchayat union middle school	1.3km - SW
9	Government Hospital	Cheyyur	10.8km - SW
10	Reserved Forest	No Reserve Forest within 60m Radius.	
11	Defense Installation/Historical Monuments/ Archaeological	Nil within 500m radius.	
12	Nearby Water Bodies	Nil within 50m radius.	
13	Interstate Boundary	Around 91.2 km - NW (Andhra Pradesh State Boundary)	
14	Critically Polluted areas identified by the CPCB	Nil within 10km radius.	
15	Protected areas Notified under wildlife (Protection) Act, 1972.	Around 23.9km - NW (Vedanthangal birds Sanctuary)	
16	Applicability of CRZ, Notification 2011 as amended.	Not Applicable	
17	Applicability of Hill Area Conservation Authority (HACA) Clearance.	Not Applicable	
18	Housing area, EB line (HT & LT Line)	There is no EB-LT/HT line or Housing area situated within 50m radius from the lease area.	
19	Boundaries of the permitted area.	The boundaries of the permitted areas are as follows (Refer Plate No. II): North - S.F.No. 87 East - S.F.No. 86 South - S.F.Nos. 88/4B and 88/2B West - S.F.Nos. 91, 90, 89 and 90	



20	Adjacent Patta lands / Govt. Land	Direction	Classification	Safety Distance
		North	Govt., land	10m
		East	Govt., land	10m
		South	Patta land	7.5m
		West	Govt., land	10m
Patta land	7.5m			

9.0 EMPLOYMENT POTENTIAL & WELFARE MEASURES

9.1 Employment potential (skilled, semi-skilled, un skilled):

Designation	Present Employment position	Employees Requirement	Total
a) Supervisory category			
Geologist	-	1	1
b) Skilled labour			
Mine Foreman	-	1	1
Blaster/Mate	-	1	1
Excavator – Operator	-	1	1
Tipper Driver	-	2	2
Water sprinkler Driver	-	1	1
Jack-Hammer Drillers	-	6	6
c) Unskilled			
Security	-	2	2
Labour & Helper	-	2	2
Co-operator and Cleaner	-	3	3
Total	-	20	20

The proposed output per man shift:

TABLE – 11

Average ROM Production expected per annum (90,980m ³ / 10 years)	9,098m ³
No. of days likely to be worked	300 days
Average ROM production per day	30.3m ³
OMS = Average Production per day / Average employment per day	30.3m ³ / 20 = 1.5m ³

The above manpower is adequate to meet out the production schedule and the machinery strength envisaged in the mining plan and to comply with the statutory provisions of the Mines Safety Regulations. It is been ensured that the labour will not be employed less than 18 years, **No child labour** will engaged or entertained for any kind of quarrying operations. All the labours engaged for quarrying operations will be insured during the quarry lease period



9.2 Welfare Measures:

a) Drinking Water:

Packaged drinking water is available from the nearby water vendors in Pavunjur which is located about 5.0km on the Northwest side of the lease applied area.

b) Sanitary Facilities:

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

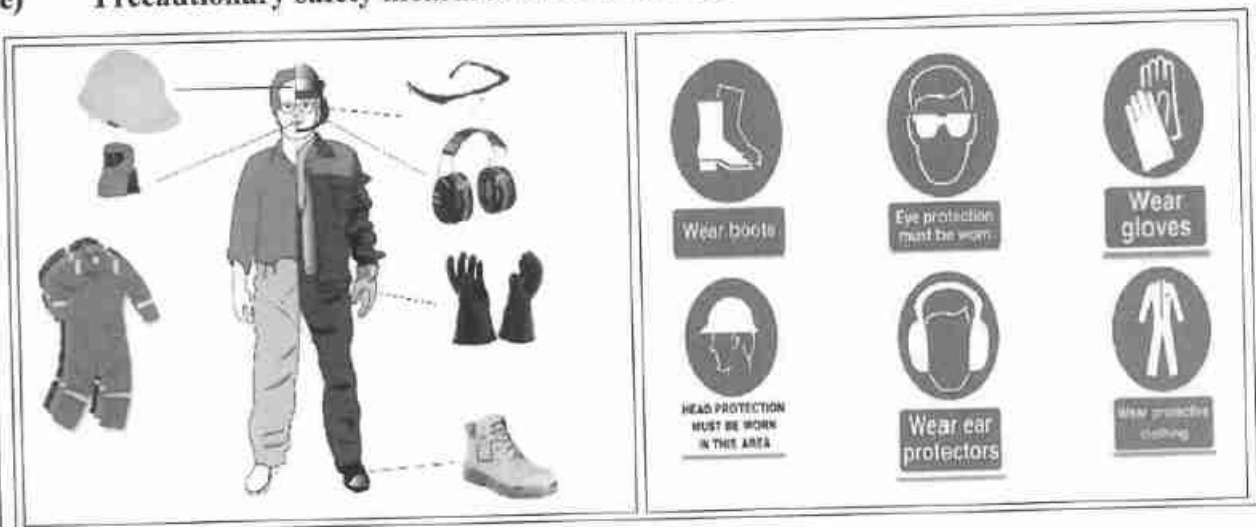
c) First aid facility:

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/mate 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 Pavunjur located at a distance of 5.0km on the Northwest side.

d) Labour Health:

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

e) Precautionary safety measures to the labourers:



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



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

PART - B**10.0 ENVIRONMENT MANAGEMENT PLAN**

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 followed the EIA / EMP for its compliance as per the CPCB / TNPCB Norms.

Environment	Anticipated impact	Mitigation measure
Land Environment	<p>i. Topography of the area will change due to mining activity.</p> <p>ii. Soil quality and agriculture land on surrounding land environment will impact due to;</p> <p>a) Dust propagation during quarry operation like drilling, blasting, loading, unloading and movement of men, Vehicle and machineries.</p> <p>b) Vehicular and machineries emissions and spillage of oil and grease.</p>	<p>i. Backfilling is the only source for mitigation measure for topographical changes, but no waste will be anticipated during entire life of the Rough stone quarrying operation hence, backfilling is not proposed.</p> <p>ii. The Mining benches will not exceed beyond the approved height and width.</p> <p>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.</p> <p>i. Regular water sprinkling on dust prone area like haul road and other active area to arrest the dust generation.</p> <p>ii. Green belt will be developed in the safety zone with thick long leave plants to arrest the fugitive dust and vehicular emissions.</p> <p>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.</p> <p>iv. Excavated benches shall be developed by planting with grasses, herbs and shrubs of local species to prevent soil erosion and landslide.</p>



	<p>c) Propagation of foreign material like polythene bag, jute bag, Plastic water and cool drink containers and undecomposed waste materials dumping.</p>	<p>v. PUC (Pollution under control) certified vehicles will be used for transportation and all vehicles and their exhausts would be well maintained and regularly tested for pollutant concentrations. vi. 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. vii. Leftover foreign material like polythene bag, jute bag, undecomposed materials or ill managed dumping will not be allowed.</p>
<p>Water Environment</p>	<p>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 and catchment of Odai will interrupting during rainy season due to modification of topography. ii. Additional turbidity of the odai during draining the pit water. iii. Damage to riparian vegetation and in-stream habitat. iv. Contamination of groundwater if mining intersects with the water table.</p>	<p>i. Construction of Garland drain with check dam and settling tank will be constructed around the quarry to collect the surface run off rain water and which will be discharge in to the natural drainage system and water bodies in manure as prescribed by TNPCB standards. ii. Further mining will be completely stopped during the monsoon for free flow of surface run off and allowing natural recharge of groundwater. iii. 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. iv. The mine pit water collected due to rain will be utilized for water spraying on the haul Roads and watering for plantations. v. Septic tanks and soak pits will be provided for the disposal of domestic/ washroom effluents, the same will be disposed in manner. vi. The deposit will be worked from the top surface upto a depth of 22m below from the existing ground profile and the water table in the area is 58 - 63 meters, hence the mining will not intersect and contaminate the ground water in any manner.</p>



Nelvaipalayam Rough Stone and Gravel Quarry

Revised Mining Plan and PQCP

<p>Air Environment</p>	<p>In surface mining operations, the source of air pollution may cause deterioration of air quality due to;</p> <p>a) The fugitive dust emissions from drilling/blasting, scooping, loading-unloading operation of extracted mineral and its transportation. Drilling/blasting 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.</p>	<p>i. Regular water sprinkling on haul road and dust prone area to arrest the dust generation.</p> <p>ii. Green belt will be developed in the safety zone with thick long leaves plants to arrest the fugitive dust and vehicular emissions.</p> <p>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.</p> <p>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 to reaches its destination.</p> <p>v. Provision of dust filters/ Nose mask to workers working at dust prone areas.</p> <p>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.</p> <p>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.</p> <p>viii. CPCB Prescribed emission standards for the vehicles would be followed.</p>
<p>Noise Environment</p>	<p>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</p>	<p>i. Selection of new low – noise equipments for the quarry operation.</p> <p>ii. The noise levels shall be maintained within the permissible levels by involving all the noise regulating measures in vehicles and drilling/blasting operations.</p> <p>iii. To ensure minimum vibrations and noise due to blasting, Non-electric detonators in continuous sequence is proposed.</p>



	<p>Central Pollution Control Board as adopted and enforced by the Govt. of India through Noise Pollution (Regulation and Control) Rules, 2000.</p>	<p>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.</p> <p>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.</p> <p>vi. Regular and proper maintenance of machinery and transportation vehicles shall be ensured.</p> <p>vii. Transporting vehicles are enforcing the speed limits of 20km/hour within quarry area and not exceed 40km per hour until reaches its destination to reduce Noise and vibration.</p> <p>viii. There would be restrictions on mining activity and vehicular movement during night hours.</p>
<p>Biological Environment</p>	<p>The area having main floras are Neem, Pongamia pinnata, Palm, Arali, Cocos nucifera, Cactus, 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:</p> <ol style="list-style-type: none"> Cattles may die/injured by entering the pit. Diversity of living insects and soil organism due to vibration. Natural habitats of the existing faunas and its breeding will change due to the noise 	<p>i. Barbed wire fencing and safety bund will be constructed around the quarry to prevent inadvertent entry of public and cattle.</p> <p>ii. The natural habitats of the existing flora and fauna will not be disturbed.</p> <p>iii. No mining will be carried out during the monsoon season to minimize impact on aquatic life which is mainly breeding season for many species.</p> <p>iv. Fruit bearing trees will be planted to survive the existing faunas.</p> <p>v. No clearance of vegetation will be done during the entire mining operations.</p> <p>vi. Regular Water sprinkling on haul roads would be reduces the dust propagation, thus avoiding damage to the crops and plants.</p> <p>vii. No night hour mining will be carried out which may catch the attention of faunas.</p>



	<p>and vibration during operation.</p> <p>iv. The mining activities can also disrupt the ecological diversity.</p> <p>v. Deposition of dust on the plant and crop leaves is affecting the photosynthesis, Pollination, growth ratio and reduction of yield in agriculture.</p>	
<p>Socio Economic Environment</p>	<p>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.</p> <p>i. It is proposed to provide employment to about 20 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.</p> <p>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.</p> <p>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.</p> <p>iv. The continuation of opportunity for the employments, the nearby villages, living peoples and their life style would be improved.</p> <p>v. The applicant is advised to invest the CER cost (@ 2% from the total Project Cost) to develop the local Panchayat.</p>	<p>Does not arise.</p>



**10.1 Environmental impact assessment statement describing impact of mining on the next ten years:**

In the mining plan proposed for a production of Rough stone does not involve deep hole drilling and blasting. Such limited mining activity is not likely to cause any impact adversely on the environment. As far as pollution of air, water and noise concerned, the 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.

10.2 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.

10.3 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 22m below ground level has been envisaged as workable depth for safe & economic quarrying operation during entire life of quarry. There is no waste generated hence, backfilling is not possible. After completion of quarry operation the quarried out pit will be allowed to collect the seepage and rainwater and the water storage will be kept as temporary reservoir for charging the nearby wells and the water will be utilized for Green belt development purpose. The quarry area already fenced with Barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle.

10.4 Programme of Greenbelt development (indicate extend, number, name of species to be afforested):

The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development. Around 5,860m² area will be utilized for green belt development by planting 1000 numbers along the safety zone during entire lease period also around 300 tree saplings in the approach road at first year of the plan period and 200 tree saplings from third year onwards in quarried out top benches with 2m height tree saplings with an anticipated survival rate of 80% with maintain atleast 1200 plants during the entire life of the quarry.

As per the SEIAA Recommendation the plantation will be carried out based on the output Environmental Clearance and the recommended species will be carried out for green belt development. Appropriate species of trees will be planted in a phased manner as described below

TABLE - 12

Years	No. of tress proposed to be planted	Area to be covered (m ²)	Name of the species	Survival %	No. of trees expected to be grown
I	100	586	Neem, Pongamia Pinnata, Vaagai, Sarakonrai, etc.,	80	80
II	100	586		80	80
III	100	586		80	80
IV	100	586		80	80
V	100	586		80	80
VI	100	586		80	80
VII	100	586		80	80
VIII	100	586		80	80
IX	100	586		80	80
X	100	586		80	80

10.5 Proposed financial estimate / budget for (EMP) environment management:

Budget Provision for the Mining Plan period:

TABLE - 13

S. No	Monitory and Analysis Description	Rate per location	No. of location	Total Charges/ six months	Total Charges/ year
1	Ambient air quality monitoring	6500	4	26000	52000
2	Noise level monitoring	250	4	1000	2000
3	Ground vibration monitoring	1000	2	2000	4000
4	Water sampling and analysis	9000	1	9000	18000
Total EMP Cost/ year					76,000

The EMP cost would be around Rs. 7,60,000/- for the period of ten years.

A. Operational Cost / Project Cost / Investment:

i) Land cost The Land value as per the Government Guideline land cost is calculated as follows,

S.F.No.	Extent(Ha.)	Cost/Ha(Rs.)	Cost of the area (Rs.)
75/6	0.15.5	1606500	249008
75/7	0.10.5	1606500	168683
75/8	0.16.0	1606500	257040
75/9	0.09.0	1606500	144585
85/1	0.05.0	1606500	80325
85/2	0.16.0	1606500	257040
88/1	1.00.0	1730000	1730000
88/2A	0.34.62	1730000	598926
88/4A	0.29.36	1730000	507928
Total	2.35.98	-	3993535

(source : <https://tnreginet.gov.in/portal/>)

39,94,000/-



ii) Machinery to be used	The following machineries are proposed to meet out the productions. Excavator attached with rock breaker, Tipper, Tractor mounted compressor with jack Hammer and loose tools (Rental Basis)	10,00,000/-
iii) Refilling/ Fencing	Fencing will be constructed around the quarry pit to prevent the inadvertent entry of public and cattle cost would be around (Total Peripheral length 690m x Rs. 300/meter).	2,07,000/-
iv) Labourers shed	Labour sheds already constructed as semi-permanent structure. The cost is around	1,50,000/-
v) Sanitary facility	Adequate latrine and urinal accommodation has provided at conveniently accessible places the cost would be around	Rs.80,000/-
vi) Others items	First aid room & accessories	50,000/-
vii) Drinking water facility for the labourers	Packaged drinking water will be provided for all the Labours. Drinking water will be readily available at conveniently accessible points during the whole of the working shift the cost would be around.	1,00,000/-
viii) Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around.	60,000/-
ix) Safety kit	All the Safety kit such as Helmet, Earmuffs, Goggles, Reflector Jackets, Safety shoes etc., will be provided to the workers by the applicant own cost which would be around.	50,000/-
x) Water sprinkling	Water will be sprinkled in the haul roads by water sprinklers the cost would be around.	3,00,000/-
xi) Garland drain	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 620m x Rs. 300/meter).	1,86,000/-
xii) Greenbelt etc.	Greenbelt development and maintenance will be carried out in the boundary barriers the cost would be around (1000 saplings x Rs. 200/sapling).	2,00,000
	Greenbelt development and maintenance will be carried out in the quarried out top benches (200 saplings x Rs. 200/sapling).	40,000
	Greenbelt development and maintenance will be carried out in the Panchayat Road (300 saplings x Rs. 200/sapling).	60,000
Total Project Cost		Rs.64,77,000/-



B. EMP Cost: (Per year)	
Air Quality monitoring	Rs. 52,000/-
Water Quality Sampling	Rs. 18,000/-
Noise Monitoring	Rs. 2,000/-
Ground vibration test	Rs. 4,000/-
Total Cost	Rs. 76,000/-
Total EMP Cost for the ten years period is Rs.7,60,000/-	
Description	Amount (Rs.)
A. Operational Cost	Rs.64,77,000/-
B. EMP Cost	Rs.7,60,000/-
Total Project Cost (A+ B)	Rs.72,37,000/-
The applicant Indents to involve corporate environment responsibilities (CER) activity like Water Purifier, Plantation, sanitary facility and as per requirement to the Akkinampattu Government School at 2.0% from the total project cost. The Cost would be around Rs.1,45,000/- .	Rs.1,45,000/-
Total Cost	Rs.73,82,000/-
The Total cost would be around seventy three lakhs and eighty two thousand only.	



11.0 PROGRESSIVE QUARRY CLOSURE PLAN

11.1 Introduction:

The entire area is proposed for a short period of 10 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.

11.2 Present and Post Land use pattern:

LAND USE TABLE - 14

Description	Present area (Ha)	Area required during the first five year (Ha)	Area at the end of lease period (Ha)
Area Under Quarry	Nil	0.98.80	0.98.80
Site Services	Nil	0.02.00	0.02.00
Roads	Nil	0.02.00	0.02.00
Green Belt	Nil	0.29.00	0.58.60
Unutilized Area	2.35.98	1.04.18	0.74.58
Grand Total	2.35.98	2.35.98	2.35.98

11.3 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.

11.4 Progressive quarry closure plan preparation:

Name and address of the Qualified Person who prepared the progressive closure plan and name, address and register number of the executing agency who is involved in the Preparation of progressive quarry closure plan.

Name : **M. Santhoshkumar, M.Sc.,**
Qualified Person

Address : Plot No. 3, Kattuvattam,
Near Kothukkara Samthi (Via), Kannakurichi Post,
Salem District - 636 008.

Mobile : +91 97914 41745.

E. Mail ID : santhoshgeo2004@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 to 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 5.0 m for ease of operations and provide sufficient room for the movement of equipments.
- Protective equipment like dust masks, ear-plugs/ muffs and other equipments shall be provided for use by the work persons.
- Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries.
- Danger signs shall be displayed near the excavations and proper signal by siren alarm will be 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 Environment Management Plan and report the Compliance to the Mine Manager half yearly.

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. In case of 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. After completion of quarry operation all machineries will be utilized at another quarry area or 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:

LAND USE TABLE – 15

ACTIVITY		YEARS										RAT E	COST (Rs./-)
		I	II	III	IV	V	VI	VII	VIII	IX	X		
Plantation under safety zone	Nos	100	100	100	100	100	100	100	100	100	100	@200 Rs Per sapling	2,00,000
	Cost	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000		
Plantation in quarried out top benches	Nos	-	-	100	100	-	-	-	-	-	-	@200 Rs Per sapling	40,000
	Cost	-	-	20000	20000	-	-	-	-	-	-		
Plantation in haul road	Nos.	150	150	-	-	-	-	-	-	-	-	@300 Rs Per Meter	60,000
	Cost	30000	30000	-	-	-	-	-	-	-	-		
Barbed Wire Fencing (In Mtrs) 690 Mtrs		2,07,000	-	-	-	-	-	-	-	-	-	@300 Rs Per Meter	2,07,000
Garland Drain (In Mtrs) 620 Mtrs		1,86,000	-	-	-	-	-	-	-	-	-	@300 Rs Per Meter	1,86,000
TOTAL													6,93,000

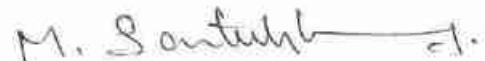
12.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT:

This Revised 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 instructed 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



M. Santhoshkumar, M.Sc.,

Qualified Person

Place: Salem

Date: 03.07.2024

This Mining Plan is approved subject to the conditions / stipulations indicated in the Mining Plan approval Letter No. 185/mine/2023
Dated. 9/7/24

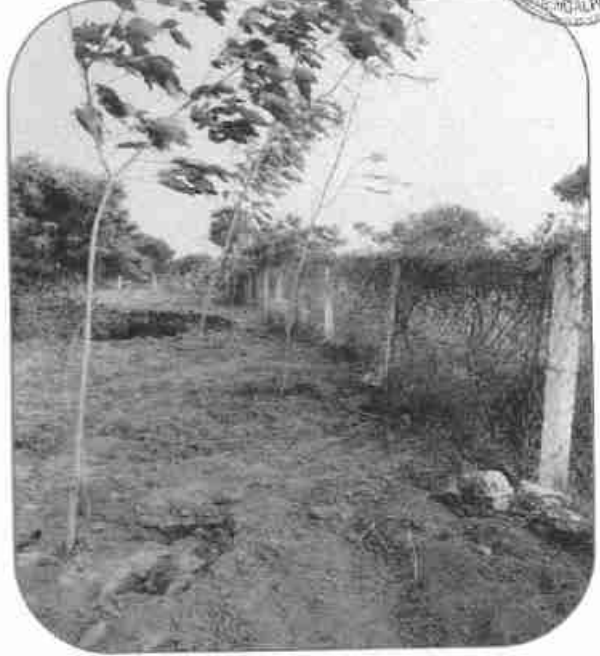
This Mining Plan is approved as per the powers conferred Under Rule 41 (2) of Tamil Nadu Minor Mineral Concession Rules, 1959



Deputy Director (Addl.Charge) of Geology and Mining,
Chengalpattu District

MB
9/7/24

TOPOGRAPHICAL VIEW OF NELVAIPALAYAM ROUGH STONE AND GRAVEL QUARRY LEASE APPLIED AREA.



நக.எண். 0185/கனிமம்/2023
நாள்.22.09.2023

உதவி இயக்குநர் அலுவலகம்,
புவியியல் மற்றும் சுரங்கத்துறை,
செங்கல்பட்டு



அறிவிக்கை

பொருள் : கனிமங்களும் குவாரிகளும் - சாதாரண கற்கள் மற்றும் கிராவல் மண் - செங்கல்பட்டு மாவட்டம் - செய்யூர் வட்டம் - நெ.94 நெல்வாய்ப்பாளையம் கிராமம் - பட்டா புல எண்கள்.75/6 (0.15.50), 75/7 (0.10.50), 75/8 (0.16.00), 75/9 (0.09.00), 85/1 (0.05.00), 85/2 (0.16.00), 88/1 (1.00.00), 88/2 (0.41.50), 88/3 (0.08.00), 88/4 (0.50.00)-ல் மொத்த பரப்பு 2.71.50 ஹெக்டேர் பரப்பு பட்டா நிலத்தில் சாதாரண கற்கள் / கிராவல் மண் வெட்டியெடுக்க பத்து ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் கோரி - திரு.க.சுந்தரமூர்த்தி த/பெ.கன்னியப்பன் என்பவர் தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி எண்.19(1) - ன்கீழ் மனு செய்தது - தகுதி வாய்ந்த நிலம்பரப்பாக தெரிவித்தல் - தொடர்பாக.

- பார்வை :**
1. திரு. K.சுந்தரமூர்த்தி த/பெ.கன்னியப்பன், எண்.1/31, லிங்கமேட்டு தெரு, மணமை கிராமம், திருக்கழுக்குன்றம் வட்டம், செங்கல்பட்டு மாவட்டம் என்பவரிடமிருந்து விண்ணப்பம் பெறப்பட்ட நாள் 05.06.2023.
 2. இவ்வலுவலக கடித நக.எண்.185/கனிமம்/2023, நாள்.05.06.2023.
 3. மதுராந்தகம் வருவாய் கோட்ட அலுவலர் அவர்களின் அறிக்கை நக. எண்.2995/2023/ஆ, நாள்.14.08.2023.
 4. திரு. K.சுந்தரமூர்த்தி த/பெ.கன்னியப்பன் என்பவரின் மனு நாள்.20.09.2023.
 5. காஞ்சிபுரம், புவியியல் மற்றும் சுரங்கத்துறை உதவி புவியியலாளர் மற்றும் தனிவருவாய் ஆய்வாளர் (கனிமம்) காஞ்சிபுரம் ஆகியோரின் புலத்தணிக்கை அறிக்கை, நாள்.21.09.2023.
 6. தொடர்புடைய இதர ஆவணங்கள்.

செங்கல்பட்டு மாவட்டம், செய்யூர் வட்டம், நெ.94. நெல்வாய்ப்பாளையம் கிராமம், பட்டா புல எண்கள். 75/6 (0.15.50), 75/7 (0.10.50), 75/8 (0.16.00), 75/9 (0.09.00), 85/1 (0.05.00), 85/2 (0.16.00), 88/1 (1.00.00), 88/2 (0.41.50),



88/3 (0.08.00), 88/4 (0.50.00)-ல் மொத்த பரப்பு 2.71.50 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல்மண் வெட்டியெடுக்க திரு. K.கந்தரமூர்த்தி த/பெ.கன்னியப்பன் என்பவர் பத்து ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் கோரி விண்ணப்பித்துள்ளார்.

பார்வை 4-ல் காணும் கடிதத்தில் மனுதாரர் திரு. K.கந்தரமூர்த்தி த/பெ.கன்னியப்பன் என்பவர் மேற்படி விண்ணப்ப புல எண்.88/3 (0.08.00)-னை விண்ணப்ப புலத்திலிருந்து நீக்கம் செய்யுமாறும், மேலும் புல எண்கள்.88/2, 88/4-ல் செட்டில்மெண்ட் உட்பிரிவு செய்யப்பட்டுள்ளதால் உட்பிரிவு செய்யப்பட்ட புல எண்கள். 88/2A(0.34.62), 88/4A(0.29.36) சேர்த்து விண்ணப்ப புலஎண்கள். 75/6 (0.15.50), 75/7 (0.10.50), 75/8 (0.16.00), 75/9 (0.09.00), 85/1 (0.05.00), 85/2 (0.16.00), 88/1 (1.00.00), 88/2A(0.34.62), 88/4A(0.29.36) -ல் மொத்த பரப்பு 2.35.98 ஹெக்டேர் பரப்பளவிற்கு மட்டுமே குவாரிக்குத்தகையினை வழங்க கோரியுள்ளார்.

மேற்படி விண்ணப்பம் தொடர்பாக பார்வை 3 (ம) 4-ல் காணும் மதுராந்தகம் வருவாய் கோட்ட அலுவலர், காஞ்சிபுரம் மாவட்டம், புவியியல் மற்றும் சுரங்கத்துறை, உதவி புவியியலாளர் மற்றும் தனிவருவாய் ஆய்வாளர் (கனிமம்)ஆகியோர் தங்களது அறிக்கையில் மேற்காணும் விண்ணப்ப புலத்தில் தணிக்கை மேற்கொண்டு, செங்கல்பட்டு மாவட்டம், செய்யூர் வட்டம், நெ.94. நெல்வாய்ப்பாளையம் கிராமம், பட்டா புல எண்கள். 75/6 (0.15.50), 75/7 (0.10.50), 75/8 (0.16.00), 75/9 (0.09.00), 85/1 (0.05.00), 85/2 (0.16.00), 88/1 (1.00.00), 88/2A(0.34.62), 88/4A(0.29.36) -ல் மொத்த பரப்பு 2.35.98 ஹெக்டேர் பரப்பில் குவாரி அனுமதி வழங்க பின்வரும் சில நிபந்தனைகளுக்குட்பட்டு பரிந்துரை செய்துள்ளனர்.

1. விண்ணப்பப் புலங்களுக்கு அருகிலுள்ள அரசு புறம்போக்கு, கல்லாங்குத்து புறம்போக்கு மற்றும் விவசாய நிலங்களுக்கு முறையே 10 மீட்டர் மற்றும் 7.5 மீட்டர் பாதுகாப்பு இடைவெளிவிட்டு குவாரிப்பணி செய்யப்பட வேண்டும்.
2. பொதுமக்களுக்கோ, பொது சொத்துக்களுக்கோ யாதொரு சேதமும் இன்றி பாதுகாப்பான முறையில் குவாரிப்பணி செய்ய வேண்டும்.



எனவே மதுராந்தகம் வருவாய் கோட்டாட்சியர் மற்றும் காஞ்சிபுரம் புவியியல் மற்றும் சுரங்கத்துறை, உதவி புவியியலாளர் ஆகியோரின் அறிக்கையின் அடிப்படையில் செங்கல்பட்டு மாவட்டம், செய்யூர் வட்டம், நெ.94, நெல்வாய்பாளையம் கிராமம், பட்டா புல எண்கள். 75/6 (0.15.50), 75/7 (0.10.50), 75/8 (0.16.00), 75/9 (0.09.00), 85/1 (0.05.00), 85/2 (0.16.00), 88/1(1.00.00), 88/2A(0.34.62), 88/4A(0.29.36)-ல் மொத்தம் 2.35.98 ஹெக்டேர் பரப்பளவில் சாதாரண சுற்கள் மற்றும் கிராவல்மண் வெட்டியெடுக்க பத்து வருட காலத்திற்கு குத்தகை உரிமம் வழங்க தகுதி வாய்ந்த நிலப்பரப்பாக திரு.K.சுந்தரமூர்த்தி த/பெ.கன்னியப்பன் என்பவருக்கு தெரிவிக்கப்படுகிறது.

மேலும் குவாரி அனுமதி வழங்குவது தொடர்பாக வரைவு சுரங்கத் திட்டத்தை (Mining Plan) மூன்று மாத காலத்திற்குள் உதவி இயக்குநர் முன்பு சமர்ப்பித்து ஒப்புதல் பெறவும் குவாரி உரிமம் பெறுவது தொடர்பாக மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் (SEIAA) இசைவினை பெற்று சமர்ப்பிக்கவும் அறிவுறுத்தப்படுகிறது.


உதவி இயக்குநர் (பொ),
புவியியல் மற்றும் சுரங்கத்துறை,
செங்கல்பட்டு.

பெறுநர்
திரு. K.சுந்தரமூர்த்தி,
த/பெ.கன்னியப்பன்,
எண்.1/31, லிங்கமேட்டு தெரு,
மணமை கிராமம்,
திருக்கழுக்குன்றம் வட்டம்,
செங்கல்பட்டு மாவட்டம்.


22-7-2022

நகல்:-

- 1) தலைவர், மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையம், சென்னை.
- 2) ஆணையர், புவியியல் மற்றும் சுரங்கத்துறை, சிண்டிடி, சென்னை 600 032.

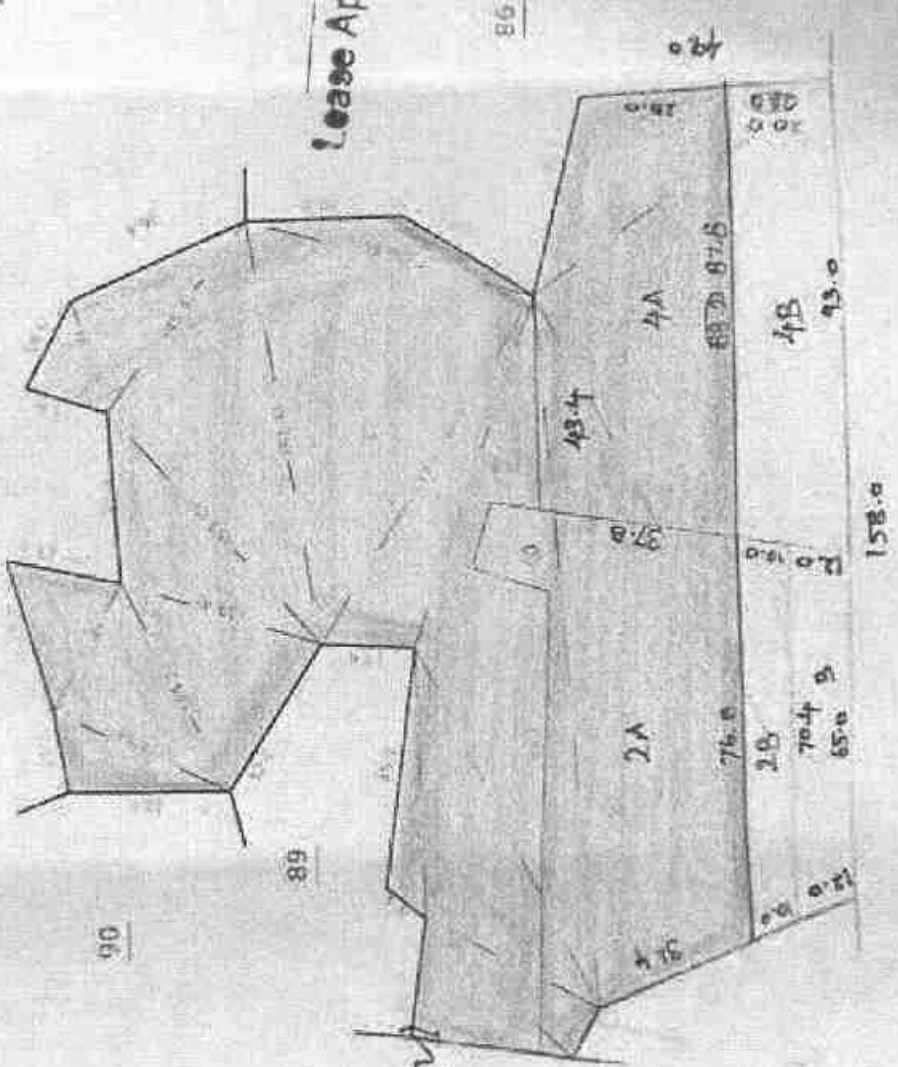
ANNEXURE II



Certified that the
 village names and
 boundaries shown here are
 ground and found correct.

88/2A - 0.34.12 ✓
 2B - 0.06.88 ✓
0.41.50
 88/4A - 0.27.36 ✓
 4B - 0.20.64 ✓
0.50.00

Lease Applied Area -



21/9/23
 22/9/23
 21/11/23

22/9/23
 22/9/23



கனவெட்டியை எண் 23

எண் 289

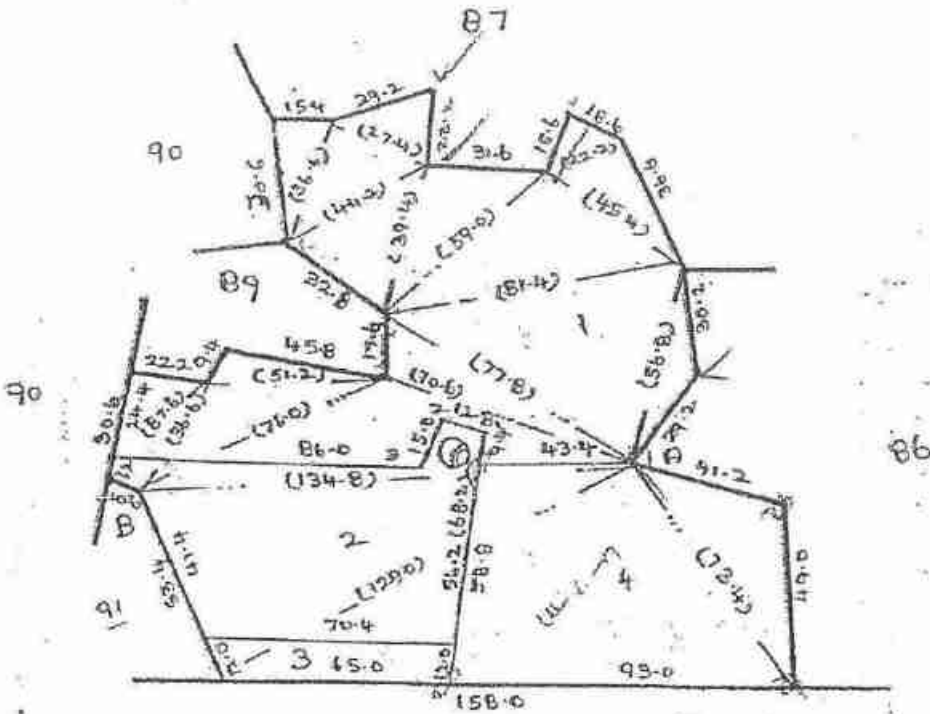
திராமம்

பெயர். நெல்வாய்பாணையம்

மதுரைக்கு
புல எண். 88

பரப்பு: ஹெக்டேர்

1 ஏர். 99-5



ச.ச. சிவசுந்தரன்

|| சிவசுந்தரன் ||

03/06/2023
திராம நிர்வாக அலுவலர்
நெ. 94, நெல்வாய்பாணையம்
செய்யூர் வட்டம்

B			
(134.8)			
56.4	2.2	3	
52.8	7.0	4	
50.4	16.6	2	
44.4	81 A	4	



மாண்புமிகு கிராமம் மற்றும் பொது இயக்குநர்

மாண்புமிகு கிராமம் மற்றும் பொது இயக்குநர்

புலவண் 85

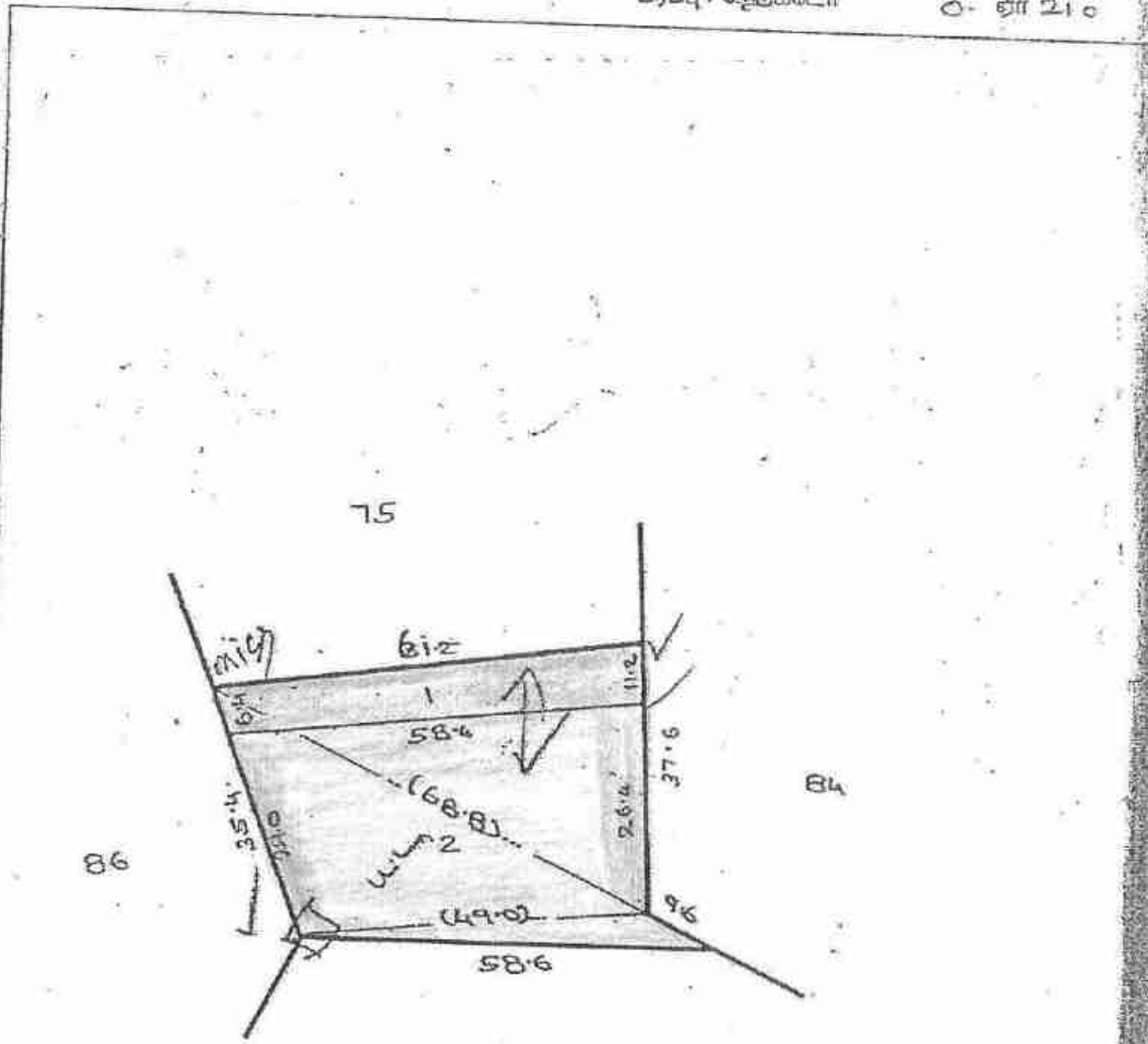
பரப்பு: ஜென்க்டர்

0- ஏர் 210

சீராயம் { எண். 289

பெயர்: குமாரசாமி

Handwritten note on the left margin.



தி.எண் : 101 ஆகிய கிராமம்

Lease Applied Area- [shaded box]

Handwritten signature or note.

கிராம நிர்வாக அலுவலர்
நெ. 94, தென்மேற்கு மாவட்டம்
சென்னை
சென்னை

Handwritten text at the bottom left.

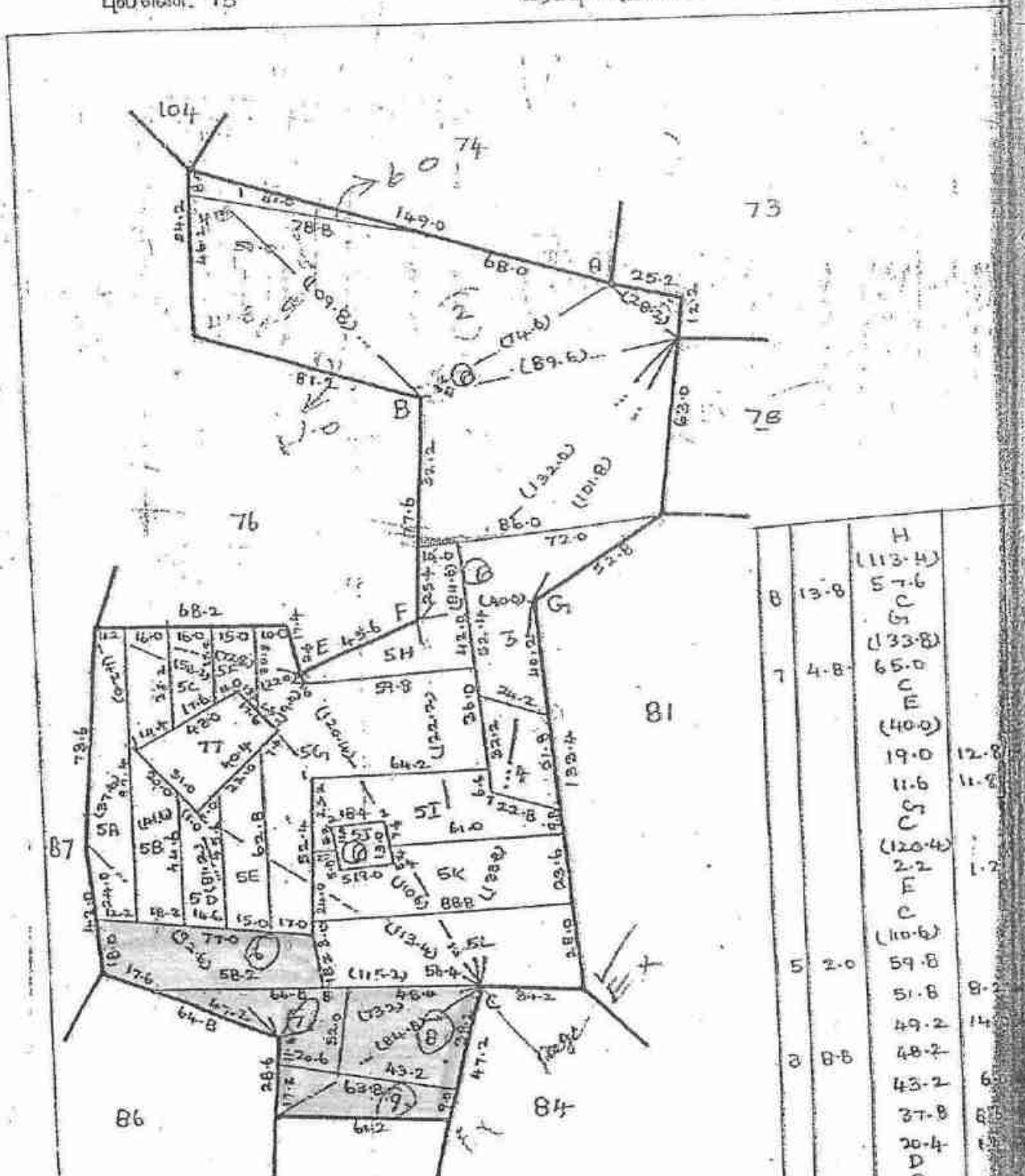
மாண்புமிகு கிராமம் மற்றும் பொது இயக்குநர்



பெரியபாளையம்
 மதுராந்தகம்
 புலணை 75

கிராமம்
 எண். 289
 பெயர். தெலிவாய்பாளையம்

பரப்பு: ஹெக்டேர் 3 ஏ.சி.5



8	13-8	H (113-4)	
		57-6	
		G	
		(133-8)	
7	4-8	65-0	
		C	
		E	
		(40-0)	
		19-0	12-8
		11-6	11-8
		S	
		C	
		(120-4)	
		2-2	1-2
		F	
		C	
		(110-6)	
5	2-0	59-8	
		51-8	8-2
		49-2	14
		48-2	
		43-2	6
		37-8	6
		20-4	
		D	
		B	
		(74-6)	
		66-0	
		63-6	
		62-2	
		55-8	
		A	

Lease Applied Area- [Shaded Box]

சிறப்பு நிர்வாக அலுவலர்
 எண் 942 தெலிவாய்பாளையம்
 செயலர் வட்டம்
 செங்கல்பட்டு மாவட்டம்



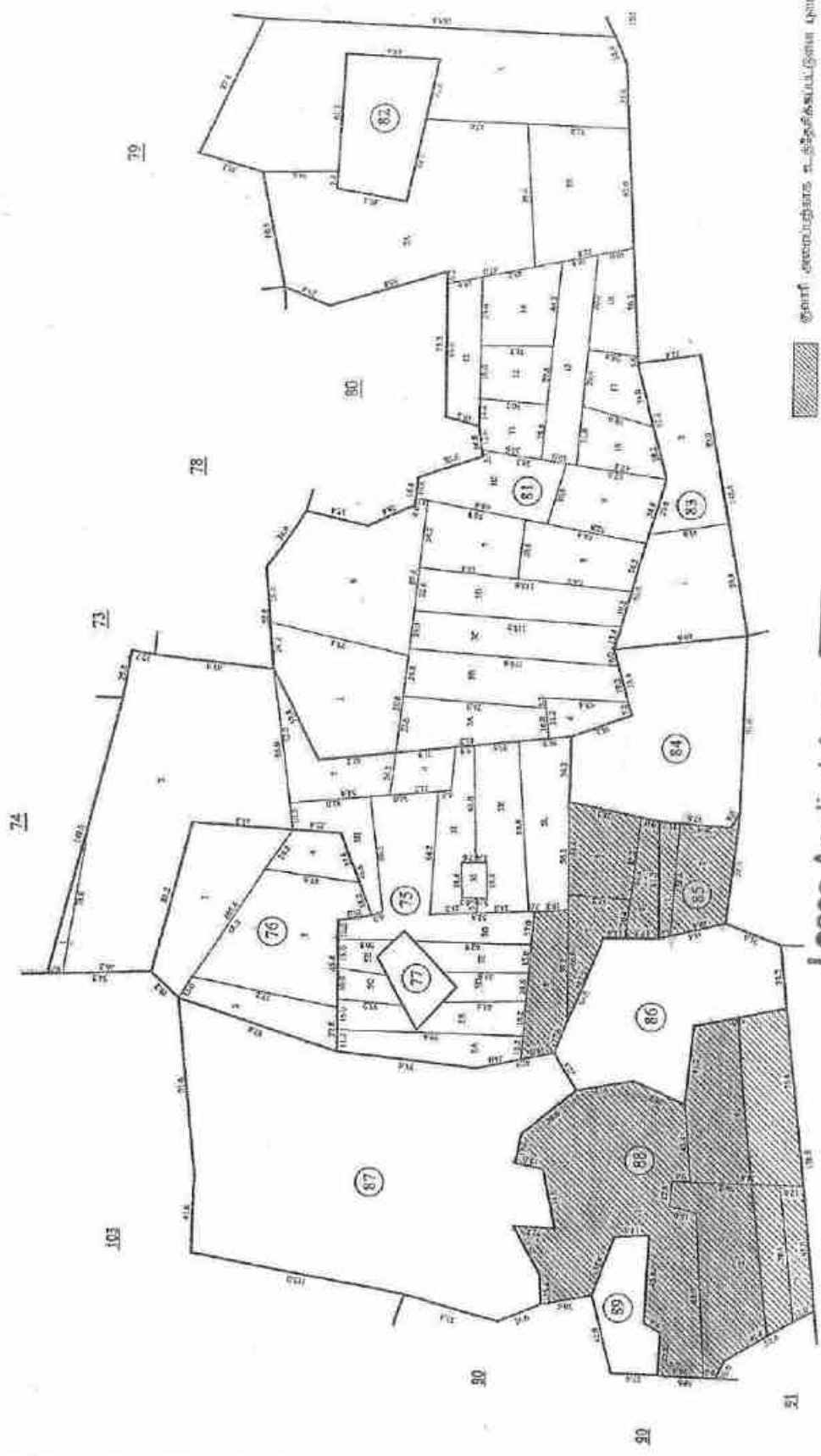
மாவட்டம் : செங்கல்பட்டு

வட்டம் : செய்யூர்

புல எண் : 75, 76, 77, 81, 82, 83, 84, 85, 87, 88, 89.

கூட்டு வரைபடம்

எண் :
 கிராமம் { பெயர் : தெல்வாய்பாளையம்



சுமார் அமைப்பதற்கு உட்கட்டுக்கூடிய பகுதிகள்



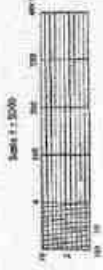
Lease Applied Area-



No. 289

NELVOYPALAYAM
MADURANTAKAM TALUK
KANCHEEPURAM DISTRICT

Scale of 1" = 400 Feet



SYMBOLS APPLIED

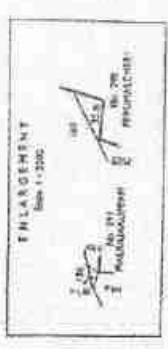
- Blue lines, roads, drains, canals, railway lines, etc.
- Black lines, walls, boundaries, etc.
- Red lines, boundaries, etc.
- Green lines, boundaries, etc.
- Yellow lines, boundaries, etc.
- Pink lines, boundaries, etc.
- White lines, boundaries, etc.
- Black dots, wells, etc.
- Red dots, wells, etc.
- Green dots, wells, etc.
- Yellow dots, wells, etc.
- Pink dots, wells, etc.
- White dots, wells, etc.
- Black squares, buildings, etc.
- Red squares, buildings, etc.
- Green squares, buildings, etc.
- Yellow squares, buildings, etc.
- Pink squares, buildings, etc.
- White squares, buildings, etc.

BY ORDER

REGIONAL SURVEY
OFFICE OF THE
ASSISTANT DIRECTOR

Approved and signed under the superintendence of the Assistant Director of Regional Survey Office of the Assistant Director of Regional Survey Office.

Reg. No. T-1/1984 (Provisional) (20-10-1984) (1984) (1984) (1984)



No. 286
THONDAMANALLUR

No. 285
MANIKAKKUPPAM

No. 287
PALLUR

No. 284
NEKKUNAFATTU

No. 291
MALRAJAKUPPAM

No. 290
PERUMALCHERI

No. 101
AKKINAMBATTU

Symbol for...

1	Public Buildings
2	Private Buildings
3	Industrial Buildings
4	Commercial Buildings
5	Religious Buildings
6	Government Buildings
7	Church



No. 101 Akkinambattu (Supplemental Survey) S.No. 1 to 200

The village map is brought into force after the Supplemental Survey under the Survey Act, 1908.

Approved by Mrs. S. SURESH (A.S.)
District Officer and District Engineer
Madurai, Government of India No. 197/1984 (1984) (1984)

Lease Applied Area

6/3/23, 12:58 PM

வட்டாட்சியர் அலுவலக இணைய சேவை - நில உரிமை விபரங்கள்



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : செங்கல்பட்டு

வட்டம் : செய்யூர்

வருவாய் கிராமம் : நெல்வாய்பாளையம்

பட்டா எண் : 652

உரிமையாளர்கள் பெயர்

1. கன்னியப்பன்

மகன்

சந்திரமூர்த்தி

2. சந்திரமூர்த்தி

மகன்

பாலாஜி

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
75 ✓	6	0 - 15.50	0.48	--	--	--	--	2023/0103/35/318896- -- -- 02-06-2023
75 ✓	7	0 - 10.50	0.33	--	--	--	--	2023/0103/35/318896- -- -- 02-06-2023
75 ✓	8	0 - 16.00	0.50	--	--	--	--	2023/0103/35/318896- -- -- 02-06-2023
75 ✓	9	0 - 9.00	0.28	--	--	--	--	2023/0103/35/318896- -- -- 02-06-2023
85	1	0 - 5.00	0.10	--	--	--	--	2023/0103/35/318896- -- -- 02-06-2023
85 ✓	2	0 - 16.00	0.29	--	--	--	--	2023/0103/35/318896- -- -- 02-06-2023
88	4	0 - 50.00	1.55	--	--	--	--	2023/0103/35/318896- -- -- 02-06-2023
		1 - 22.00	3.53					

குறிப்பு 2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 35/08/094/00652/90403 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 03-06-2023 அன்று 12:51:49 PM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : செங்கல்பட்டு

வட்டம் : செய்யூர்

வருவாய் கிராமம் : நெல்வாய்பாளையம்

பட்டா எண் : 598

உரிமையாளர்கள் பெயர்

1. கன்னியப்ப நாயக்கர்

மகன்

சந்தர்மூர்த்தி

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
88	2	0 - 41.50	1.27	--	--	--	--	2022/0103/35/262981- -- -- 16-05-2022
		0 - 41.50	1.27					

குறிப்பு 2 :



- 3மற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 35/08/094/00598/80462 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 03-06-2023 அன்று 12:54:05 PM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : செங்கல்பட்டு

வட்டம் : செய்யூர்

வருவாய் கிராமம் : நெல்வாய்பாளையம்

பட்டா எண் : 594

உரிமையாளர்கள் பெயர்

1. சுந்தரமூர்த்தி

மனைவி

மனோன்மணி



புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
88	1	1 - 0.0	3.09	--	--	--	--	2022/0103/35/259332- -- -- 06-04-2022
		1 - 0.00	3.09					

குறிப்பு2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 35/08/094/00594/80428 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 03-06-2023 அன்று 12:53:11 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



மாவட்டம்

1482 - ஆம் பசுவியில் சென்னை மாவட்டம்

நில வரித் திட்டத்தின்படி
புலன்களின் விபரம்:

முதல் போகம்.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
நில அளவை எண்.	உட்பிரிவு எண்.	பாப்பு.	தீர்வை.	ஒரு போகம் அல்லது இரு போகம்.	கைப்பற்று தாரகுடைய பெயரும் என்னும் அல்லது அனுபோக தாரகுடைய பெயர்.	சாகுபடி யாளரின் பெயர்.	நிலத்தின் எந்த பகுதி யாவது சாகுபடியாளரால் பயிரிடப்பட்டுள்ளது.	எந்த மாதத்தில் பயிர் செய்யப்பட்டது எந்த மாதத்தில் அறுவடை செய்யப்பட்டது.	பயிரின் பெயர்.	பயிரான / அறுவடையான பாப்பு.	உண்டையான பாப்ச்சல் ஆதாரம்.	விளைச்சல் அளவு விழுக்காடு.
75	6	0155	048		652 சீமீ59மீ59(9)							
75	7	0108	033		do							
75	8	0160	050		do							
75	9	0090	028		do							
85	1	0050	010		do							
85	2	0160	029		do							
88	4	0500	155		do							

//2 சென்னை//

2023/05/2023
 சீமா நிர்வாக அலுவலர்
 செ. 94, சென்னை மாவட்டம்
 செயலர் வட்டம்
 சென்னை மாவட்டம்.



1432 - ஆம் பசலியில் செய்யூர் வட்டம்

மாவட்டம்

கிராமம் கணக்கு செய்யூர் வட்டம்
வட்டம் செய்யூர் வட்டம்

நில வரித் திட்டத்தின்படி புலன்களின் விபரம்.					சாகுபடி யாளரின் பெயர்.	முதல் போகம்.						
(1) நில அளவை எண்.	(2) உட்பிரிவு எண்.	(3) பரப்பு.	(4) தீர்வை.	(5) ஒரு போகம் அல்லது இரு போகம்.		(6) கைப்பற்று தாரகுடைய பெயரும் எண்ணும் ஆல்வது அனுபோக தாரகுடைய பெயர்.	(7) நிலத்தின் எந்த பகுதி யாவது சாகுபடியாளரால் பயிரிடப்பட்டுள்ளதா.	(8) எந்த மாதத்தில் பயிர் செய்யப்பட்டது எந்த மாதத்தில் ஆறுவடை செய்யப்பட்டது.	(9) பயிரின் பெயர்.	(10) பயிராளர் / ஆறுவடை யாளர் பரப்பு.	(11) உண்மையான பாய்ச்சல் ஆதாரம்.	(12) விளைச்சல் அளவு விழுக்காடு.
88	1	1000	3.01		594 10 கிராமம்/பகுதி							
					2 கிராமம்/பகுதி							
					செய்யூர் வட்டம்							
					செய்யூர் வட்டம்							
					செய்யூர் வட்டம்							



1432 - ஆம் பசலியில் (மாநில வட்டம்)

மாவட்டம்

செய்தார்

கிராமக் கணக்கு 94

வட்டம் (மாநில வட்டம்)

நில வரித் திட்டத்தின்படி புலன்களின் விபரம்.

சாகுபடி யளவின் பெயர்.

முதல் போகம்.

(1) நில அளவை எண்.	(2) உட்பிரிவு எண்.	(3) மரபடி.	(4) தீர்வை.	(5) ஒரு போகம் அல்லது இரு போகம்.	(6) கைப்பற்று தாரக்டைய பெயரும் எண்ணும் அடங்கலது அனுபோக தாரக்டைய பெயர்.	(7) நிலத்தின் எந்த பகுதி யாவது சாகுபடியாளரால் பயிரிடப்பட்டுள்ளது.	(8) எந்த மாதத்தில் பயிர் செய்யப்பட்டது எந்த மாதத்தில் அறுவடை செய்யப்பட்டது.	(9) பயிரின் பெயர்.	(10) பயிரான அறுவடை யான மரபடி.	(11) உண்மையான பயிற்சலி ஆதாரம்.	(12) விளைச்சல் அளவு விழுக்காடு.
88	2	0415	127		598 கிராமத்தேர்						
88	3	0080	25	598	செய்தார்						

செய்தார்
12/03/2023
கிராம நிர்வாக அலுவலர்
நெ. 94 நெல்வெளியாணையம்
செய்தார் வட்டம்
சென்னை மாநிலம்

மாண்புமிகு உயிரியல் அமைச்சு **மாண்புமிகு உயிரியல் அமைச்சு** **மாண்புமிகு உயிரியல் அமைச்சு**
மாண்புமிகு உயிரியல் அமைச்சு **மாண்புமிகு உயிரியல் அமைச்சு** **மாண்புமிகு உயிரியல் அமைச்சு**

பகுதி	பெயர்	வயது	படிப்பறிவு	பணியின் விவரம்	பணியின் தொடக்கம்	பணியின் முடிவு		பணியின் முடிவு	பணியின் முடிவு	பணியின் முடிவு	பணியின் முடிவு	பணியின் முடிவு	பணியின் முடிவு
						பணியின் முடிவு	பணியின் முடிவு						
89/2	சு. 4	57	1	27	57B. சிந்தனை நாயகர்	2A	0	34.50	0	81.12	1	07	57B. சிந்தனை நாயகர்
					சென்னை சிந்தனை நாயகர்	2B	0	06.88	0	06.08	0	20	சென்னை சிந்தனை நாயகர்
						26	0	41.50	0	41.50	1	27	
89/4	சு. 4	50	1	55	652. சிந்தனை நாயகர்	4A	0	29.86	0	29.86	0	85	652. சிந்தனை நாயகர்
						4B	0	20.64	0	20.64	0	70	சிந்தனை நாயகர்
						0	0	50.00	0	50.00	1	55	

மாண்புமிகு உயிரியல் அமைச்சு
மாண்புமிகு உயிரியல் அமைச்சு
மாண்புமிகு உயிரியல் அமைச்சு
மாண்புமிகு உயிரியல் அமைச்சு



1	2	3	4	5	6	7	8	9	10	11	12	
73-2	73யா	ர	42	..	7.3	5	3.09	1	56.5	4	83	225 ரா. சீராஜமாணிக்க நாயக்கர் (1) ர. சந்திர நாயக்கர் (2) ஏ. பச்சையம்மாள் (3) ரா. பொன்னு ரங்கம் (4) வி. வேலப்ப நாயக்கர் (5) ப. கணேச நாயக்கர் (6) ப. மன்னார் நாயக்கர் (7) ஏ. சூப்பன் (8)
-3	-பா	ர	42	..	7.3	5	3.09	0	05.0	0	15	103 ரா. பொன்னு ரங்கம்
-4	-பா	ர	43	..	7.3	5	3.09	0	05.0	0	15	205 ரா. பொன்னு ரங்கம் (1) வி. வேலப்ப நாயக்கர் (2) நா. சிவபிரகாசம் (3)
-5	-பா	ர	42	..	7.3	5	3.09	0	07.0	0	22	153 வி. வேலப்ப நாயக்கர்
-6	-பா	ர	42	..	7.3	5	3.09	0	07.0	0	22	103 ரா. பொன்னு ரங்கம்
-7	-பா	ர	42	..	7.3	5	3.09	0	46.0	1	42	52 நா. சிவபிரகாசம்
-8	-பா	ர	42	..	7.3	5	3.09	0	76.0	2	35	108 ப. மன்னார் நாயக்கர்
-9	-பா	ர	42	..	7.3	5	3.09	0	05.0	0	15	206 த. ஏழுமலை நாயக்கர் (1) ர. பொன்னு ரங்கம் (2) வி. வேலப்ப நாயக்கர் (3) ஏ. பச்சையம்மாள்
-10	-பா	ர	42	..	7.3	5	3.09	0	07.0	0	22	91
								3	47.0	10	71	
74-1	74-1	ர	42	..	7.4	6	1.85	0	84.0	1	56	.. தரிசு
-2	-2	ர	42	..	7.4	6	1.85	0	05.5	0	10	6 ம. அய்யங்கண்ணு
								0	89.5	1	66	.. தரிசு
75-1	75-1	ர	42	..	7.3	5	3.09	0	03.0	0	10	.. தரிசு
-2	-2	ர	42	..	7.3	5	3.09	1	19.5	3	69	6 ம. அய்யங்கண்ணு
-3	-3	ர	42	..	7.3	5	3.09	0	19.0	0	59	100 மா. பெரியசாமி நாடார்
-4	-4	ர	42	..	7.3	5	3.09	0	07.0	0	21	84 வி. கோபால்
-5A	-5பா	ர	42	..	7.3	5	3.09	0	16.0	0	49	23 நா. கணேசன்
-5B	-5பா	ர	42	..	7.3	5	3.09	0	15.5	0	48	77 நா. தங்கராஜ்
-5C	-5பா	ர	42	..	7.3	5	3.09	0	05.0	0	15	142 நா. வரதன்
-5D	-5பா	ர	42	..	7.3	5	3.09	0	06.0	0	19	142 நா. வரதன்
-5E	-5பா	ர	42	..	7.3	5	3.09	0	03.0	0	09	87 ஆ. நாராயண சாமி

சிராஜ் நாயக்கர்
தெலுங்கு மொழிப்பாடல்கள்
செய்யுள் வட்டம்
செங்கல்பட்டு மாவட்டம்



1	2	3	4	5	6	7	8	9	10	11	12
								கு. பை. ரெஸ்ட்ரூர்.	கு. பை.		
75-AF	75-5பா	ர	42	7.3	5	3.09	0	10.0	0	31	87 சூ. நாராயண சாமி
-5G	-5பா	ர	42	7.3	5	3.09	0	31.5	0	98	73 நா. தர்மன்
-5H	-5பா	ர	42	7.3	5	3.09	0	08.0	0	25	77 நா. தங்கராஜ்
-5I	-5பா	ர	42	7.3	5	3.09	0	18.0	0	56	87 சூ. நாராயண சாமி
-5J	-5பா	ர	42	7.3	5	3.09	0	03.0	0	09	221 நா. தர்மன் (1) தங்கராஜ் (2) வரதன் (3) நா. கணேசன் (4) சூ. நாராயண சாமி (5)
-5K	-5பா	ர	42	7.3	5	3.09	0	20.0	0	62	142 நா. வரதன்
-5L	-5பா	ர	42	7.3	5	3.09	0	16.5	0	49	23 நா. கணேசன்
-6	-6	ர	42	7.3	5	3.09	0	15.5	0	48	44 கு. சதாசிவம்
-7	-7	ர	42	7.3	5	3.09	0	10.5	0	33	94 பெ. பாயம்மாள்
-8	-8	ர	42	7.3	5	3.09	0	16.0	0	50	7 ம. அருள்பயன்
-9	-9	ர	42	7.3	5	3.09	0	09.0	0	28	173 மா. பலராமன் (1) மா. முனுசாமி (2)
							3	51.5	10	88	
76-1	76-1	ர	42	7.4	6	1.85	0	31.5	0	59	6 மன்னார் மகன் அய்யாசன்னு
-2	-2	ர	42	7.4	6	1.85	0	14.5	0	27	96 R. பிராசன்
-3	-3	ர	42	7.4	6	1.85	0	40.5	0	75	
-4	-4	ர	42	7.4	6	1.85	0	08.5	0	16	77 நா. தங்கராஜ்
							0.95.0		1	77	
77	77	ர	42				0	10.5			
78-1	78-1	ர	42	7.3	5	3.09	0	45.5	1	40	92 க. பலராமன்
-2	-2	ர	42	7.3	5	3.09	1	22.0	3	76	60 ரா. சுப்பா ரெட்டியார்
-3	-3	ர	42	7.3	5	3.09	0	35.5	1	10	60 ரா. சுப்பா ரெட்டியார்
-4	-4	ர	42	7.3	5	3.09	0	34.5	1	06	60 ரா. சுப்பா ரெட்டியார்
-5	-5	ர	42	7.3	5	3.09	0	26.5	0	83	60 ரா. சுப்பா ரெட்டியார்
-6	-6	ர	42	7.3	5	3.09	0	21.0	0	65	60 ரா. சுப்பா ரெட்டியார்
							2	85.0	8	80	

கூட்டு
பெணர்

தரிக

கல்வாசி
குத்தி

46-76-8

கிராம நிர்வாக அலுவலர்
தென்வாய்பாணையம்
செய்துரை வட்டம்
செங்கல்பட்டு மாவட்டம்



1	2	3	4	5	6	7	8	9	10	
							கு. னப.	தொழ. ஏம்.	கு. னப.	
79	79	ர	42	1	10.5	..	
80-1	80-1	ர	42	..	7.4	6	1.85	0 31.0	0 58	109 சி. மரியதாஸ்
-2	-2	ர	42	..	7.4	6	1.85	0 30.0	0 56	43 க. சாஜனம்
-3	-4	ர	42	..	7.4	6	1.85	0 30.5	0 56	172 எ. நாகராஜன் (1) எ. சந்திரன் (2)
								0 91.5	1 70	
81-1	81-1	ர	42	..	7.3	5	3.09	0 35.0	1 08	100 மா. பெரியசாமி நாடார்
-2	-2	ர	42	..	7.3	5	3.09	1 77.5	3 62	12 ச. ஆதிசேஷ ரெட்டியார்
-3	-3	ர	42	..	7.3	5	3.09	1 05.0	3 25	12 ச. ஆதிசேஷ ரெட்டியார்
-4	-4	ர	42	..	7.3	5	3.09	0 67.0	0 21	7 ம. அருளப்பன்
-5A	-5பா	ர	42	..	7.3	5	3.09	0 18.8	0 57	84 சி. தோமால்
-5B	-5பா	ர	42	..	7.3	5	3.09	0 26.0	0 80	117 சி. மைக்கேல் க. மைனர்
-5C	-5பா	ர	42	..	7.3	5	3.09	0 25.5	0 79	18 க. உத்தூரியன் கார்டியன் தாயார் சந்தான மரி
-5D	-5பா	ர	42	..	7.3	5	3.09	0 25.5	0 79	156 சி. ஜான்
-6	-6	ர	42	..	7.3	5	3.09	0 43.5	1 40	110 ம. ஆங்கிளேஸ்(1) ம. மாசிலா மணி (2) ம. ஜான் யீட்டர் (3) ம. ராயப்பன் (4)
-7	-7	ர	42	..	7.3	5	3.09	0 16.5	0 51	8 சி. அங்கம்மாள்
-8	-8	ர	42	..	7.3	5	3.09	0 18.0	0 56	61 அ. கப்பராயன்
-9	-9	ர	42	..	7.3	5	3.09	0 17.0	0 53	118 தே. யாகப்பர்
-10	-10	ர	42	..	7.3	5	3.09	0 17.5	0 54	80 அ. தாலிது
-11	-11	ர	42	..	7.3	5	3.09	0 07.5	0 23	46 கு. சுவரியப்பன்
-12	-12	ர	42	..	7.3	5	3.09	0 12.5	0 39	63 மா. செல்ல நாதன்
-13	-13	ர	42	..	7.3	5	3.09	0 08.5	0 26	119 ரா. யாகப்பன்
-14	-14	ர	42	..	7.3	5	3.09	0 14.0	0 44	119 ரா. யாகப்பன்
-15	-15	ர	42	..	7.3	5	3.09	0 21.0	0 55	66 மே. ஞானமுத்து
-16	-16	ர	42	..	7.3	5	3.09	0 14.0	0 44	13 மே. ஆசோக்கிய சாமி
-17	-17	ர	42	..	7.3	5	3.09	0 09.0	0 38	111 கு. மணுவேல்
-18	-18	ர	42	..	7.3	5	3.09	0 11.5	0 36	53 கு. சின்னப்ப
							5 73.5	17 70		

திருமதி நிர்வாக அலுவலர்
தெலிவாய்பாணையம்
செய்யூர் வட்டம்
செங்கல்பட்டு மாவட்டம்



Sl. No.	Survey No.	Category	Area (Acres)	Sub-Category	Area (Acres)	Area (Acres)	Area (Acres)	Area (Acres)	Area (Acres)	Area (Acres)	Area (Acres)	Area (Acres)	Area (Acres)	Remarks		
73	P	புழை	2	7-3	5	3	09	0	7.00	0	21	91-புழை	பொது 2 டீலா(சா)	பொது		
Total For Survey Number- 73												3	15.5	10	44	
74	1	74-1	புழை	2	7-4	6	1	85	0	84.00	1	50	0	பொது		
74	2	-2	புழை	2	7-4	6	1	85	0	5.50	0	10	6-பொது	பொது		
Total For Survey Number- 74												0	89.5	1	66	
75	1	75-1	புழை	2	7-3	6	3	09	0	3.00	0	10	0	பொது		
75	2	-2	புழை	2	7-3	6	3	09	1	19.50	3	69	5-பொது	பொது		
75	3	-3	புழை	2	7-3	6	3	09	0	19.00	0	59	100-பொது	பொது		
Total For Survey Number- 75												0	89.5	1	66	
75	4	-4	புழை	2	7-3	6	3	09	0	7.00	0	21	64-பொது	பொது		
75	SA	-5	P	புழை	2	7-3	6	3	09	0	16.00	0	49	441-பொது	பொது	
75	SB	-5	P	புழை	2	7-3	6	3	09	0	15.50	0	48	77-பொது	பொது	
75	5C	-5	P	புழை	2	7-3	6	3	09	0	5.00	0	15	441-பொது	பொது	
75	5D	-5	P	புழை	2	7-3	6	3	09	0	6.00	0	19	441-பொது	பொது	
75	5E	-5	P	புழை	2	7-3	6	3	09	0	3.00	0	09	441-பொது	பொது	
75	5F	75-5	P	புழை	2	7-3	5	3	09	0	10.00	0	31	441-பொது	பொது	
75	5G	-5	P	புழை	2	7-3	5	3	09	0	31.50	0	98	441-பொது	பொது	
75	5H	-5	P	புழை	2	7-3	5	3	09	0	8.00	0	25	77-பொது	பொது	
75	5I	-5	P	புழை	2	7-3	5	3	09	0	18.00	0	56	441-பொது	பொது	
75	5J	-5	P	புழை	2	7-3	5	3	09	0	3.00	0	09	221-பொது	பொது	
Total For Survey Number- 76												0	94.5	1	77	
75	5K	-5	P	புழை	2	7-3	5	3	09	0	20.00	0	62	441-பொது	பொது	
75	5L	-5	P	புழை	2	7-3	5	3	09	0	16.50	0	49	441-பொது	பொது	
75	6	-6	புழை	2	7-3	5	3	09	0	15.50	0	48	435-பொது	பொது		
75	7	75-7	புழை	2	7-3	5	3	09	0	10.50	0	33	435-பொது	பொது		
75	8	-8	புழை	2	7-3	5	3	09	0	16.00	0	50	434-பொது	பொது		
75	9	-9	புழை	2	7-3	5	3	09	0	9.00	0	28	434-பொது	பொது		
Total For Survey Number- 75												3	52.5	18	88	
76	1	76-1	புழை	2	7-4	6	1	85	0	31.50	0	58	6-பொது	பொது		
76	2	-2	புழை	2	7-4	6	1	85	0	14.50	0	27	96-பொது	பொது		
76	3	-3	புழை	2	7-4	6	1	85	0	40.50	0	75	0	பொது		
76	4	-4	புழை	2	7-4	6	1	85	0	8.00	0	16	77-பொது	பொது		
Total For Survey Number- 76												0	94.5	1	77	
77	-	77	புழை	0	0-0	0	0	0	0	10.50	0	00	0	பொது		
78	1	78-1	புழை	2	7-3	5	3	09	0	45.50	1	40	92-பொது	பொது		
78	2	-2	புழை	2	7-3	5	3	09	1	22.00	3	78	60-பொது	பொது		
78	3	-3	புழை	2	7-3	5	3	09	0	35.50	1	10	60-பொது	பொது		
78	4	-4	புழை	2	7-3	5	3	09	0	34.50	1	06	60-பொது	பொது		
78	5	-5	புழை	2	7-3	5	3	09	0	26.50	0	83	60-பொது	பொது		
78	6	-6	புழை	2	7-3	5	3	09	0	21.00	0	65	60-பொது	பொது		
Total For Survey Number- 78												2	85.0	0	80	
79	-	79	புழை	0	0-0	0	0	0	1	10.50	0	00	0	பொது		
80	1	80-1	புழை	2	7-4	6	1	85	0	31.00	0	58	435-பொது	பொது		
80	2	-2	புழை	2	7-4	6	1	85	0	30.00	0	56	435-பொது	பொது		
80	3	-3	புழை	2	7-4	6	1	85	0	30.50	0	56	435-பொது	பொது		
Total For Survey Number- 80												0	81.5	1	70	
81	1	81-1	புழை	2	7-3	5	3	09	0	35.00	1	08	100-பொது	பொது		
Total For Survey Number- 81												0	81.5	1	70	
81	2A	-81-2	புழை	2	7-3	5	3	09	0	81.00	2	50	403-பொது	பொது		
81	2B	-81-2	புழை	2	7-3	5	3	09	0	36.50	1	12	434-பொது	பொது		
81	3A	81-3	புழை	2	7-3	5	3	09	0	29.50	0	91	434-பொது	பொது		
81	3B	81-3	புழை	2	7-3	5	3	09	0	52.00	1	61	385-பொது	பொது		
81	3C	81-3	புழை	2	7-3	5	3	09	0	23.50	0	71	434-பொது	பொது		
81	4	81-4	புழை	2	7-3	5	3	09	0	7.00	0	21	434-பொது	பொது		

Handwritten signature and date: 29/11/2023
 Assistant Director of Agriculture
 Kancheepuram District

District :Kancheepuram

Taluk :Cheyyur

Village :NELVAIPALAIYAM

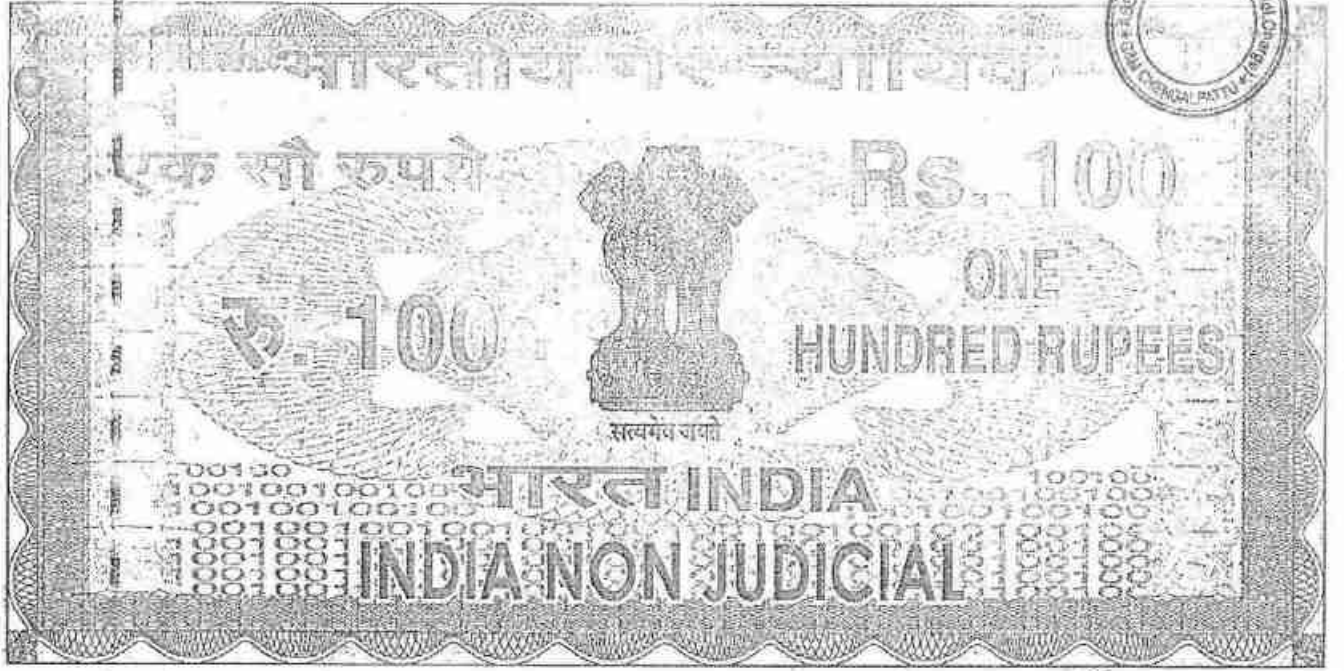


Header table with columns for Survey Number, Area, and other administrative details.

Main data table containing survey details for various plots (e.g., 81-5, 83-1, 85-1, 88-1, 90-1A, 92-1) including area, survey number, and land use type.

Handwritten signature and date: 12/29/06/2022, along with other administrative notes.

ANNEXURE 11



தமிழ்நாடு தமிழ்நாடு TAMILNADU

1 JUN 2023

K. Sundaramoorthy

Manamai

DD 100451

R. MANOHAR
STAMP VENDOR

Licence No: 3/97, Dt: 30-9-91

Vedachala Nagar,
Chenalpattu - 603 001

Cell : 9444333697

சம்மத பத்திரம்

செங்கல்பட்டு மாவட்டம், திருக்கழுக்குன்றம் வட்டம், மணமை கிராமத்தில்
லிங்கமேட்டு தெரு, எண். 1/31 என்ற முகவரியில் வசிக்கும் திரு. கன்னியப்பன்
அவர்களின் குமாரர் திரு. சுந்தரமூர்த்தி அவர்கள் அளிக்கும் சம்மத பத்திரம்
என்னவென்றால்,

செங்கல்பட்டு மாவட்டம், திருக்கழுக்குன்றம் வட்டம், மணமை கிராமத்தில்
லிங்கமேட்டு தெரு, எண். 1/31 என்ற முகவரியில் வசிக்கும் திரு. சுந்தரமூர்த்தி
மகன் S. பாலாஜி ஆகிய நான் செங்கல்பட்டு மாவட்டம், செய்யூர் வட்டம்,
நெல்வாய் பாளையம் கிராமம், புல எண்கள் 75/6, 75/7, 75/8, 75/9 பட்டா எண்.

1652 என்படி எனது பெயரில் 8.5/1, 85/2, 88/4 தாக்கலாகியுள்ளது. மேற்படி
புல எண்களின் மொத்த பரப்பு 3.04 செண்ட் 1.230 ஹெக்டேர் பட்டா நிலத்தில்
சாத்தாரண கற்கள் மற்றும் கிராவல்மண் வெட்டியெடுத்து கல்குவாரி பணிசெய்ய



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2.6.2023

M. BALAKRISHNAN, MA. B.L.D.L.S.
ADVOCATE - NOTARY
119/125, G.S.T. Road
CHENGALPATTU - 603001

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(Handwritten signature)



-2-

செங்கல்பட்டு மாவட்டம், திருக்கழுக்குன்றம் வட்டம், மணமை கிராமத்தில்
லிங்கமேட்டு, தெரு எண். 1/31ல் வசிக்கும் திரு. சுந்தரமூர்த்தி அவர்களின்
மனைவி S. மணோன்மணி என்பவருக்கு நெல்வாய்பாளையம் 88/1ல் 2.47
செண்டில் 1.00.00 ஹெக்டேரில் பட்டா எண். 994ல் பட்டா நிலம் உள்ளது.
சாதாரண கற்கள் மற்றும் கிராவல்லம் வெட்டியெடுத்து கல்குவாரி பணிசெய்ய
மாவட்ட ஆட்சியர் / உதவி இயக்குநர் மூலம் கல்குவாரி குத்தகை ஒப்பந்த
பத்திரம் நிறைவேற்றப்பட்ட நாளிலிருந்து 10 ஆண்டுகளுக்கு கல்குவாரிப்பணி
செய்ய எனது முழு சம்மதத்தை தெரிவித்துக்கொள்கிறோம். மேலும் இது
தொடர்பாக பின்வரும் நாட்களில் எவ்வித ஆட்சேபனையும் 10 ஆண்டுகள்
இடைப்பட்ட காலத்தில் அளிக்கப்பட்ட சம்மதப்பத்திரத்தை திரும்ப
பெறமாட்டோம் என உறுதி அளிக்கிறோம். தமிழ்நாடு சிறுகனிம சலுகை
விதிகளின்படி கல்குவாரி குத்தகை உரிமம் அளிக்கப்பட்ட நாளிலிருந்து 10
ஆண்டுகளுக்கு எனது சம்மதப்பத்திரம் செல்லுபடியாகும் என்பதை
உறுதியளிக்கிறேன்.

கையொப்பம்

K. Balakrishnan
S. Lee



Sgnadaya
23/1/2025

M. BALAKRISHNAN, M.A. B.L. D.L.L.
ADVOCATE - NOTARY
119 / 125, G.S.T Road,
CHENGALPATTU - 603001



From
A. Arumuganainar, M.Sc.,
Assistant Director(i/c),
Dept. of Geology and Mining,
Chengalpattu.

To
K. Sundramoorthy,
S/o. Kanniyappan,
No.1/21, Lingamedu Street,
Manamai Village,
Thirukazhukundram Taluk,
Chengalpattu District.

Rc.No.185/Mines/2023, Dated. 25.09.2023

Sir,

Sub: Mines and Quarries – Chengalpattu District – Cheyyur Taluk – Nelvaipalayam Village – S.F. Nos. 75/6, 75/7, 75/8, 75/9, 85/1, 85/2, 88/1, 88/2A and 88/4A - over an extent of 2.35.98 Hectares of patta lands - permission requested for Quarrying Rough stone and Gravel under rule 19(1) of Tamil Nadu Minor Mineral Concession Rules 1959 – applied by Thiru. K.Sundramoorthy S/o. Kanniyappan – Mining Plan submitted for approval – **Mining Plan approved for First Five years** - directed to obtain Environmental clearance from State Level Environment Impact Assessment Authority, Tamil Nadu -Reg.

- Ref:
1. Application of Thiru. K. Sundramoorthy S/o.Kanniyappan, No.1/21, Lingamedu Street, Manamai Village, Thirukazhukundram Taluk, Chengalpattu District, dated.05.06.2023.
 2. Precise are notice issued by the Assistant Director (i/c), Geology and Mining, Chengalpattu in Rc.No.185/Mines/2023, dated.22.09.2023.
 3. Representation of Thiru. K. Sundramoorthy S/o. Kanniyappan, dated.25.09.2023.

In the reference 1st cited, one Thiru. K. Sundramoorthy S/o.Kanniyappan, No.1/21, Lingamedu Street, Manamai Village, Thirukazhukundram Taluk, Chengalpattu District has applied for quarrying Rough stone and gravel from S.F. Nos.75/6 (0.15.50), 75/7 (0.10.50), 75/8 (0.16.00), 75/9 (0.09.00), 85/1 (0.05.00), 85/2 (0.16.00), 88/1 (1.00.00), 88/2A(0.34.62), 88/4A(0.29.36) over an extent of 2.35.98 hectares of Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District under Rule 19(1) of Tamil Nadu Minor Mineral Concession Rules, 1959.

Based on the recommendations of the Revenue Divisional Officer, Maduranthagam and Inspection report submitted by the Assistant Geologist, O/o. Assistant Director, Geology and Mining, Kancheepuram the above




application was considered for quarrying Rough stone and Gravel from the above area under rule 19(1) of Tamil Nadu Minor Mineral Concession Rules, 1959 for a period of **Ten years** subject to certain conditions and precise area has been communicated to the applicant vide reference 2nd cited.

In exercise of the power delegated under Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959, I hereby approve the mining plan submitted by Thiru. K. Sundramoorthy S/o. Kanniyappan for S.F. Nos. 75/6 (0.15.50), 75/7 (0.10.50), 75/8 (0.16.00), 75/9 (0.09.00), 85/1 (0.05.00), 85/2 (0.16.00), 88/1 (1.00.00), 88/2A(0.34.62), 88/4A(0.29.36) over an extent of 2.35.98 hectares of Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District the mineable reserves of Rough stone & Gravel after leaving safety distance has arrived as 90,980 M³ of Rough stone and 25,286 M³ of Gravel for **First Five years** upto a depth of 22 meter (BGL). This approval is subject to the following conditions:-

- i) That the Mining Plan is approved without prejudice to any other Law applicable to quarrying Rough stone and Gravel from time to time whether such laws are made by the Central Government/ State Government or any other authority.
- ii) The 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) The Mining Plan is approved without prejudice to any other order or direction from any Court of competent jurisdiction.

Encl: Approved Mining Plan


Assistant Director(i/c),
Geology and Mining,
Chengalpattu.

2
25.5.2023



ANNEXURE 1A



THIRU. A.R. RAHUL NADH, I.A.S.
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY-TAMILNADU

3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai - 600 015.
Phone No. 044-24359973
Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr.No.SEIAA-TN/F.No.10479/SEAC/ToR-1654/2024 Dated:08.02.2024.

To

Thiru. K. Sundramoorthy,
S/o. Kanniyappan,
No.1/31, Lingamedu street,
Manamai village,
Thirukazhukkundram Taluk,
Chengalpattu District – 603 102.

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for the Proposed Rough Stone quarry lease over an extent of 1.63.98 Ha in S.F.Nos. 88/1, 88/2A and 88/4A, of Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu by Thiru. K. Sundramoorthy - under project category – “B1” and Schedule S.No.1(a) – ToR issued along with Public Hearing - preparation of EIA report – Regarding.

- Ref: 1. Online proposal No. SIA/TN/MIN/448716/2023, dt:13/10/2023.
2. Your application submitted for Terms of Reference dated:17.10.2023.
3. Minutes of the 436th meeting of SEAC held on 29.12.2023.
4. Minutes of the 693rd meeting of SEIAA held on 08.02.2024.

Kindly refer to your proposal submitted to the State Level Impact Assessment Authority for Terms of Reference.

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SEIAA-TN



The proponent, **Thiru. K. Sundramoorthy** has submitted application seeking **Terms of Reference (ToR)**, in Form-I, Pre-Feasibility report for the Proposed Rough Stone quarry lease over an extent of 2.35.98 Ha in S.F.Nos. 75/6, 75/7, 75/8, 75/9, 85/1, 85/2, 88/1, 88/2A and 88/4A, of Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

Proposed Rough Stone and Gravel quarry over an extent of 1.63.98 Ha in S.F.Nos. 85/1, 85/2, 88/1, 88/2A and 88/4A, of Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu by **Thiru. K. Sundramoorthy** - For Terms of Reference. (SIA/TN/MIN/448716/2023, dt: 13/10/2023)

The proposal was placed in this 436th meeting of SEAC held on 26.12.2023. The Project Proponent made a detailed presentation on the proposed project. The details of the project furnished by the proponent are available on the PARIVESH web portal (parivesh.nic.in). The SEAC noted the following among other things:

1. The Project Proponent, **Thiru. K. Sundramoorthy** has applied seeking Terms of Reference for EIA study for the proposed Rough Stone Gravel quarry over an extent of 2.35.98 Ha in S.F.Nos. 75/6, 75/7, 75/8, 75/9, 85/1, 85/2, 88/1, 88/2A and 88/4A, of Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu.
2. The proposed quarry/activity is covered under Category "B1" of Item I(a) "Mining Projects" of the Schedule to the EIA Notification, 2006 as amended.
3. The mine lease area is non-contiguous.

Based on the document and details furnished by the project proponent, SEAC decided to grant **Terms of Reference (ToR) with Public Hearing** subject to the following ToRs, in addition to (i) the standard terms of reference for EIA study shown in **Annexure-I** and (ii) the Standard ToR for non-coal mining projects and details issued by the MoEF&CC to be included in EIA/EMP Report:

1. Mining is permitted only in Block I bearing S.F.Nos. 88/1, 88/2A and 88/4A. Hence the PP shall furnish revised mining plan detailing the corresponding production quantity along with the EIA report.
2. No mining is permitted in Block II bearing S.F.Nos. 75/6, 75/7, 75/8, 75/9, 85/1, 85/2 and the area shall only be used for stocking the mined material or dumping the waste/reject material or for parking vehicles or establishing mine office.
3. The Proponent shall provide garland drain around the boundary of the proposed quarry and the photographs indicating the same shall be shown during the EIA appraisal.


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4. The Proponent shall justify the selection of the site for carrying out the stone quarrying with the total volume arrived for the excavation & production adequate details such as lithology of the deposit, reserve estimation, place for waste dump/mined mineral storage, end-use of mined materials, identified potential customers/end-users and travel path.
5. 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 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.
6. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc located within 1 km of the proposed quarry.
7. 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.
8. The Proponent shall carry out Bio diversity study through Department of Ecology and Environmental Sciences, Pondicherry University and the same shall be included in EIA Report.
9. 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.


ANNEXURE-I

1. The PP shall furnish the letter obtained from the AD (Mines) indicating the existing pit dimensions and pit conditions showing the details on mine having worked during the earlier lease period.
2. The PP shall furnish 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.
3. The PP shall provide individual notice regarding the Public Hearing to the nearby house owners located in the vicinity of the project site. The Proponent shall justify the selection of the site for carrying out the stone quarrying with the total volume arrived for the excavation & production adequate details such as lithology of the deposit, reserve estimation, place for waste dump/mined mineral storage, end-use of mined materials, identified potential customers/end-users and travel path.

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4. The PP shall also justify the selection of mining methodology (conventional or non-conventional) adopting blasting techniques/non-explosive techniques with proper ground reality & laboratory testing.
5. The proponent shall submit the "Blast Design Parameters for controlling the vibration and fly rock from the quarry blasting" considering the existence of sensitive structures including habitations within 500 m from the lease boundary.
6. The PP shall justify the estimation of HEMM population for excavation and transportation in the proposed quarries with proper calculation methodology adopted.
7. The PP shall enumerate the environmental settings situated within a radial distance of 1 km such rivers/water bodies/reserve forests/ grazing land/existence of the hospitals and educational institutions/structures.
8. The PP shall provide the details of the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.
9. 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 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.
10. The PP shall submit a 'Slope Stability Action Plan' for the proposed quarry where the proposed depth exceeds 30 m and it shall cover the aspects of stability of quarry walls including the access ramp keeping the benches intact.
11. If the blasting operation is to be carried out, the PP shall present a conceptual design for carrying out the NONEL initiation based controlled blasting operation including the line drilling & muffle blasting techniques and a Simulation Model indicating the anticipated Blast-induced Ground Vibration levels in the proposed quarry as stipulated by the DGMS Circular No.7 of 1997, during the EIA Proposal.
12. 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.
13. The PP shall give an affidavit stating that no contractual persons provided by the explosive suppliers will be employed for carrying out the blasting operations in the proposed quarry.s


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14. The PP shall also give an affidavit that no highly sensitive structure such as fire-cracker manufacturing units, Gas godown/explosive Magazine, LPG Bottling Units, etc are located within a radial distance of 300 m from the lease boundary of the proposed quarry.
15. 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 20 m from the blast site.
16. 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.
17. The PP shall provide the environmental mitigation measures implemented for the crusher(s) located within the mining lease.
18. 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,
 - a. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
 - b. Quantity of minerals mined out.
 - c. Highest production achieved in any one year
 - d. Detail of approved depth of mining.
 - e. Actual depth of the mining achieved earlier.
 - f. Name of the person already mined in that leases area.
 - g. If EC and CTO already obtained, the copy of the same shall be submitted.
 - h. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
19. 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.
20. 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).
21. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,


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22. 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.
23. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act 1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
24. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
25. 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.
26. 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.
27. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
28. 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.
29. 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.

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30. 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.
31. If the Village road/State highway/National highway are located within a radial distance of 500 m from the lease boundary of the quarry proposal, the PP shall carry out traffic studies to indicate impact on local transport infrastructure due to the Project and mitigation measures.
32. 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.
33. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
34. Public Hearing points raised and commitments 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 and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.
35. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.
36. The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.
37. 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.
38. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the **appendix-I** in consultation with the DFO, State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
39. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site-specific choices. The proponent shall earmark the greenbelt area with GPS

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- coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
40. 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.
 41. 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.
 42. 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.
 43. 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.
 44. 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.
 45. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
 46. 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.
 47. 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.
 48. 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.
 49. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.


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Appendix

List of Native Trees Suggested for Planting

1. *Aegle marmelos* – Vilvam
2. *Adenaunthera pavonina* - Manjadi
3. *Albizia lebeck* – Vaagai
4. *Albizia amara* - Usil
5. *Bauhinia purpurea* - Mantharai
6. *Bauhinia racemosa* - Aathi
7. *Bauhinia tomentosa* – Iruvathi
8. *Buchanania axillaris* - Kattuma
9. *Borassus flabellifer* - Panai
10. *Butea monosperma* - Murukka maram
11. *Bobax ceiba* – Ilavu, Sevvilavu
12. *Calophyllum inophyllum* - Punnai
13. *Cassia fistula* - Sarakondrai
14. *Cassia roxburghii*- Sengondrai
15. *Chloroxylon sweetenia* - Purasa maram
16. *Cochlospermum religiosum* – Kongu, Manjal Ilavu
17. *Cordia dichotoma* – Mookuchali maram
18. *Creteva adansonii* – Mavalingum
19. *Dillenia indica* – Uva, Uzha
20. *Dillenia pentagyna* – Siru Uva, Sitruzha
21. *Diospyros ebenum* - Karungali
22. *Diospyros chloroxylon* – Vaganai
23. *Ficus amplissima* – Kal Itchi
24. *Hibiscus tiliaceus* – Aatru pooyarasu
25. *Hardwickia binata* – Aacha
26. *Holoptelia integrifolia* - Aayili
27. *Lannea coromandelica* - Odhiam
28. *Lagerstroemia speciosa* - Poo Marudhu
29. *Lepisanthus tetraphylla* - Neikottai maram
30. *Limonia acidissima* - Vila maram


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31. *Litsea glutinosa* - Pisin pattai
32. *Madhuca longifolia* - Iluppai
33. *Manilkara hexandra* - Ulakkai Paalai
34. *Mimusops elengi* - Magizha maram
35. *Mitragyna parvifolia* - Kadambu
36. *Morinda pubescens* - Nuna
37. *Morinda citrifolia* - Vellai Nuna
38. *Phoenix sylvestre* - Eachai
39. *Pongamia pinnata* - Pungam
40. *Premna mollissima* - Munnai
41. *Premna serratifolia* - Narumunnai
42. *Premna tomentosa* - Purangai Naari, Pudanga Naari
43. *Prosopis cinerea* - Vanni maram
44. *Pterocarpus marsupium* - Vengai
45. *Pterospermum canescens* - Vennangu, Tada
46. *Pterospermum xylocarpum* - Polavu
47. *Puthranjiva roxburghii* - Puthranjivi
48. *Salvadora persica* - Uгаа Maram
49. *Sapindus emarginatus* - Manipungan, Soapu kai
50. *Saraca asoca* - Asoca
51. *Streblus asper* - Piraya maram
52. *Strychnos nuxvomica* - Yetti
53. *Strychnos potatorum* - Therthang Kottai
54. *Syzygium cumini* - Naval
55. *Terminalia bellerica* - Thandri
56. *Terminalia arjuna* - Ven marudhu
57. *Toona ciliate* - Sandhana vembu
58. *Thespesia populnea* - Puvarasu
59. *Walsuratrifoliata* - valsura
60. *Wrightia tinctoria* - Veppalai
61. *Pithecellobium dulce* - Kodukkapuli

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Discussion by SEIAA and the Remarks:-

Proposed Rough Stone and Gravel quarry over an extent of 1.63.98 Ha in S.F.Nos. 88/1, 88/2A and 88/4A, of Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu by Thiru. K. Sundramoorthy - For Terms of Reference. (SIA/TN/MIN/448716/2023, dt: 13/10/2023) The subject was placed in this 693rd meeting of Authority held on 08.02.2023. The Authority noted that the subject was placed in the 436th meeting of SEAC held on 22.12.2023. Based on the document and details furnished by the project proponent, SEAC decided to grant Terms of Reference (ToR) with Public Hearing subject to the conditions stated therein inter alia the following:

1. Mining is permitted only in Block I bearing S.F.Nos. 88/1, 88/2A and 88/4A. Hence the PP shall furnish revised mining plan detailing the corresponding production quantity along with the EIA report.
2. No mining is permitted in Block II bearing S.F.Nos. 75/6, 75/7, 75/8, 75/9, 85/1, 85/2 and the area shall only be used for stocking the mined material or dumping the waste/reject material or for parking vehicles or establishing mine office.

After detailed discussions, the Authority accepted the recommendation of SEAC and decided to grant Terms of Reference (ToR) with Public Hearing based on studies, assessments and records to be produced as sought by the SEAC and SEIAA, for undertaking the Environment Impact Assessment Study and preparation of Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions and conditions in Annexure 'D' of this minutes and the following:

1. Mining is permitted only in Block I bearing S.F.Nos. 88/1, 88/2A and 88/4A. Hence the PP shall furnish revised mining plan detailing the corresponding production quantity along with the EIA report.
2. No mining is permitted in Block II bearing S.F.Nos. 75/6, 75/7, 75/8, 75/9, 85/1, 85/2 and the area shall only be used for stocking the mined material or dumping the waste/reject material or for parking vehicles or establishing mine office.



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Annexure 'B'

Cluster Management Committee

1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.
2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,
3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.
4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.
5. The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.
6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.
7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.
8. The committee shall furnish the Emergency Management plan within the cluster.
9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.
10. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
11. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.

Impact study of mining

12. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
 - a) Soil health & soil biological, physical land chemical features .
 - b) Climate change leading to Droughts, Floods etc.


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- c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature & Livelihood of the local people.
- d) Possibilities of water contamination and impact on aquatic ecosystem health.
- e) Agriculture, Forestry & Traditional practices.
- f) Hydrothermal/Geothermal effect due to destruction in the Environment.
- g) Bio-geochemical processes and its foot prints including environmental stress.
- h) Sediment geochemistry in the surface streams.

Agriculture & Agro-Biodiversity

- 13. Impact on surrounding agricultural fields around the proposed mining Area.
- 14. Impact on soil flora & vegetation around the project site.
- 15. Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.
- 16. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.
- 17. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
- 18. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.

Forests

- 19. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
- 20. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
- 21. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
- 22. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.

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Water Environment

23. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.
24. Erosion Control measures.
25. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
27. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.
28. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.
29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.

Energy

31. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.

Climate Change

32. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.
33. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.

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Mine Closure Plan

34. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.

EMP

35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.

36. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.

Risk Assessment

37. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.

Disaster Management Plan

38. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.

Others

39. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.

40. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.

41. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

A. STANDARD TERMS OF REFERENCE

1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had


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- 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.

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- 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,



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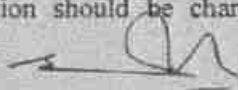


- endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions 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


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- 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


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- 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


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of Law against the Project should be given.

- 41) The cost of the Project (capital cost and recurring cost) as well as the cost of 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.


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- 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./


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private land, status of its acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate the 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.

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- b. All documents may be properly referenced with index, page numbers and continuation 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 -H1013/77/2004-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.


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Copy to:

1. The Additional Chief Secretary to Government, Environment, Climate Change and Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9.
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.



3. The Chairman, Tamil Nadu Pollution Control Board,
76, Mount Salai, Guindy, Chennai - 600 032.
4. The APCCF (C), Regional Office, MoEF & CC (SZ), 34, HEPC Building, 1st & 2nd Floor,
Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC,
Paryavaran Bhavan, CGO Complex, New Delhi - 110 003.
6. The District Collector, Chengalpattu District.
7. Stock File.





आयकर विभाग
INCOME TAX DEPARTMENT

भारत सरकार
GOVT. OF INDIA

एन.सी.एस.एन.सी.सी.सी.
Permanent Account Number Card
ANPS65122



नाम
M. SUNDARAMOORTHY

पते पर निवास करने वाले व्यक्ति
KAMPAVAIPAN

13/03/2017



आयकर विभाग
INCOME TAX DEPARTMENT

भारत सरकार
GOVT. OF INDIA

एन.सी.एस.एन.सी.सी.सी.
Permanent Account Number Card
ANPS65122

नाम
M. SUNDARAMOORTHY

पते पर निवास करने वाले व्यक्ति
KAMPAVAIPAN

13/03/2017






आधार

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Government of India

பதிவேட்டு எண் / Enrolment No.: 0000/00425/04213

To
 K Sundramoorthy
 S/O: Kanniyappan
 1/31
 LINGAMEDU STREET
 MANAMA
 Manamai
 Manamai
 Kancheepuram Tamil Nadu - 603102
 9443243299

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 5671 7251 5085



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5671 7251 5085
VID : 9130 7038 9520 8220

எனது ஆதார், எனது அடையாளம்




आधार





K Sundramoorthy
 DOB: 13/03/1961
 Gender / MALE



QR Code with Photo

5671 7251 5085
 VID : 9130 7038 9520 8220

எனது ஆதார், எனது அடையாளம்

आधार



தகவல்

- ஆதார் அடையாளத்திற்கான சான்று, சூப்பரிமெக்கு அல்ல.
- அடையாள சான்றை ஆன்லைன் ஆதர்ப்புவேலை மூலமாகப் பெறவும்.
- இது எலக்ட்ரானிக் செயல்முறை மூலம் தயாரிக்கப்பட்ட கடிதமாகும்.

INFORMATION

- Aadhaar is a proof of identity, not of citizenship.
- To establish identity, authenticate online.
- This is electronically generated letter.

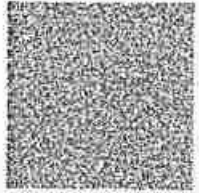
- ஆதார் நாடு முழுவதிலும் செல்லுபடியாகும்.
- வருங்காலத்தில் அரசு மற்றும் அரசு காரி சேவைகளை பயன்படுத்திக் கொள்ள ஆதார் உதவிகரமாக இருக்கும்.
- Aadhaar is valid throughout the country.
- Aadhaar will be helpful in availing Government and Non-Government services in future.

आधार

தகவல் / தகவல் பெற: கண்ணியப்பன், 1/31,
 லிங்கமேடு தெரு, மானமா, மானமா,
 கங்கேபுரம்,
 தமிழ் நாடு - 603102

Address:
 S/O: Kanniyappan, 1/31, LINGAMEDU
 STREET, MANAMA, Manamai,
 Kancheepuram,
 Tamil Nadu - 603102



QR Code with Photo

5671 7251 5085
 VID : 9130 7038 9520 8220

அண்ணாமலைப்

ANNAMALAI



பல்கலைக்கழகம்

UNIVERSITY

ANNEXURE XI

Reg. No. 080752



அறிவியற்புலம்
FACULTY OF SCIENCE,

மே, 2010 இல்

பயன்பாட்டு நிலத்தியல்

பிரிவில்

நடத்திய தேர்வுகளில்

சந்தோஷ்குமார் ம,

கூடுதல்

மதிப்புள்ளிகள் 10.00 க்கு சராசரியாக 7.04 பெற்று

முதல் வகுப்பில்

தேர்ச்சியடைந்து முறையாக அமைக்கப்பெற்ற தேர்வுக்குழுவினர் சான்றளித்தபடி,

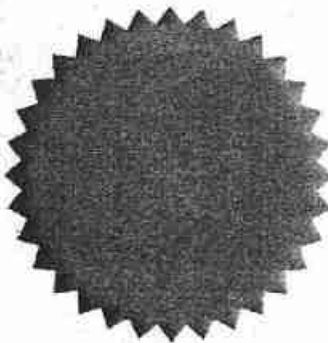
அறிவியல் நிறைஞர் பட்டம் பெறுவதற்கு உரியவர் ஆகின்றார்

என அண்ணாமலைப் பல்கலைக்கழக ஆளவை இதன்வழி அறிவிக்கின்றது.

The Senate of the ANNAMALAI UNIVERSITY hereby makes known that **SANTHOSHKUMAR M** has been admitted to the Degree of **MASTER OF SCIENCE in APPLIED GEOLOGY,** he/she having secured **OGPA of 7.04** out of **10.00** been certified by duly appointed Examiners at the Examination held in **MAY,2010** to be qualified to receive the same and that he/she was placed in **FIRST CLASS.**

பல்கலைக்கழக முத்திரை பெறுகின்றது

Given under the seal of the University



அண்ணாமலைநகர்
Annamalainagar

நாள்:

Dated: 06/10/2010

துணை தேர்வாணையர் (கல்விசார்ந்த)
Dy. Controller of Examinations (Academic)

Senthilvel

Dr. M. Rathinasabapathi

பதிவாளர்
Registrar

Dr. M. Ramanathan

துணை வேந்தர்
129 A Chancellor

129 A Chancellor

THIRU. R. ANUPKUMAR LOHIA
K.PITCHAMPATTI MULTICOLOR GRANITE QUARRIES

EXTENT
S.F.No
VILLAGE
TALUK
DISTRICT

4200/10
442/21
& PITCHAMPATTI
KARUR
KARUR



31.07.2018

EXPERIENCE CERTIFICATE

This is to certify that **Shri. Santhosh Kumar, S/o. R. Mathiyazagan, Geologist**, has worked in our Multicolor Granite from **10.07.2012 to 31.07.2018** as our company Geologist. During his service he used to maintain all records and returns submitted to Government Departments.

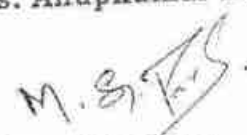
His nature of work in the mines was to show the plan of working and demarcate Granite reserve areas. He was looking after production of Multicolor Granite and was maintaining quality of the Mineral as per the specifications given by the buyers.

During his tenor of his service, he was very sincere and prompt in his duties.

I wish him the best of luck in all his future endeavours.

Thanking you,

For M/s. Anupkumar Lohia,


Manager mines,

K. Pitchampatti multicolour granite

Karur Taluk & District

MANAGER (MINES)
MULTICOLOR GRANITE MINES
K. PITCHAMPATTI
KARUR TALUK & DISTRICT

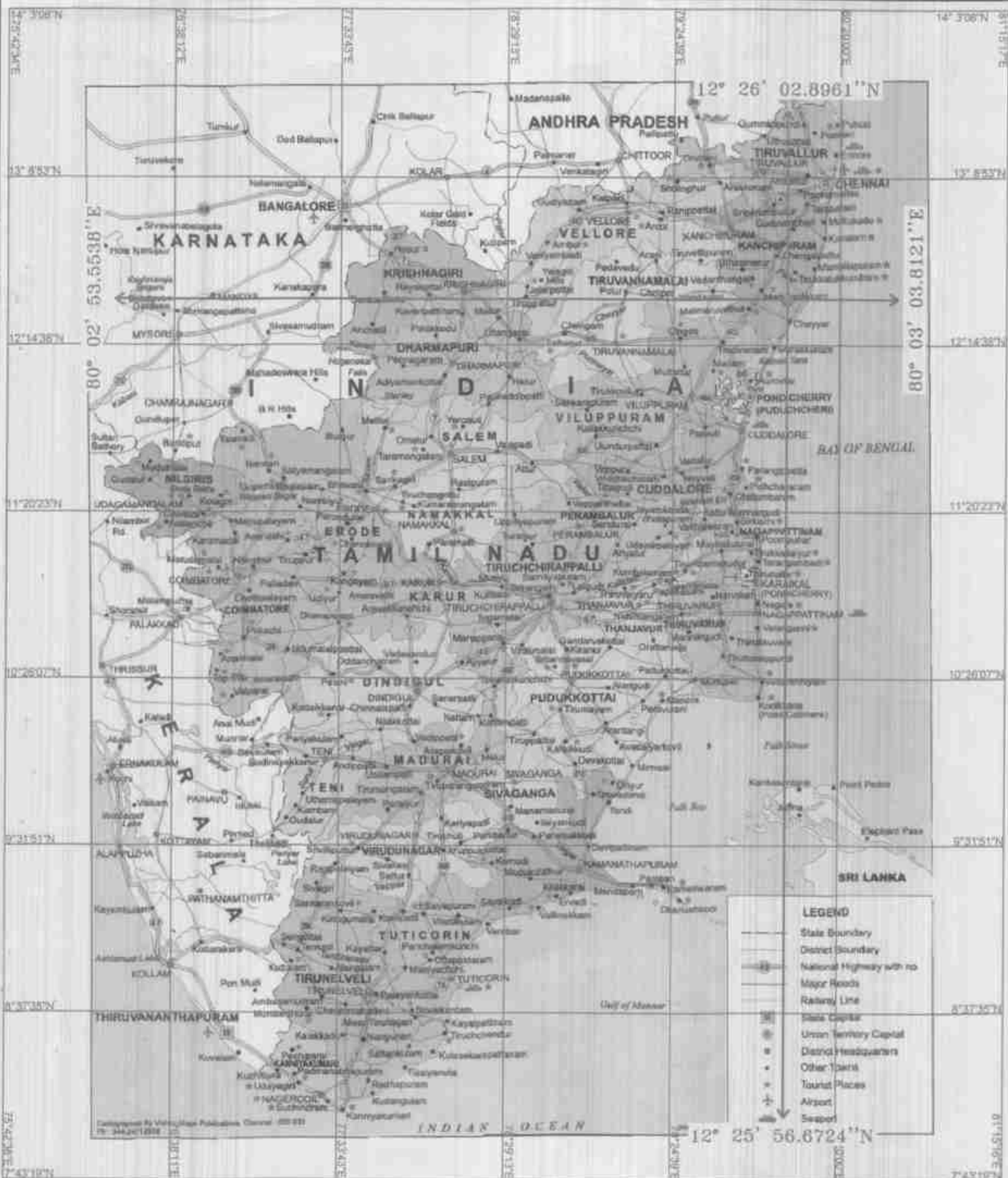


PLATE NO:1
DATE OF SURVEY : 22.09.2023

APPLICANT:
Thiru. K. SUNDAMOORTHY,
S/o. KANNIYAPPAN,
No. 1/31, LINGAMEDU THERU,
MANAMAI VILLAGE,
THIRUKKALUKUNDRAM TALUK,
CHENGALPATTU DISTRICT.

LOCATION OF MINE :
S.F.No's : 75/6, 7, 8, 9, 85/1, 2,
88/1, 2A & 4A
EXTENT : 2.35.98 HECTARES,
VILLAGES : NELVAIPALAYAM,
TALUK : CHEYYUR,
DISTRICT : CHENGALPATTU.

INDEX
Q. L.A. AREA : ●
TOPO SHEET NO. : 66 D/03
LATITUDE : 12° 25' 56.8724"N to 12° 26' 02.8961"N
LONGITUDE : 80° 02' 53.5538"E to 80° 03' 03.8121"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 LEASEMAP
AUTHENTICATED
BY STATE GOVERNMENT
M. Santosh Kumar
SANTHOSH KUMAR, M.Sc.,
QUALIFIED PERSON
Under Rule 15(1)(a) and (b) of MCR, 2018

APPLICANT:

Thiru. K. SUNDAMOORTHY,
S/o. KANNIYAPPAN,
No. 1/31, LINGAMEDU THERU,
MANAMAI VILLAGE,
THIRUKKALUKUNDRAM TALUK,
CHENGALPATTU DISTRICT.



LOCATION OF MINE :

S.F.No's. : 75/6, 7, 8, 9, 85/1, 2,
88/1, 2A & 4A
EXTENT : 2.35.98 HECTARES,
VILLAGES : NELVAIPALAYAM,
TALUK : CHEYYUR,
DISTRICT : CHENGALPATTU.

INDEX

CONVENTIONAL SYMBOLS

Express Highway with 4/6 lanes with drainage ditch	[Symbol]	[Symbol]	[Symbol]
Main road with drainage ditch	[Symbol]	[Symbol]	[Symbol]
Secondary road with drainage ditch	[Symbol]	[Symbol]	[Symbol]
Unimproved road with drainage ditch	[Symbol]	[Symbol]	[Symbol]
Water with flow in one direction	[Symbol]	[Symbol]	[Symbol]
Water with flow in two directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in three directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in four directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in five directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in six directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in seven directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in eight directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in nine directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in ten directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in eleven directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in twelve directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in thirteen directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in fourteen directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in fifteen directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in sixteen directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in seventeen directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in eighteen directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in nineteen directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in twenty directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in twenty-one directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in twenty-two directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in twenty-three directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in twenty-four directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in twenty-five directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in twenty-six directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in twenty-seven directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in twenty-eight directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in twenty-nine directions	[Symbol]	[Symbol]	[Symbol]
Water with flow in thirty directions	[Symbol]	[Symbol]	[Symbol]

**TOPO SKETCH OF QUARRY
LEASE APPLIED AREA FOR
10Km RADIUS**

SCALE- 1:100000

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 LEASEMAP
AUTHENTICATED
BY STATE GOVERNMENT.

M. Santosh Kumar

M.SANTHOSHKUMAR, M.Sc.,
QUALIFIED

Under Rule 150(a) of the Mines Act, 1952

12° 31' 28.40"N



12° 20' 31.16"N

79° 57' 22.37"E

80° 08' 35.01"E

TOPO SHEET NO. : 66 D/03
LATITUDE : 12° 25' 56.6724"N to 12° 26' 02.8961"N
LONGITUDE : 80° 02' 53.5538"E to 80° 03' 03.8121"E
10KM RADIUS : [Symbol]
Q.L.APPLIED AREA : [Symbol]

LANDUSE PATTERN	
DESCRIPTION	%
ROADS	(10%)
HABITATION	(05%)
TREES/TANK	(30%)
AGRI LAND	(55%)

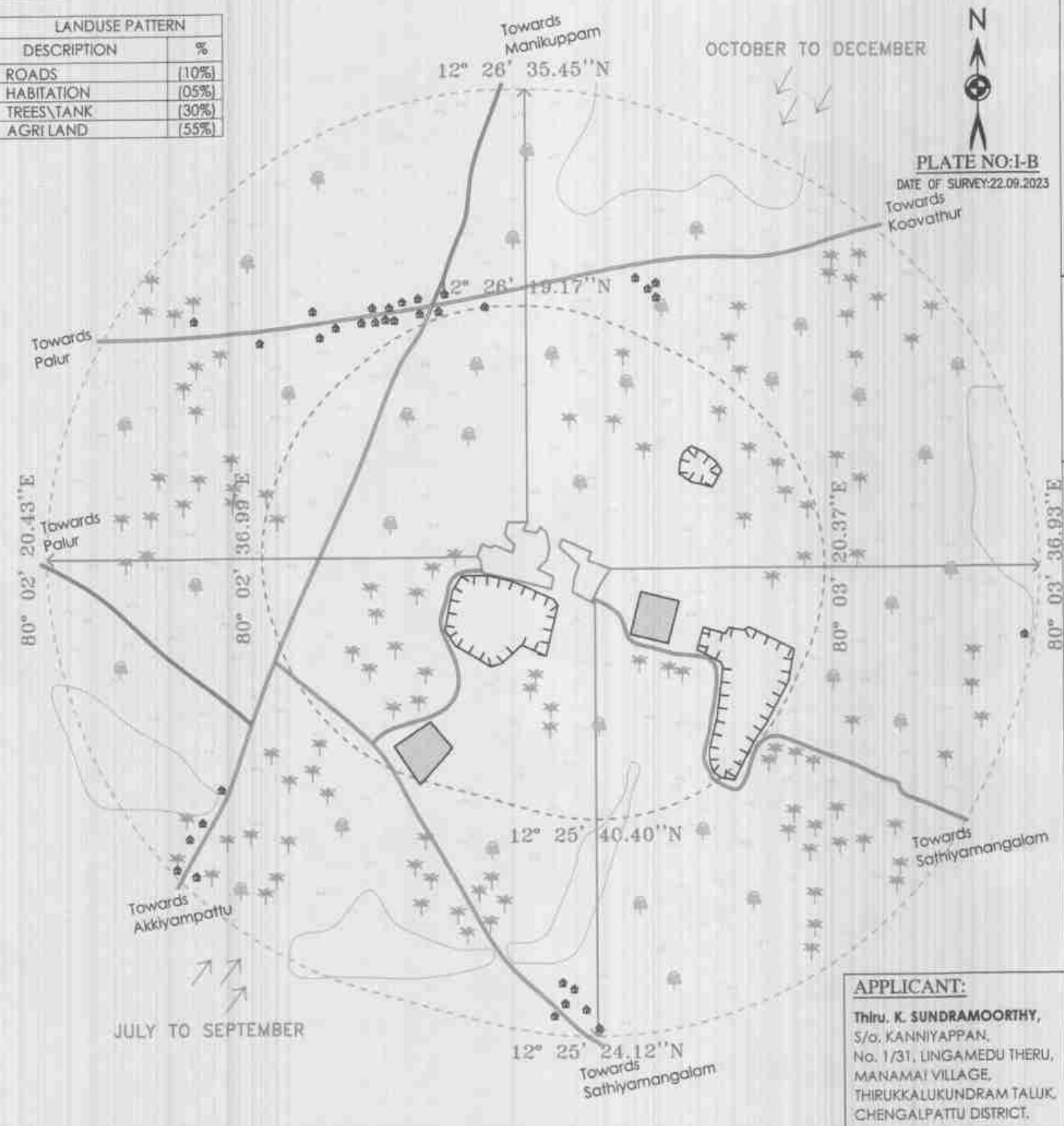


PLATE NO: I-B
DATE OF SURVEY: 22.09.2023

1Km Radius :
500m Radius :
Q.L. Applied Area :



TOPO SHEET NO. : 66 D/03
LATITUDE : 12° 25' 56.6724'' N to 12° 26' 02.8961'' N
LONGITUDE : 80° 02' 53.5538'' E to 80° 03' 03.8121'' E

LOCATION OF MINE :

S.F.No's : 75/6, 7, 8, 9, 85/1, 2,
88/1, 2A & 4A
EXTENT : 2.35.98 HECTARES,
VILLAGES : NELVAIPALAYAM,
TALUK : CHEYYUR,
DISTRICT : CHENGALPATTU.

INDEX

- APPROACH ROAD
- VILLAGE ROAD
- HABITATION
- TREES
- SEASONAL AGRICULTURAL LAND
- PIT
- WIND DIRECTION
- CRUSHER PLANT
- MAJOR ROAD
- TANK

**ENVIRONMENTAL AND
LANDUSE PLAN (FOR 1KM RADIUS)**
SCALE- 1:10,000

APPLICANT:
Thiru. K. SUNDRAMOORTHY,
S/o. KANNIYAPPAN,
No. 1/31, LINGAMEDU THERU,
MANAMAI VILLAGE,
THIRUKKALUKUNDRAM TALUK,
CHENGALPATTU DISTRICT.

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 LEASEMAP
AUTHENTICATED
BY STATE GOVERNMENT
M. Senthil
M. SARTHOSHKUMAR, M.Sc.
QUALIFIED PERSON
Under Rule 15(i)(a) and (b) of MCR, 2018

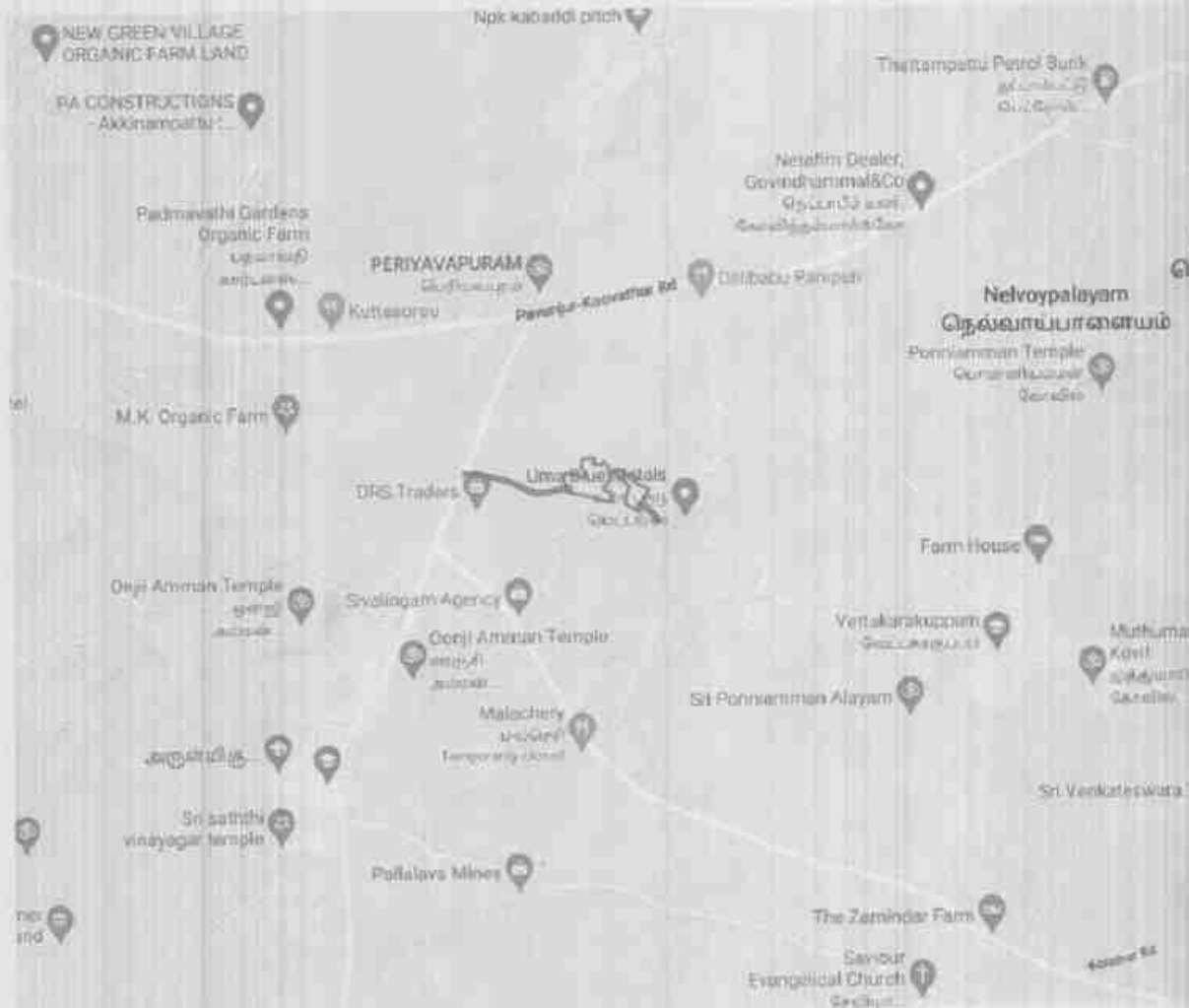


PLATE NO: I-C
DATE OF SURVEY: 22.09.2023

APPLICANT:



Thiru. K. SUNDRAMOORTHY,
S/o. KANNIYAPPAN,
No. 1/31, LINGAMEDU THERU,
MANAMAI VILLAGE,
THIRUKKALUKUNDRAM TALUK,
CHENGALPATTU DISTRICT.

LOCATION OF MINE :

S.F.No's. : 75/6, 7, 8, 9, 85/1, 2,
88/1, 2A & 4A
EXTENT : 2.35.98 HECTARES,
VILLAGES : NELVAIPALAYAM.
TALUK : CHEYYUR.
DISTRICT : CHENGALPATTU.

INDEX

Q.L.APPLIED AREA



VILLAGE ROAD



APPROACH ROAD



MAJOR ROAD



ROUTE MAP

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 LEASEMAP
AUTHENTICATED
BY STATE GOVERNMENT

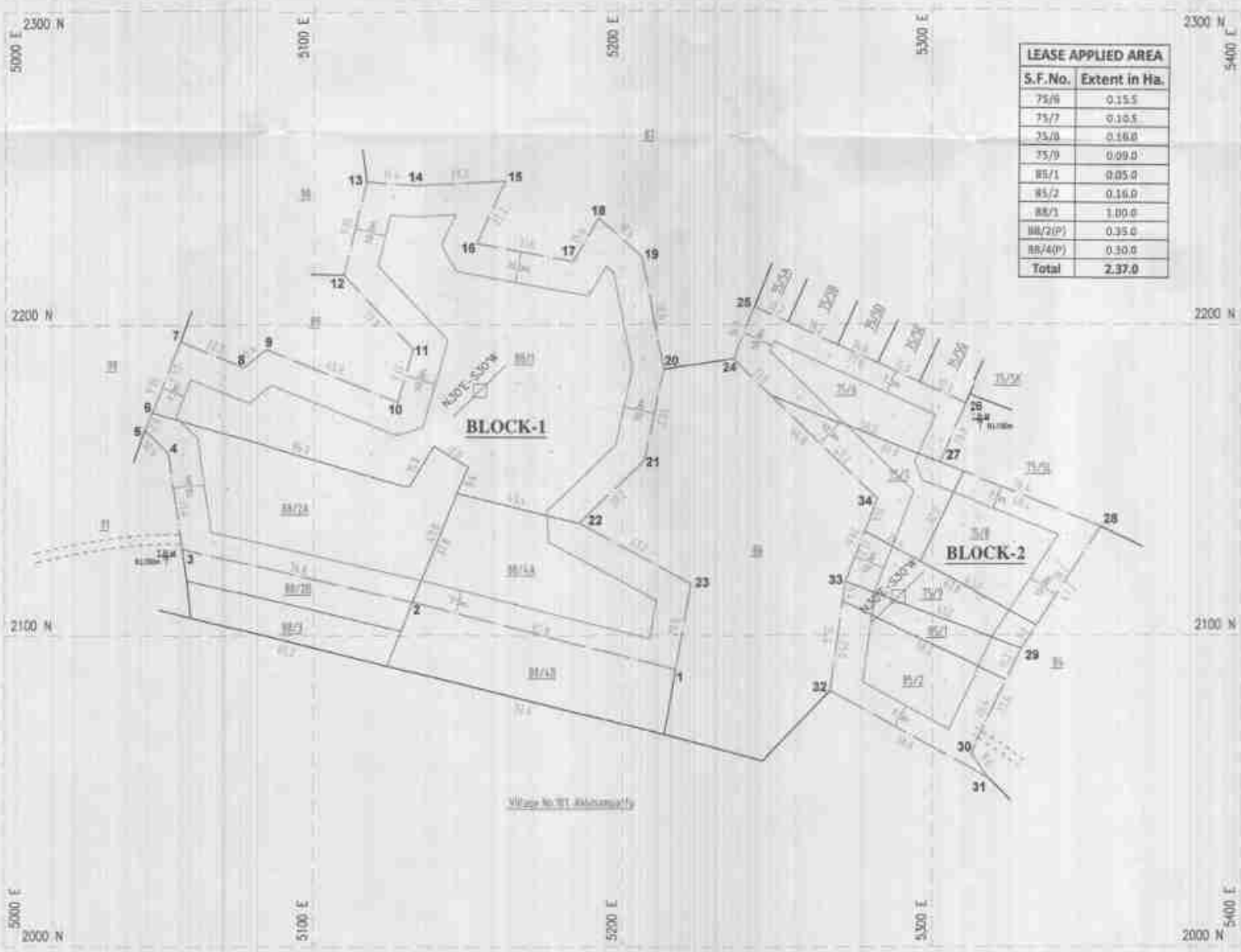
M. Santhosh Kumar
M.SANTHOSHKUMAR, M.Sc.,
QUALIFIED PERSON

Under Rule 15(i)(a) and 134 A

BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	12° 25' 57.7886" N	80° 02' 58.2542" E
2	12° 25' 58.4944" N	80° 02' 56.4355" E
3	12° 25' 59.0441" N	80° 02' 53.9821" E
4	12° 25' 00.0547" N	80° 02' 53.8069" E
5	12° 25' 00.2934" N	80° 02' 53.5538" E
6	12° 25' 00.4747" N	80° 02' 53.6354" E
7	12° 25' 01.2149" N	80° 02' 53.9413" E
8	12° 25' 00.9486" N	80° 02' 54.6088" E
9	12° 25' 01.1387" N	80° 02' 54.9469" E
10	12° 25' 00.5947" N	80° 02' 56.2648" E
11	12° 25' 01.1467" N	80° 02' 56.4272" E
12	12° 25' 01.8185" N	80° 02' 55.9822" E
13	12° 25' 02.6885" N	80° 02' 55.9255" E
14	12° 25' 02.8484" N	80° 02' 56.4328" E
15	12° 25' 02.8961" N	80° 02' 57.4070" E
16	12° 25' 02.2480" N	80° 02' 57.1828" E
17	12° 25' 02.0880" N	80° 02' 58.1388" E
18	12° 25' 02.5123" N	80° 02' 58.4083" E
19	12° 25' 02.1155" N	80° 02' 58.8724" E
20	12° 25' 00.9465" N	80° 02' 59.1087" E
21	12° 25' 58.9908" N	80° 02' 58.9050" E
22	12° 25' 58.3311" N	80° 02' 58.2182" E
23	12° 25' 58.6971" N	80° 02' 59.4110" E
24	12° 25' 01.0290" N	80° 02' 59.8558" E
25	12° 25' 01.5922" N	80° 02' 00.1012" E
26	12° 25' 00.6057" N	80° 02' 02.3556" E
27	12° 25' 59.9799" N	80° 02' 02.0722" E
28	12° 25' 59.3119" N	80° 02' 03.8121" E
29	12° 25' 58.2074" N	80° 02' 02.9639" E
30	12° 25' 58.9308" N	80° 02' 02.4234" E
31	12° 25' 58.6724" N	80° 02' 02.6130" E
32	12° 25' 57.5829" N	80° 02' 00.9090" E
33	12° 25' 58.7264" N	80° 02' 01.0650" E
34	12° 25' 59.3844" N	80° 02' 01.4087" E

DATUM : UTM - WGS84, ZONE 44N



LEASE APPLIED AREA	
S.F.No.	Extent in Ha.
75/6	0.155
75/7	0.105
75/8	0.160
75/9	0.090
85/1	0.050
85/2	0.160
88/1	1.000
88/2(P)	0.350
88/4(P)	0.300
Total	2.370



PLATE NO-1
 DATE OF SURVEY : 22.08.2023

APPLICANT:
 Thiru. K. SUNDRAMOORTHY,
 S/o. KANNIAPPAN,
 No. 1/31, LINGAMEDU THERU,
 MANAMAI VILLAGE,
 THIRUKKALUKUNDRAM TALUK,
 CHENGALPATTU DISTRICT.

LOCATION OF MINE:
 S.F.No's : 75/6, 7, 8, 9, 85/1, 2,
 88/1, 2A & 4A
 EXTENT : 2.35.98 HECTARES,
 VILLAGES : NELVAIPALAYAM,
 TALUK : CHEYUR,
 DISTRICT : CHENGALPATTU.

INDEX

- Q.L. APPLIED AREA BOUNDARY
- 7.5m & 10m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- GRAVEL
- SCRUB
- STRIKE AND DIP

QUARRY LEASE & SURFACE PLAN
 SCALE 1 : 1000

PREPARED BY:
 This is to certify that the information in this plan is true and correct to the best of my knowledge based upon the 'LAND' SURVEYED BY STATE GOVERNMENT.

[Signature]
 135 A

DATE: 12/08/2023

BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	12° 25' 57.786"N	80° 03' 59.254"E
2	12° 25' 58.494"N	80° 03' 56.435"E
3	12° 25' 59.941"N	80° 03' 53.962"E
4	12° 26' 00.047"N	80° 03' 53.005"E
5	12° 26' 00.293"N	80° 03' 53.553"E
6	12° 26' 00.474"N	80° 03' 53.654"E
7	12° 26' 01.216"N	80° 03' 53.943"E
8	12° 26' 02.948"N	80° 03' 54.608"E
9	12° 26' 01.367"N	80° 03' 54.649"E
10	12° 26' 00.594"N	80° 03' 56.264"E
11	12° 26' 01.148"N	80° 03' 56.427"E
12	12° 26' 01.918"N	80° 03' 55.682"E
13	12° 26' 02.888"N	80° 03' 55.929"E
14	12° 26' 02.884"N	80° 03' 56.432"E
15	12° 26' 02.891"N	80° 03' 57.407"E
16	12° 26' 02.249"N	80° 03' 57.100"E
17	12° 26' 02.068"N	80° 03' 58.138"E
18	12° 26' 02.523"N	80° 03' 58.403"E
19	12° 26' 02.155"N	80° 03' 58.872"E
20	12° 26' 02.948"N	80° 03' 59.108"E
21	12° 25' 59.930"N	80° 03' 59.050"E
22	12° 25' 59.331"N	80° 03' 58.210"E
23	12° 25' 58.097"N	80° 03' 58.411"E
24	12° 26' 01.059"N	80° 03' 59.855"E
25	12° 26' 01.592"N	80° 03' 00.101"E
26	12° 26' 00.605"N	80° 03' 02.396"E
27	12° 25' 59.979"N	80° 03' 02.072"E
28	12° 25' 59.319"N	80° 03' 03.812"E
29	12° 25' 58.027"N	80° 03' 03.863"E
30	12° 25' 58.930"N	80° 03' 03.423"E
31	12° 25' 56.874"N	80° 03' 02.613"E
32	12° 25' 57.582"N	80° 03' 03.930"E
33	12° 25' 58.724"N	80° 03' 01.069"E
34	12° 25' 58.594"N	80° 03' 01.403"E

DATUM : UTM - WGS84, ZONE 49E

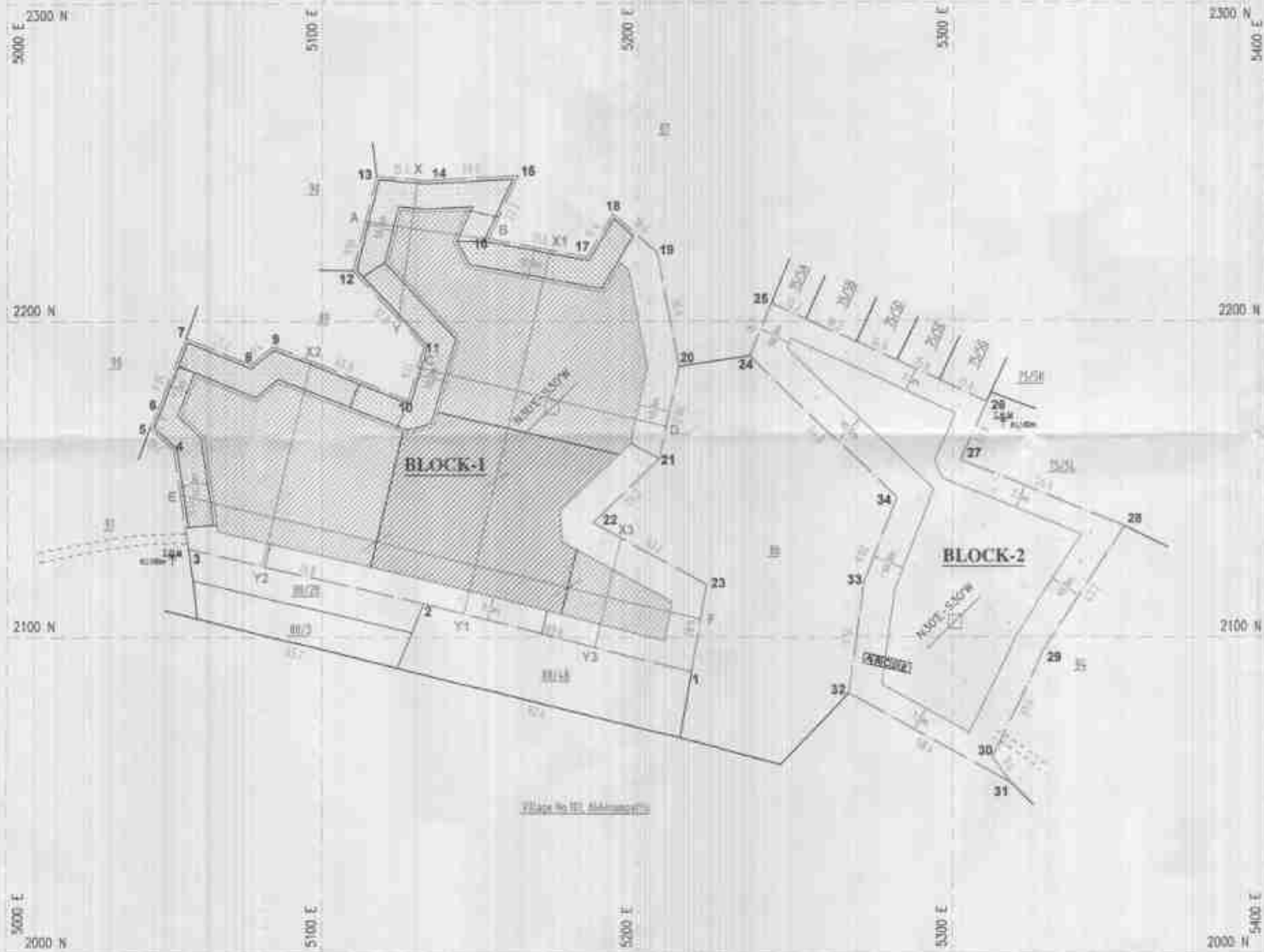


PLATE NO-III
DATE OF SURVEY : 22.09.2023

APPLICANT:
Thiru. K. SUNDRAMOORTHY,
S/o. KANNIYAPPAN,
No. 1/31, LINGAMEDU THERU,
MANAMAI VILLAGE,
THIRUKALKUNDAM TALUK,
CHENGALPATTU DISTRICT.

LOCATION OF MINE:
S.F.No's - 75/6, 7, 8, 9, 85/1, 2,
86/1, 2A & 4A
EXTENT : 2.35,98 HECTARES,
VILLAGES : NELVATPALAYAM,
TALUK : CHEYYUR,
DISTRICT : CHENGALPATTU.

INDEX

Q.L. APPLIED AREA BOUNDARY	
7.5m & 10m SAFETY DISTANCE	
TEMPORARY BENCH MARK	
APPROACH ROAD	
GRAVEL	
SCRUB	
STRIKE AND DIP	
ROUGH STONE	

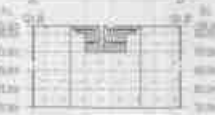
**TOPOGRAPHY, GEOLOGICAL,
YEARWISE DEVELOPMENT &
PRODUCTION PLAN & SECTIONS
I-V YEAR**
SCALE : 1 : 1000

PREPARED BY:
THIS IS TO CERTIFY THAT THE INFORMATION IN THE
PLAN IS TRUE AND CORRECT TO THE
BEST OF MY KNOWLEDGE AND BELIEF AND THE SAME IS
CORROBORATED
BY STATE GOVERNMENT
M. S. Sankar
136 A
STATE GOVT. TECHNICAL SURVEYS

SECTION ALONG X-Y



SECTION ALONG A-B



SECTION ALONG X1-Y1



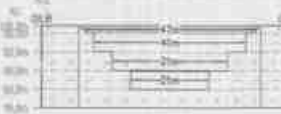
SECTION ALONG C-D



LEGEND

Q.L. BOUNDARY	
APPROACH ROAD	
GRAVEL	
SCRUB	
STRIKE AND DIP	
ROUGH STONE	

SECTION ALONG XR-Y3



SECTION ALONG E-F



SECTION ALONG X3-Y3



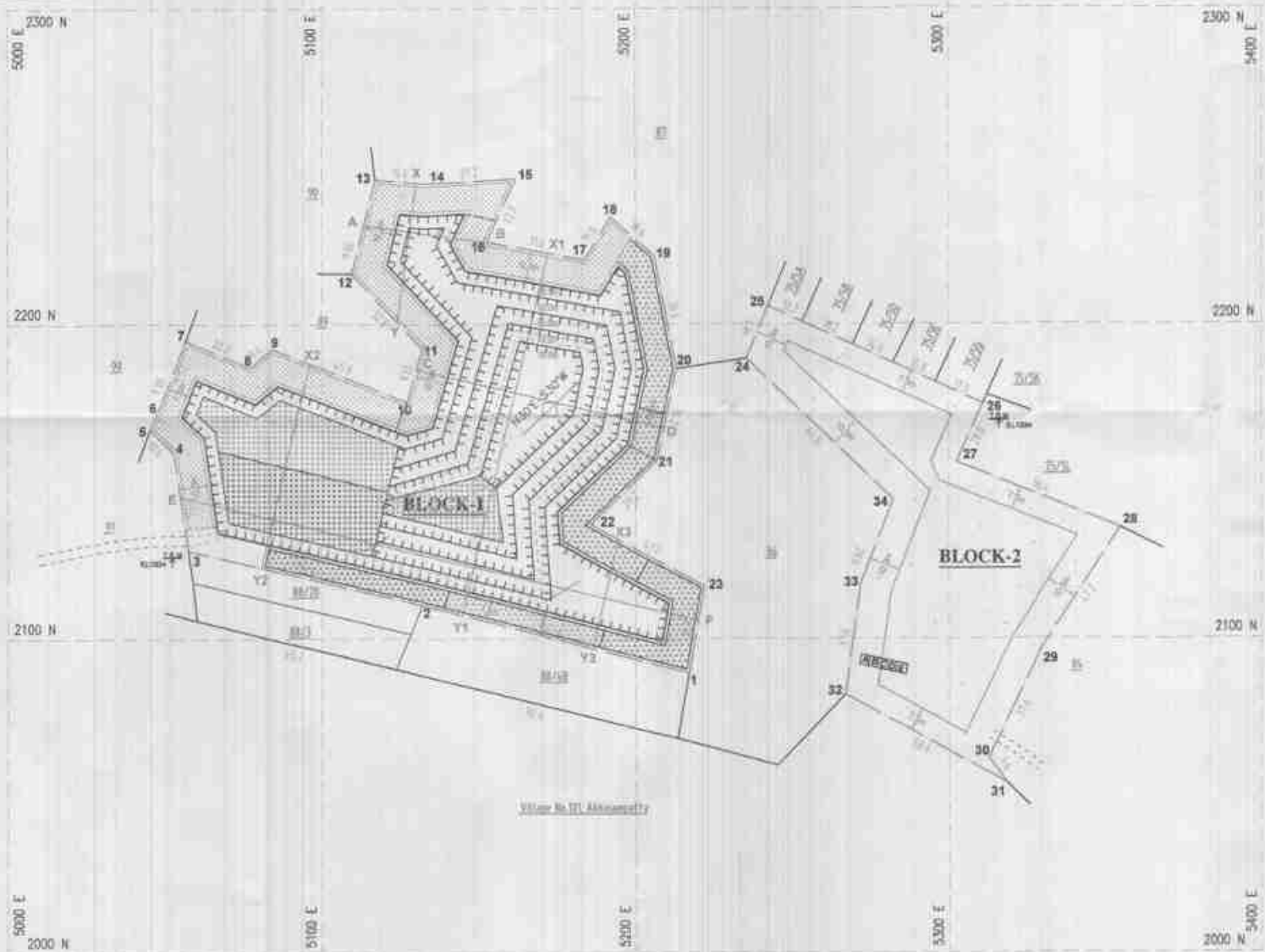
1 Y EXCAVATION		1 Y PLANTATION	
2 Y EXCAVATION		2 Y PLANTATION	
3 Y EXCAVATION		3 Y PLANTATION	
4 Y EXCAVATION		4 Y PLANTATION	
5 Y EXCAVATION		5 Y PLANTATION	



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	12° 25' 53.7886" N	80° 03' 58.2542" E
2	12° 25' 56.8844" N	80° 03' 54.4355" E
3	12° 25' 56.9441" N	80° 03' 53.9821" E
4	12° 26' 03.0547" N	80° 03' 53.8069" E
5	12° 26' 00.2934" N	80° 03' 53.5538" E
6	12° 26' 00.4741" N	80° 03' 53.6354" E
7	12° 26' 01.2149" N	80° 03' 53.9413" E
8	12° 26' 00.2486" N	80° 03' 54.8088" E
9	12° 26' 01.1387" N	80° 03' 54.8887" E
10	12° 26' 00.5947" N	80° 03' 58.2648" E
11	12° 26' 01.1487" N	80° 03' 58.4272" E
12	12° 26' 01.9185" N	80° 03' 55.9823" E
13	12° 26' 02.8685" N	80° 03' 55.9255" E
14	12° 26' 02.8484" N	80° 03' 56.4328" E
15	12° 26' 02.8961" N	80° 03' 57.4075" E
16	12° 26' 02.2490" N	80° 03' 57.1008" E
17	12° 26' 02.0685" N	80° 03' 58.1384" E
18	12° 26' 02.5123" N	80° 03' 58.4063" E
19	12° 26' 02.1158" N	80° 03' 58.6724" E
20	12° 26' 02.9465" N	80° 03' 59.1067" E
21	12° 25' 58.8906" N	80° 03' 58.9890" E
22	12° 25' 58.3110" N	80° 03' 58.2102" E
23	12° 25' 58.8971" N	80° 03' 59.4110" E
24	12° 26' 01.0590" N	80° 03' 59.8558" E
25	12° 26' 01.5922" N	80° 03' 00.1012" E
26	12° 26' 00.8053" N	80° 03' 01.3556" E
27	12° 25' 58.9790" N	80° 03' 02.0722" E
28	12° 25' 58.3140" N	80° 03' 02.8121" E
29	12° 25' 58.0274" N	80° 03' 02.8836" E
30	12° 25' 56.9308" N	80° 03' 02.4234" E
31	12° 25' 58.8724" N	80° 03' 02.8130" E
32	12° 25' 57.8828" N	80° 03' 03.9090" E
33	12° 25' 58.7264" N	80° 03' 01.0656" E
34	12° 25' 58.5944" N	80° 03' 01.4057" E

DATUM : UTM - WGS84, ZONE 48N

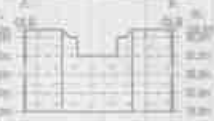


SECTION ALONG X-Y

SECTION ALONG A-B

SECTION ALONG X1-Y1

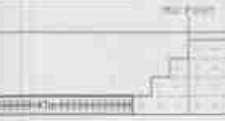
SECTION ALONG C-D



SECTION ALONG X2-Y2

SECTION ALONG E-F

SECTION ALONG X3-Y3



SOIL SERVICES
 A-SPILL
 B-POSSIBLE MOUND
 C-STONE
 D-CREY ROAD
 E-TRUCK

W-Y EXCAVATION
 VI-Y EXCAVATION
 VII-Y EXCAVATION
 IX-Y EXCAVATION
 X-Y EXCAVATION

1st Y-Y Pit Dimension (Maximum)
 Block-1 99m(X)X147m(W)X22m(D)

I-V Y-Y PLANTION

PLATE NO:11A
 DATE OF SURVEY : 22.09.2023

APPLICANT:

Thru. K. SINDRAMOORTHY,
 S/O. KANNIYAPPAN,
 No. 1/31, LINGAMEDU THERU,
 MANAMAI VILLAGE,
 THIRUKALUKUNDRAM TALUK,
 CHENGALPATTU DISTRICT.

LOCATION OF MINE:

S.F.No. : 75/6, 7, 8, 9, 85/1, 2,
 88/7, 2A & 4A
 EXTENT : 2.35.98 HECTAIRE,
 VILLAGES : NELVAIPALAYAM,
 TALUK : CHEYYUR,
 DISTRICT : CHENGALPATTU.

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- G.I. APPLIED AREA BOUNDARY
- 7.5m & 10m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- GRAVEL
- SCREES
- STRIKE AND DIP
- ROUGH STONE
- QUARRY PIT
- QUARRY ROAD

**TOPOGRAPHY, GEOLOGICAL,
 YEARWISE DEVELOPMENT &
 PRODUCTION PLAN & SECTIONS
 VI-X YEAR
 SCALE : 1:1000**

PREPARED BY:

137 A



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	12° 25' 57.7988"N	80° 02' 59.2542"E
2	12° 25' 58.4944"N	80° 02' 58.4355"E
3	12° 25' 59.0441"N	80° 02' 53.9821"E
4	12° 25' 00.0547"N	80° 02' 53.8069"E
5	12° 25' 00.2954"N	80° 02' 53.5538"E
6	12° 25' 00.4747"N	80° 02' 53.8354"E
7	12° 25' 01.2146"N	80° 02' 53.9413"E
8	12° 25' 00.9488"N	80° 02' 54.6096"E
9	12° 25' 01.1307"N	80° 02' 54.8489"E
10	12° 25' 00.5947"N	80° 02' 58.2648"E
11	12° 25' 01.1467"N	80° 02' 56.4272"E
12	12° 25' 01.2185"N	80° 02' 55.8822"E
13	12° 25' 02.8885"N	80° 02' 55.9255"E
14	12° 25' 02.8464"N	80° 02' 56.4338"E
15	12° 25' 02.8901"N	80° 02' 57.4075"E
16	12° 25' 02.2480"N	80° 02' 57.1008"E
17	12° 25' 02.0685"N	80° 02' 58.1384"E
18	12° 25' 02.5123"N	80° 02' 58.4065"E
19	12° 25' 02.1155"N	80° 02' 58.8724"E
20	12° 25' 02.9485"N	80° 02' 59.1057"E
21	12° 25' 03.9900"N	80° 02' 58.9050"E
22	12° 25' 04.3310"N	80° 02' 58.2102"E
23	12° 25' 04.8877"N	80° 02' 58.4110"E
24	12° 25' 01.0390"N	80° 02' 59.8558"E
25	12° 25' 01.5327"N	80° 02' 58.1012"E
26	12° 25' 00.8053"N	80° 02' 02.3588"E
27	12° 25' 00.8799"N	80° 02' 02.0722"E
28	12° 25' 00.3119"N	80° 02' 02.8121"E
29	12° 25' 00.0274"N	80° 02' 02.8838"E
30	12° 25' 00.9300"N	80° 02' 02.4234"E
31	12° 25' 00.6724"N	80° 02' 02.6130"E
32	12° 25' 00.5820"N	80° 02' 00.9080"E
33	12° 25' 00.7284"N	80° 02' 01.0658"E
34	12° 25' 00.5344"N	80° 02' 01.4057"E

DATUM : UTM - WGS84, ZONE 44N

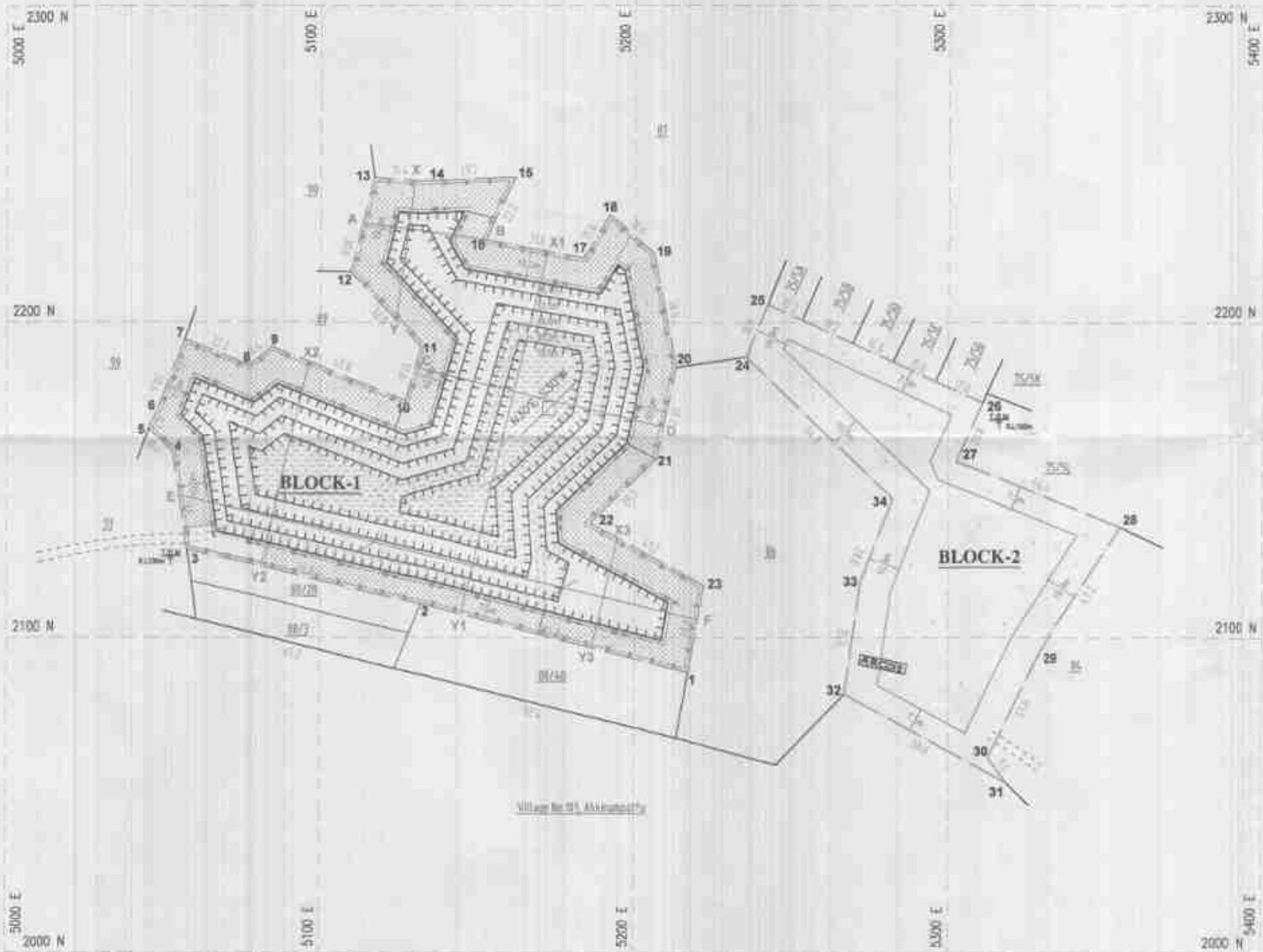


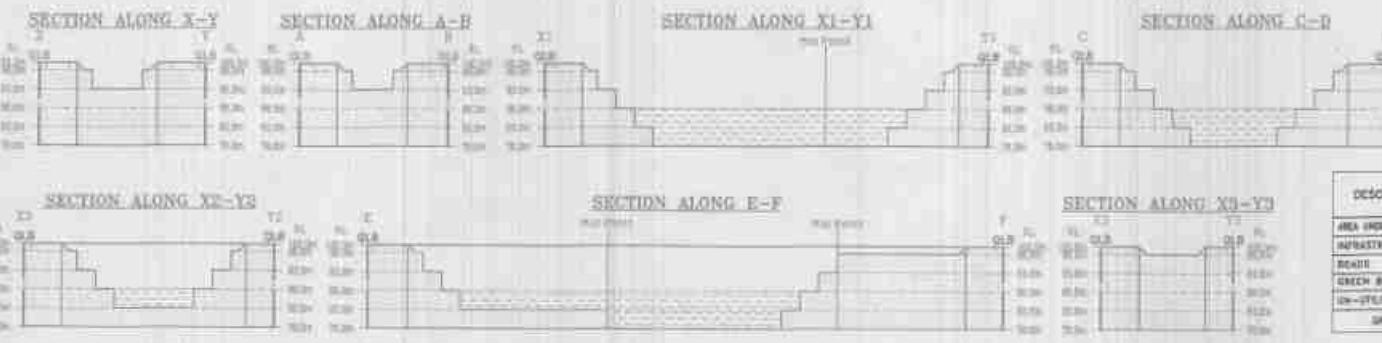
PLATE NO-V
DATE OF SURVEY - 22.09.2023

APPLICANT:
Thiru. K. SUNDARAMOORTHY,
 S/o. KANNIYAPPAN,
 NO. 1/31, LINGAMEDU THERU,
 MANAMAI VILLAGE,
 THIRUKKALUKUNDRAM TALUK,
 CHENGALPATTU DISTRICT.

LOCATION OF MINE:
 S.F.No's : 75/6, 7, 8, 9, 85/1, 2,
 88/1, 2A & 4A
 EXTENT : 2.35.98 HECTARES,
 VILLAGES : NELVAIPALAYAM,
 TALUK : CHEYYUR,
 DISTRICT : CHENGALPATTU.

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QUARRY PIT	
QUARRY ROAD	
TREES	
EXISTING LANDFORM	
OLD SURFACE LEVEL	
FINISHED SURFACE LEVEL	
REHABILITATED LANDFORM	
FENCING	
PROPOSED GARLAND DRAIN	
PROPOSED WATER STORAGE	



Proposed Pit Dimension (Maximum)
 Block-1 99m(L)X147m(W)X22m(D)

PRESENT & POST LAND USE PATTERN

DESCRIPTION	PRESENT AREA (Ha)	ADDITIONAL AREA REQUIRED DURING THE MINING PERIOD (Ha)	AREA AT THE END OF THIS QUARRYING PERIOD (Ha)
AREA UNDER QUARRY	00	0.38.88	0.38.88
INFRASTRUCTURE	00	0.02.00	0.02.00
ROADS	00	0.02.00	0.02.00
GRACE BELT	00	0.29.00	0.29.00
ON-PILEUP AREA	2.35.98	1.04.18	2.74.58
GRAND TOTAL	2.35.98	2.35.98	2.35.98

PROGRESSIVE QUARRY CLOSURE PLAN & SECTIONS
 SCALE 1:1000
 PREPARED BY:
 M. S. Sankar
 138 A

BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	12° 25' 57.7988"N	80° 02' 58.2541"E
2	12° 25' 58.4944"N	80° 02' 58.4352"E
3	12° 25' 59.0441"N	80° 02' 53.9021"E
4	12° 26' 00.0547"N	80° 02' 53.8089"E
5	12° 26' 00.2934"N	80° 02' 53.5538"E
6	12° 26' 00.4747"N	80° 02' 53.6204"E
7	12° 26' 01.2146"N	80° 02' 53.9613"E
8	12° 26' 00.9481"N	80° 02' 54.8088"E
9	12° 26' 01.1381"N	80° 02' 54.8489"E
10	12° 26' 00.5947"N	80° 02' 56.2648"E
11	12° 26' 01.1483"N	80° 02' 56.4272"E
12	12° 26' 01.8185"N	80° 02' 55.6822"E
13	12° 26' 02.8885"N	80° 02' 55.3255"E
14	12° 26' 03.8484"N	80° 02' 56.4328"E
15	12° 26' 02.8581"N	80° 02' 57.4075"E
16	12° 26' 03.2490"N	80° 02' 57.1006"E
17	12° 26' 03.6685"N	80° 02' 58.1386"E
18	12° 26' 03.5123"N	80° 02' 58.4063"E
19	12° 26' 02.1152"N	80° 02' 58.8724"E
20	12° 26' 00.8445"N	80° 02' 58.1087"E
21	12° 25' 59.9904"N	80° 02' 58.9252"E
22	12° 25' 59.3310"N	80° 02' 58.2102"E
23	12° 25' 58.8971"N	80° 02' 58.4110"E
24	12° 26' 01.0590"N	80° 02' 59.8358"E
25	12° 26' 01.5922"N	80° 02' 00.1012"E
26	12° 26' 00.8053"N	80° 02' 02.3556"E
27	12° 25' 59.9799"N	80° 02' 02.0722"E
28	12° 25' 58.3119"N	80° 02' 03.8421"E
29	12° 25' 58.0274"N	80° 02' 02.9838"E
30	12° 25' 56.9308"N	80° 02' 02.4234"E
31	12° 25' 56.8724"N	80° 02' 02.8138"E
32	12° 25' 57.5825"N	80° 02' 00.8090"E
33	12° 25' 58.7264"N	80° 02' 01.0658"E
34	12° 25' 59.5944"N	80° 02' 01.4057"E

SATW - UTM - WGS84, ZONE 48N

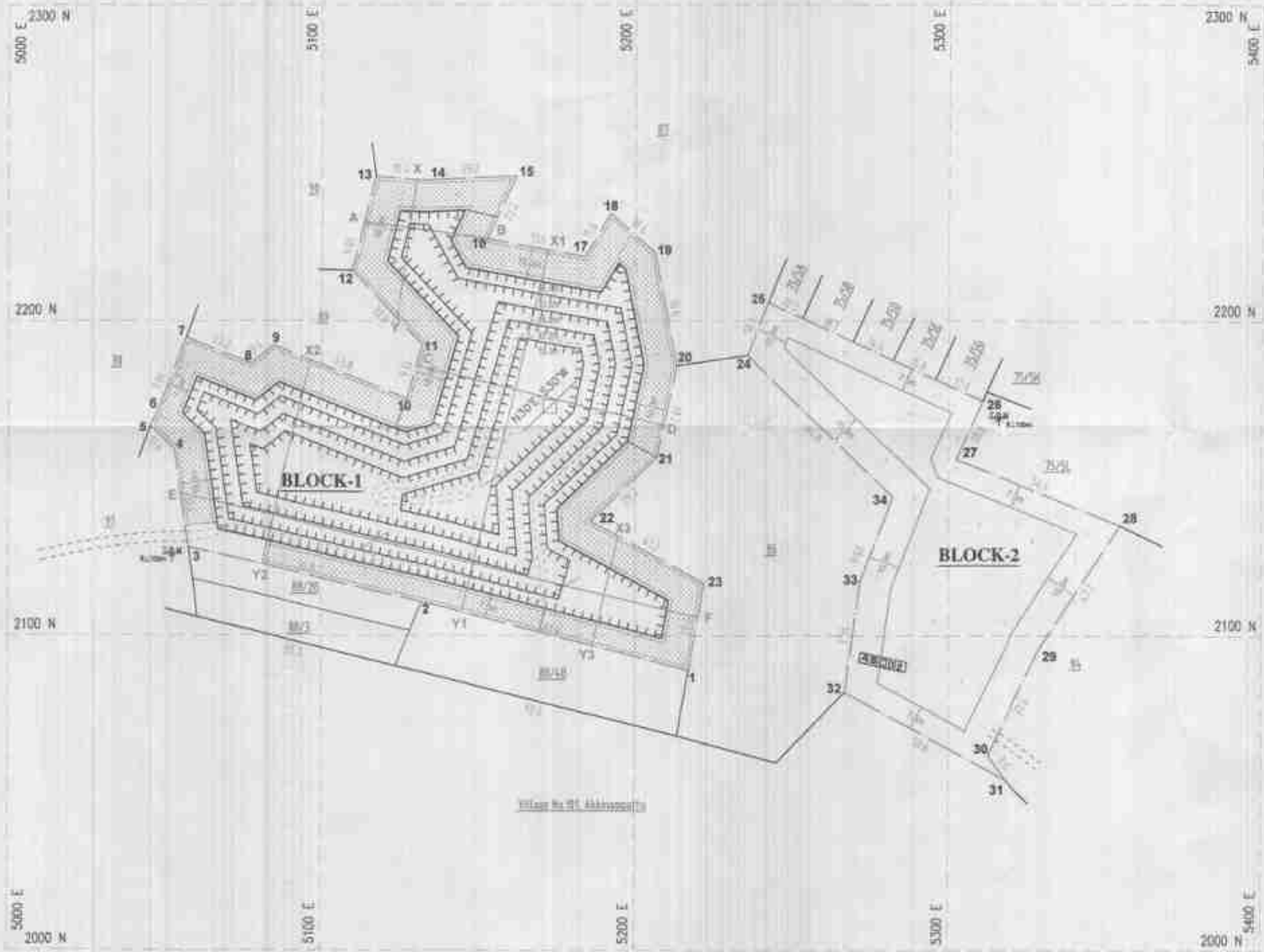


PLATE NO-V
DATE OF SURVEY: 22.09.2023

APPLICANT:
Thiru. K. SUNDRAMOORTHY,
 S/O. KANNIAPPAN,
 No. 1/31, LINGAMEDU THERLU,
 MANAMAI VILAGE,
 THIRUKKALUKUNDRAM TALUK,
 CHENGALPATTU DISTRICT.

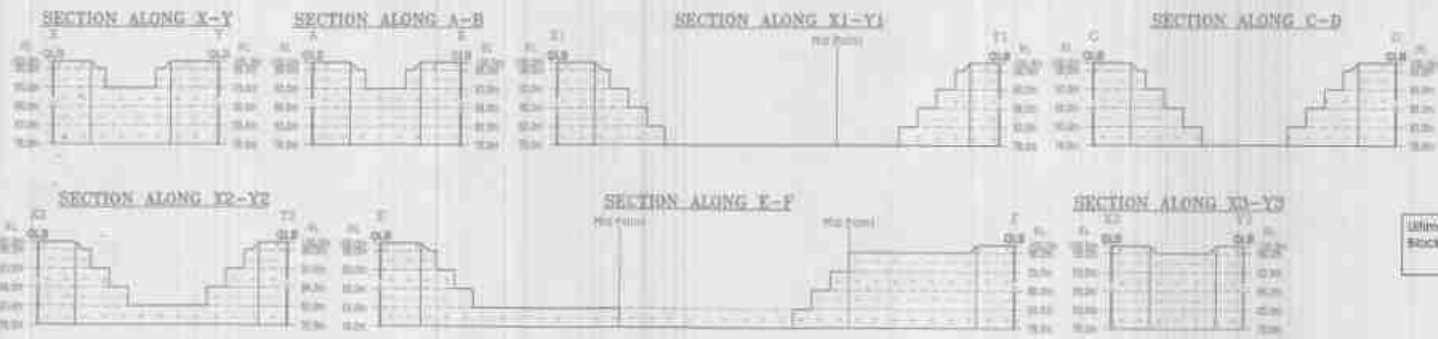
LOCATION OF MINE:
 L.F.No.s : 75/6, 7, 8, 9, 85/1, 2,
 86/1, 2A & 4A
 EXTENT : 2.35.98 HECTARES,
 VILLAGES : NELVAIPALAYAM,
 TALUK : CHENYUR,
 DISTRICT : CHENGALPATTU.

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7.5m & 10m SAFETY DISTANCE	
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APPROACH ROAD	
GRAVEL	
SCRUB	
STRIKE AND DIP	
ROUGH STONE	
QUARRY PIT	
QUARRY ROAD	

CONCEPTUAL PLAN & SECTIONS
 SCALE 1 : 1000

PREPARED BY:
 THE S/O TO CHIEF ENGINEER AND THE INFORMATION OFFICER,
 PLATE NO-V AND REFERRED TO THE
 BEST OF HIS KNOWLEDGE BASED UPON THE LATEST
 AUTHENTICATED BY THE SUPERVISOR
 P. J. 139 A



Ultimate Pit Dimension (Maximum)
 Block-1 99m(L)x147m(W)x22m(D)

SURVEYOR

S-1 OFFICE
S-2 FIELD AND BOUND
S-3 DRAWING
S-4 FIELD CHECK
S-5 TOTAL

HYDRO GEOLOGICAL REPORT

**Rough stone and Gravel Quarry Over an
extent of 2.35.98Ha**

**S.F.Nos. 75/6, 75/7, 75/8, 75/9, 85/1, 85/2, 88/1, 88/2A
and 88/4A of Nelvaipalayam Village, Cheyyur Taluk,
Chengalpattu District, Tamil Nadu State.**

HYDRO GEOLOGICAL REPORT

1. INTRODUCTION

NAME OF THE APPLICANT WITH ADDRESS-

NAME OF THE APPLICANT : **K. Sundramoorthy**
S/o. Kanniyappan
Address : No.1/31, Lingamedu Street, Manamai Village,
Thirukazhukkundram Taluk,
District : Chengalpattu District
State with Pin Code : Tamil Nadu – 603 102
Mobile No : +91 94432 43299
Aadhaar No : 5671 7251 5085 (Refer Annexure No. VIII)
Email ID : ashokconstruction@yahoo.co.in

DETAILS OF THE AREA-

Survey No : 75/6, 75/7, 75/8, 75/9, 85/1, 85/2, 88/1, 88/2A
and 88/4A
Extent : 2.35.98Ha
Village : Nelvaipalayam
Taluk : Cheyyur
District : Chengalpattu

The Client requires detailed information on Ground Water Occurrences at Proposed Project Site. The objective of the present study is to assess the availability of groundwater and comment on aspects of depth to potential aquifers, aquifer availability and type, possible yields and water quality. For this purpose, all available hydrogeological information of the areas has been analyzed, and a geophysical survey was done.

The investigations involved hydrogeological, geophysical field investigations and a detailed study in which the available relevant geological and hydrogeological data were collected, analyzed, collated and evaluated within the context of the Client's requirements.

The data sources consulted were mainly:

- a) Central Ground Water Board (CGWB) Data
- b) State & District Geological and Hydrogeological Reports and Maps.
- c) Technical reports of the area by various organizations.

2. SCOPE OF THE WORKS –

The scope of works includes:

- Site visits to familiarize with the project areas. Identify any issues that might impact the Ground Water Scenario due to proposed mining activities.
- To obtain, study and synthesize background information including the geology, hydrogeology and existing borehole data, for the purpose of improving the quality of assessment and preparing comprehensive hydrogeological reports,
- To carry out hydrogeological evaluation and geophysical investigations in the selected sites in order to determine potential for groundwater at project site.
- To prepare hydrogeological survey reports in conformity with the provisions of the rules and procedure outlined by the Central Ground Water Board (CGWB), by Assessment of water quality and potential infringement of National standards, Assessment of availability of groundwater and Impact of proposed activity on aquifer, water quality and other abstractors.

3. BACKGROUND INFORMATION

Geographical information of the study area-

The investigated site falls in the Toposheet No: **66 D/03** Latitude between **12°25'56.6724"N** to **12°26'02.8961"N** and Longitude between **80°02'53.5538"E** to **80°03'03.8121"E** on WGS datum-1984.

REGIONAL GEOLOGY OF CHENGALPATTU DISTRICT-

The Chengalpattu district is endowed with a complex geological set up with crystalline rocks occurring in the southern part of the area and the northern part of the area the crystalline rocks occur at depths covered by sedimentary formations ranging from Gondwana to Recent. The Precambrian crystalline rocks are represented by charnockites and contain several enclaves mafic granulite. Garnetiferous biotite gneisses, leptinites and banded magnetite quartzites are also encountered as linear bands. Intrusions of dolerite dykes are also found.

The exposes crystalline rocks of Archaean age and sedimentary rocks of Gondwana Supergroup and the Cuddalore Formation belonging to Mio-Pliocene age. A gravel and shingle bed locally known as Kanjeevaram Gravels belongs to the Pliocene to lower Pleistocene age. The laterite and alluvium are related to Quaternary age.

The Archaean rocks are represented by Khondalite Group, Charnockite Group and Migmatite complex. Garnet sillimanite gneiss is well exposed in the northeastern part of the district in Pachchamalai hill at Chrompet, Parangimalai and southeast of Pallavaram. In

Pachchamalai hill it is essentially a quartz sillimanite rich rock with minor amount of felspar. In Tambaram hill, chanoackite and metapellite are intimately interbanded, particularly along the hinge zones. Isolated outcrops are also seen on either side of National Highway No.45 near Kadaperi. The major part of the district is occupied by charnockite with enclaves of khondalite, leptynite and BMQ seen around St. Thomas Mount, east of Guduvancheri, Madurantakam, and Paler and around Tirukkalukkunram. St. Thomas mount is an extensively studied type area for the chamockite. It is a typical rock with bluish grey quartz, hard and compact, jointed showing recognizable foliation at places. The outcrop stands out prominently as isolated cluster of hills.

The lower Gondwana sediments (Talchirs) overlie the Archaean rocks unconformably and are seen to the northeast and south of Palar River preserved in the trough faults and comprise boulder beds, dirty white to light green, greyish yellow fine sandstone, siltstone with clasts of rock fragments and khaki green to greenish grey shales.

Charnockite is applied to any orthopyroxene-bearing quartz-feldspar rock, composed mainly of quartz, perthite or antiperthite and orthopyroxene (usually hypersthene) formed at high temperature and pressure, commonly found in granulite facies metamorphic regions, as an end-member of the charnockite series.

Silt

Silt is granular material of a size between sand and clay, whose mineral origin is quartz and feldspar. Silt may occur as a soil (often mixed with sand or clay) or as sediment mixed in suspension with water (also known as a suspended load) and soil in a body of water such as a river. It may also exist as soil deposited at the bottom of a water body, like mudflows from landslides. Silt has a moderate specific area with a typically nonstick, plastic feel. Silt usually has a floury feel when dry, and a slippery feel when wet. Silt can be visually observed with a hand lens.

Stratigraphy sequences of Chengalpattu District

Age	Formation	Lithography
Recent	Alluvium and beach sands	Sand, gravel, silt and clay
Pleistocene	Laterite, soils, talus	Laterites, sandy clay, silt
Pleistocene to upper Miocene	Conjeevaram gravels	Boulders, cobbles Pebbles and gravels chiefly of quartzites
Lower Cretaceous to Jurassic	Sandstones & Shales	Fine to medium grained sand stone with clay

		intercalations of greenish soft shale
	Boulder bed	Big boulders of granite gneiss with or without Matrix of clay and the sand
Unconformity		
Archaean	Crystalline formations	Mixed gneisses, charnockites, granites and associated basic and ultra basic intrusive

4. GEOPHYSICAL INVESTIGATION METHODS

A variety of methods are available to assist in the assessment of geological sub-surface conditions. The main emphasis of the fieldwork undertaken was to determine the thickness and composition of the sub-surface formations and to identify water-bearing zones. This information was principally obtained in the field using, and vertical electrical soundings (VES). The VES probes the resistivity layering below the site of measurement. This method is described below.

Resistivity Method

Vertical electrical soundings (VES) were carried out to probe the condition of the sub-surface and to confirm the existence of deep groundwater. The VES investigates the resistivity layering below the site of measurement.

Basic Principles

The electrical properties of rocks in the upper part of the earth's crust are dependent upon the lithology, porosity, and the degree of pore space saturation and the salinity of the pore water. Saturated rocks have lower resistivity than unsaturated and dry rocks. The higher the porosity of the saturated rock, or the higher the salinity of the saturating fluids, the lower is the resistivity. The presence of clays and conductive minerals also reduces the resistivity of the rock.

The resistivity of earth materials can be studied by measuring the electrical potential distribution produced at the earth's surface by an electric current that is passed through the earth. Current is moved through the subsurface from one current electrode to the other and the potential difference is recorded as the current passes. From this information, resistivity values of various layers are acquired and layer thickness can be identified.

The apparent resistivity values determined are plotted as a log function versus the log of the spacing between the electrodes. These plotted curves identify thickness of layers. If

there are multiple layers (more than 2), the acquired data is compared to a master curve to determine layer thickness.

This method is least influenced by lateral in-homogeneities and capable of providing higher depth of investigation.

The resistance R of a certain material is directly proportional to its length L and cross-sectional area A , expressed as: $R = R_s * L/A$ (in Ohm)

Where R_s is known as the specific resistivity (characteristic of the material and independent of its shape or size) With Ohm's Law,

$$R = dV/I \text{ (Ohm)}$$

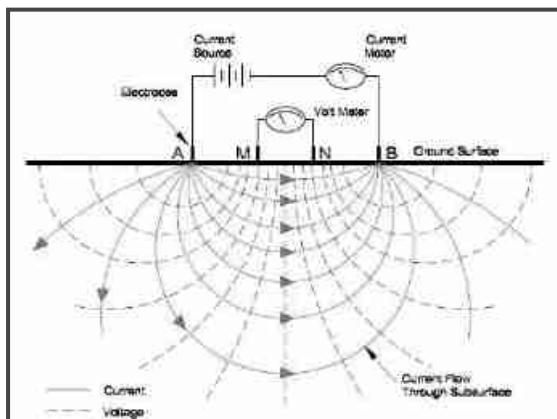
Where dV is the potential difference across the resistor and I is the electric current through the resistor. The specific resistivity may be determined by:

$$R_s = (A/L) * (dV/I) \text{ (in Ohm m)}$$

Vertical Electrical Sounding (VES)

When carrying out a resistivity sounding, current is led into the ground by means of two electrodes. With two other electrodes, situated near the center of the array, the potential field generated by the current is measured. From the observations of the current strength and the potential difference, and taking into account the electrode separations, the ground resistivity can be determined. During a resistivity sounding, the separation between the electrodes is step-wise increased (known as a Schlumberger Array), thus causing the flow of current to penetrate greater depths. When plotting the observed resistivity values against depth on double logarithmic paper, a resistivity graph is formed, which depicts the variation of resistivity with depth. This graph can be interpreted with the aid of a computer, and the actual resistivity layering of the subsurface is obtained. The depths and resistivity values provide the hydro geologist with information on the geological layering and thus the occurrence of groundwater.

Geophysical Survey at study area



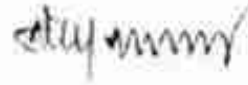
Geophysical Data's and Inver slop method Graphs

STATION-1- 12°25'56.6724"N 80°02'53.5538"E					
<i>S.No</i>	<i>Ab/2</i>	<i>Mn/2</i>	<i>K</i>	<i>R</i>	<i>Rho</i>
1	2	1	4.71	20.25	95.42
2	4	1	23.55	7.27	170.97
3	6	1	54.95	3.46	190.13
4	8	1	98.91	2.38	235.41
5	10	1	155.45	1.90	295.36
6	10	5	23.55	15.05	354.66
7	15	5	62.80	6.30	395.64
8	20	5	117.75	4.00	471.00
9	30	5	274.75	1.80	494.55
10	40	5	494.55	1.10	544.01
11	50	5	777.15	0.79	606.18
12	60	5	1122.55	0.57	639.85
13	70	5	1530.75	0.48	734.76
14	80	5	2001.75	0.37	740.65
15	90	5	2535.55	0.34	862.09
16	100	5	3132.15	0.32	970.97

STATION-2 - 12°26'02.8961"N 80°03'03.8121"E					
<i>S.No</i>	<i>Ab/2</i>	<i>Mn/2</i>	<i>K</i>	<i>R</i>	<i>Rho</i>
1	2	1	4.71	20.25	95.42
2	4	1	23.55	9.57	225.14
3	6	1	54.95	5.16	283.54
4	8	1	98.91	3.56	352.12
5	10	1	155.45	2.59	402.62
6	10	5	23.55	18.26	430.02
7	15	5	62.80	7.25	455.93
8	20	5	117.75	4.21	494.55
9	30	5	274.75	2.16	593.46
10	40	5	494.55	1.23	613.24
11	50	5	777.15	0.86	668.35
12	60	5	1122.55	0.64	718.43
13	70	5	1530.75	0.56	857.22
14	80	5	2001.75	0.44	880.77
15	90	5	2535.55	0.39	963.51
16	100	5	3132.15	0.34	1064.93

5. Conclusion –

Based on the available information and the geophysical investigations it is concluded that the project area is considered to have medium to good groundwater potential. Productive aquifers are expected within weathered/fractured metamorphic terrain. Present scenario is shallow aquifers are expected above 85-90m BGL. The ultimate pit limit as per the approved mining plan depth is **22m** below ground level which will have no impact on the Ground Water.



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வட்டாட்சியர்
செய்யூர்

பெறுநர்
வருவாய் கோட்ட அலுவலர்
மதுராந்தகம்.

ந.க.எண்.3469/2023/அ1, நாள். 07.2023.

ஐயா,

பொருள் : கணிமங்களும் குவாரிகளும் - செங்கல்பட்டு மாவட்டம் - செய்யூர் வட்டம் - இலத்தூர் குறுவட்டம் - நெ.94,நெல்வாய்ப்பாளையம் கிராமம் - புல எண்கள். 75/6 - பரப்பு : 0.15.50 ஏர்ஸ், 75/7 - பரப்பு : 0.10.50 ஏர்ஸ், 75/8 - பரப்பு : 0.16.00 ஏர்ஸ், 75/9, பரப்பு : 0.09.00 ஏர்ஸ், 85/1 - பரப்பு : 0.05.00 ஏர்ஸ், 85/2 - பரப்பு : 0.16.00 ஏர்ஸ், 88/1 - 1.00.00 ஏர்ஸ், 88/2 - 0.41.50 ஏர்ஸ், 88/3 - பரப்பு : 0.08.00 ஏர்ஸ், 88/4 - பரப்பு : 0.50.00 ஏர்ஸ், மொத்த பரப்பு : 2.71.50 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் / கிராவல் மண் வெட்டி எடுக்க பத்து ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்க கோரி திரு.சுந்தரமூர்த்தி த/பெ கன்னியப்பன், என்பவர், மனு அளித்தது - அறிக்கை அனுப்புதல் - தொடர்பாக.

- பார்வை : 1) மனுதாரர் திரு.சுந்தரமூர்த்தி த/பெ கன்னியப்பன், என்பவரின் மனு நாள்.05.06.2023
2) உதவி இயக்குநர்(பொ), புவியியல் மற்றும் சுரங்கத்துறை, செங்கல்பட்டு, அவர்களின் கடிதம் ந.க.எண்.185/கனிமம்/2023, நாள்.05.06.2023.
3) வருவாய் கோட்ட அலுவலர், மதுராந்தகம், அவர்களின் குறிப்பாணை ந.க.எண்.2995/2023/ஆ, நாள்.09.06.2023.
4) இலத்தூர், வருவாய் ஆய்வாளரின் அறிக்கை உ.மு.எண்.235/2023, நாள்.27.06.2023.
5) வட்டாட்சியர் அவர்களின் புலத்தணிக்கை நாள்.03.07.2023.

செங்கல்பட்டு மாவட்டம், செய்யூர் வட்டம், இலத்தூர் குறுவட்டம், நெ.94,நெல்வாய்ப்பாளையம் கிராமம், புல எண்கள்.75/6 - பரப்பு : 0.15.50 ஏர்ஸ், 75/7 - பரப்பு : 0.10.50 ஏர்ஸ், 75/8 - பரப்பு : 0.16.00 ஏர்ஸ், 75/9, பரப்பு : 0.09.00 ஏர்ஸ், 85/1 - பரப்பு : 0.05.00 ஏர்ஸ், 85/2 - பரப்பு : 0.16.00 ஏர்ஸ், 88/1 - 1.00.00 ஏர்ஸ், 88/2 - 0.41.50 ஏர்ஸ், 88/3 - பரப்பு : 0.08.00 ஏர்ஸ், 88/4 - பரப்பு : 0.50.00 ஏர்ஸ், மொத்த பரப்பு : 2.71.50 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் / கிராவல் மண் வெட்டி எடுக்க பத்து ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்க கோரி திரு.சுந்தரமூர்த்தி த/பெ கன்னியப்பன், என்பவர் பார்வை 1-ல் காணும் மனு அளித்தது சம்பந்தமாக பார்வை 3-ல் காணும் குறிப்பாணை வரப்பெற்றதன்பேரில், விசாரணை செய்து அறிக்கையை கீழ்க்கண்டவாறு சமர்ப்பிக்கிறேன்.

செங்கல்பட்டு மாவட்டம், செய்பூர் வட்டம், இலத்தூர் குறுவட்டம், நெ.94, நெல்வாய்ப்பாளையம் கிராமம், புல எண்கள், 75/6 - பரப்பு : 0.15.50 ஏர்ஸ், 75/7 - பரப்பு : 0.10.50 ஏர்ஸ், 75/8 - பரப்பு : 0.16.00 ஏர்ஸ், 75/9, பரப்பு : 0.09.00 ஏர்ஸ், 85/1 - பரப்பு : 0.05.00 ஏர்ஸ், 85/2 - பரப்பு : 0.16.00 ஏர்ஸ், 88/4 - பரப்பு : 0.50.00 ஏர்ஸ், பட்டா எண்.652-ல், திரு.சுந்தரமூர்த்தி (வ) பெயரில் கிராம கணக்கில் பட்டா தாக்கலாகி உள்ளது. மேலும், புல எண்.88/1 - 1.00.00 ஏர்ஸ், பட்டா எண்.594-ல் திருமதி.மனோன்மணி க/பெ சுந்தரமூர்த்தி, என்பவர் பெயரில் கிராம கணக்கில் தாக்கலாகி உள்ளது. புல எண்.88/2 - 0.41.50 ஏர்ஸ், பட்டா எண்.598- மற்றும் 88/3 - பரப்பு : 0.08.00 ஏர்ஸ், பட்டா எண்.599-ல் திரு.சுந்தரமூர்த்தி த/பெ கன்னியம் நாயக்கர், என்பவர் பெயரில் கிராம கணக்கில் தாக்கலாகி வருகிறது.

மேற்கண்ட புலத்தின் நான்கு எல்லைகள் பின்வருமாறு :

வடக்கு : புல எண்.74, அய்யாகண்ணு

தெற்கு : புல எண்.85, மிகுதியான நிலம்

கிழக்கு : புல எண்.81, உமா புல மெட்டல் நிறுவனம்.

மேற்கு : புல எண்.87, கல்லாங்குத்து புறம்போக்கு நிலம்.

மேலும், குத்தகை உரிமம் கோரும் புலத்தில் விவரங்கள் கீழ்க்கண்டவாறு

1) குத்தகை உரிமம் கோரும் புலத்தில் எல்லை கற்கள் நடப்பட்டுள்ளது.
2) மேற்கண்ட புலங்களில் மண் வெட்டி எடுக்க குத்தகை உரிமம் கோரியது சம்பந்தமாக பொதுமக்களிடம் பொது விளம்பரம் செய்யப்பட்டது. இதில் கிராம பொதுமக்களுக்கு ஆட்சேபனை ஏதேனும் உள்ளதா என்று "ஏ1" நோட்டீஸ் தகவல் பலகை மற்றும் பொது விளம்பரம் செய்யப்பட்டதில் கையொப்பம் பெறப்பட்டுள்ளது. அவற்றில் திரு.சேகர் த/பெ சின்னசாமி என்பவர் மட்டும் ஆட்சேபனை தெரிவித்துள்ளார். மேற்படி, ஆட்சேபனைகள் ஏதும் வரப்பெறவில்லை.

3) மேற்படி, புல எண்களில் அமைந்துள்ள அமைவிடத்தில் 50-மீட்டருக்குள் எந்தவிதமான உயர் மின்னழுத்தமோ அல்லது தாழ்மின்னழுத்தமோ ஏதும் இல்லை.

4) அனுமதி வழங்க கோரும் பகுதியிலிருந்து 500 மீட்டர் சுற்றளவிற்குள் புராதான சின்னங்கள் மற்றும் தொல்பொருள் பாகங்கள் பகுதியாக அனுமதிக்கப்படவில்லை.

5) அனுமதி கோரும் புலத்திலிருந்து 1-கிலோ மீட்டர் சுற்றளவில் வனத்துறையால் அறிவிக்கப்பட்டுள்ள சுற்றுச்சூழல் பாதுகாப்பு பகுதிகள், தேசிய பூங்காக்கள், வனவிலங்கு சரணாலயங்கள், புலிகள் சரணாலயங்கள், யானை வழிதடங்கள் மற்றும் 60 மீட்டர் சுற்றளவில் காப்பு காடுகள் ஏதும் இல்லை.

6) மேற்படி, குவாரி உரிமம் கோரும் புலத்தில் சில பகுதியில் விவசாயம் செய்யப்படுகிறது. சில பகுதிகள் கரம்பாக உள்ளது. மேலும், மேற்படி, புலத்தில் 400 மீட்டர் தொலைவில் உமா புல மெட்டல்ஸ் கல்குவாரி மற்றும் கிரைஸ் உள்ளது என கிராம விசாரணையில் தெரியவருகிறது.

7) அனுமதி வழங்க கோரும் புலத்திலிருந்து சுமார் 300 மீட்டர் பரப்புக்குள் கிராம நத்தம் மற்றும் அரசு அங்கிகரிக்கப்பட்ட வீட்டுமனை பிரிவுகள், நிரந்தர குடியிருப்புகள், மயானங்கள், கோவில்கள், ஏதும் இல்லை என தெரியவருகிறது.

8) மேலும், அனுமதி கோரும் புலம் சம்பந்தமாக அளவீடு செய்து புலப்படம் சமர்ப்பிக்கப்பட்டுள்ளது.

மேலும், செய்யூர் வட்டம், ஆக்கிணாம்பட்டு கிராமம், புல எண். 264/1A, 264/1B மற்றும் 266/3-ல் மனுதாரரின் மிகுதியான நிலத்தில் அணுகுபாதை உள்ளது என கிராம விசாரணையில் தெரியவருகிறது.

எனவே, மேற்படி, செங்கல்பட்டு மாவட்டம், செய்யூர் வட்டம், இலத்தூர் குறுவட்டம், நெ.94, நெல்வாப்பாளையம் கிராமம், புல எண்கள். 75/6 - பரப்பு : 0.15.50 ஏர்ஸ், 75/7 - பரப்பு : 0.10.50 ஏர்ஸ், 75/8 - பரப்பு : 0.16.00 ஏர்ஸ், 75/9, பரப்பு : 0.09.00 ஏர்ஸ், 85/1 - பரப்பு : 0.05.00 ஏர்ஸ், 85/2 - பரப்பு : 0.16.00 ஏர்ஸ், 88/1 - 1.00.00 ஏர்ஸ், 88/2 - 0.41.50 ஏர்ஸ், 88/3 - பரப்பு : 0.08.00 ஏர்ஸ், 88/4 - பரப்பு : 0.50.00 ஏர்ஸ், மொத்த பரப்பு : 2.71.50 ஹெக்டேர் பரப்பில் சாதாரண சுற்கள் / கிராவல் மண் வெட்டி எடுக்க பத்து ஆண்டுகளுக்கு திரு.சுந்தரமூர்த்தி த/பெ கன்னியப்பன், என்பவருக்கு குவாரி குத்தகை உரிமம் அனுமதி வழங்கலாம் என பரிந்துரை செய்கிறேன். மேலும், இத்துடன் கிராம நிர்வாக அலுவலரின் வாக்குமூலம், விசாரணை அறிக்கை ஆகியவற்றை இணைத்தனுப்பப்படுகிறது என்பதை பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

தங்கள் உண்மையுள்ள

வட்டாட்சியர்
செய்யூர்

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ந.க.எண்.2995/2023/ஆ நாள்.14.08.2023.

ஐயா,

பொருள் : கனிமங்களும் குவாரிகளும் - செங்கல்பட்டு மாவட்டம் - செய்பூர் வட்டம் - இலத்தூர் குறுவட்டம் - நெ.94,நெல்வாய்ப்பாளையம் கிராமம் - புல எண்கள். 75/6 - பரப்பு : 0.15.50 ஏர்ஸ், 75/7 - பரப்பு : 0.10.50 ஏர்ஸ், 75/8 - பரப்பு : 0.16.00 ஏர்ஸ், 75/9, பரப்பு : 0.09.00 ஏர்ஸ், 85/1 - பரப்பு : 0.05.00 ஏர்ஸ், 85/2 - பரப்பு : 0.16.00 ஏர்ஸ், 88/1 - 1.00.00 ஏர்ஸ், 88/2 - 0.41.50 ஏர்ஸ், 88/3 - பரப்பு : 0.08.00 ஏர்ஸ், 88/4 - பரப்பு : 0.50.00 ஏர்ஸ், மொத்த பரப்பு : 2.71.50 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் / கிராவல் மண் வெட்டி எடுக்க பத்து ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்க கோரி திரு.சுந்தரமூர்த்தி த/பெ கன்னியப்பன், என்பவர் மனு அளித்தது - அறிக்கை அனுப்புதல் - தொடர்பாக.

பார்வை :

- 1) மனுதாரர் திரு.சுந்தரமூர்த்தி த/பெ கன்னியப்பன், என்பவரின் மனு நாள்.05.06.2023
- 2) உதவி இயக்குநர்(பொ), புவியியல் மற்றும் சுரங்கத்துறை, செங்கல்பட்டு, அவர்களின் கடிதம் ந.க.எண்.185/கனிமம்/2023, நாள்.05.06.2023.
- 3) இவ்வலுவலக இதே எண்ணிட்ட குறிப்பாணை ந.க.எண்.2995/2023/ஆ நாள்.09.06.2023.
- 4) செய்பூர் வட்டாட்சியரது அறிக்கை ந.க.எண்.3469/2023/அ1, நாள்.12.07.2023

செங்கல்பட்டு மாவட்டம், செய்பூர் வட்டம், இலத்தூர் குறுவட்டம், நெ.94,நெல்வாய்ப்பாளையம் கிராமம், புல எண்கள்.75/6 - பரப்பு : 0.15.50 ஏர்ஸ், 75/7 - பரப்பு : 0.10.50 ஏர்ஸ், 75/8 - பரப்பு : 0.16.00 ஏர்ஸ், 75/9, பரப்பு : 0.09.00 ஏர்ஸ், 85/1 - பரப்பு : 0.05.00 ஏர்ஸ், 85/2 - பரப்பு : 0.16.00 ஏர்ஸ், 88/1 - 1.00.00 ஏர்ஸ், 88/2 - 0.41.50 ஏர்ஸ், 88/3 - பரப்பு : 0.08.00 ஏர்ஸ், 88/4 - பரப்பு : 0.50.00 ஏர்ஸ், மொத்த பரப்பு : 2.71.50 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் / கிராவல் மண் வெட்டி எடுக்க பத்து ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்க கோரி திரு.சுந்தரமூர்த்தி த/பெ

கன்னியப்பன், என்பவர் பார்வை 1-ல் காணும் மனு அளித்தது சம்பந்தமாக பார்வை 2-ல் காணும் கடிதத்தில் குத்தகை உரிமம் வழங்க கேட்கும் புலத்தின் எல்லைகள் குறித்த விவரம் மற்றும் பொது மக்களிடம் ஆட்சேபனை குறித்த அ1 நோட்டீஸ் அங்கீகரிக்கப்பட்ட குடியிருப்புகள் போன்ற விவரங்களை தணிக்கை செய்து குவாரி அமைப்பதற்கான பரிந்துரையிபுடன் அறிக்கை அனுப்பி வைக்க கோரப்பட்டுள்ளது. அதையடிப்படையில் விசாரணை செய்து எனதறிக்கையை கீழ்க்கண்டவாறு சமர்ப்பிக்கிறேன்.

செங்கல்பட்டு மாவட்டம், செய்யூர் வட்டம், இலத்தூர் குறுவட்டம், நெ.94, நெல்வாய்ப்பாளையம் கிராமம், புல எண்கள். 75/6 - பரப்பு : 0.15.50 ஏர்ஸ், 75/7 - பரப்பு : 0.10.50 ஏர்ஸ், 75/8 - பரப்பு : 0.16.00 ஏர்ஸ், 75/9, பரப்பு : 0.09.00 ஏர்ஸ், 85/1 - பரப்பு : 0.05.00 ஏர்ஸ், 85/2 - பரப்பு : 0.16.00 ஏர்ஸ், 88/4 - பரப்பு : 0.50.00 ஏர்ஸ், பட்டா எண்.652-ல், திரு.சுந்தரமூர்த்தி (வ) பெயரில் கிராம கணக்கில் பட்டா தாக்கலாகி உள்ளது. மேலும், புல எண்.88/1 - 1.00.00 ஏர்ஸ், பட்டா எண்.594-ல் திருமதி.மனோன்மணி க/பெ சுந்தரமூர்த்தி, என்பவர் பெயரில் கிராம கணக்கில் தாக்கலாகி உள்ளது. புல எண்.88/2 - 0.41.50 ஏர்ஸ், பட்டா எண்.598- மற்றும் 88/3 - பரப்பு : 0.08.00 ஏர்ஸ், பட்டா எண்.599-ல் திரு.சுந்தரமூர்த்தி த/பெ கன்னியப்ப நாயக்கர், என்பவர் பெயரில் கிராம கணக்கில் தாக்கலாகி வருகிறது.

மேற்கண்ட புலத்தின் நான்கு எல்லைகள் பின்வருமாறு :

- வடக்கு : புல எண்.74, அய்யாகண்ணு
- தெற்கு : புல எண்.85, மிகுதியான நிலம்
- கிழக்கு : புல எண்.81, உமா புலு மெட்டல் நிறுவனம்.
- மேற்கு : புல எண்.87, கல்லாங்குத்து புறம்போக்கு நிலம்.

மேலும், குத்தகை உரிமம் கோரும் புலத்தில் விவரங்கள் கீழ்க்கண்டவாறு

- 1) குத்தகை உரிமம் கோரும் புலத்தில் எல்லை கற்கள் நடப்பட்டுள்ளது.
- 2) மேற்கண்ட புலங்களில் மண் வெட்டி எடுக்க குத்தகை உரிமம் கோரியது சம்பந்தமாக பொதுமக்களிடம் பொது விளம்பரம் 29.06.2023-ல் செய்யப்பட்டது. இதில் கிராம பொதுமக்களுக்கு ஆட்சேபனை ஏதேனும் உள்ளதா என்று "ஏ1" நோட்டீஸ் தகவல் பலகை மற்றும் பொது விளம்பரம் செய்யப்பட்டு கையொப்பம் பெறப்பட்டுள்ளது.
- 3) மேற்படி, புல எண்களில் அமைந்துள்ள அமைவிடத்தில் 50-மீட்டருக்குள் எந்தவிதமான உயர் மின்னழுத்தமோ அல்லது தாழ்மின்னழுத்தமோ ஏதும் இல்லை.

மாக பார்வை 2-ல்
செல்கள் குறித்த
நோட்டீஸ்
குவாரி
ள்ளது.

4) அனுமதி வழங்க கோரும் பகுதியிலிருந்து 500 மீட்டர் சுற்றளவிற்குள் புராதான சின்னங்கள் மற்றும் தொல்பொருள் பாகங்கள் பகுதியாக அனுமதிக்கப்படவில்லை.

5) அனுமதி கோரும் புலத்திலிருந்து 1-கிலோ மீட்டர் சுற்றளவில் வனத்துறையால் அறிவிக்கப்பட்டுள்ள சுற்றுச்சூழல் பாதுகாப்பு பகுதிகள், தேசிய பூங்காக்கள், வனவிலங்கு சரணாலயங்கள், புலிகள் சரணாலயங்கள், யானை வழிதடங்கள் மற்றும் 60 மீட்டர் சுற்றளவில் காப்பு காடுகள் ஏதும் இல்லை.

6) மேற்படி, குவாரி உரிமம் கோரும் புலத்திற்கு அருகில் விவசாயம் செய்யப்படுகிறது. சில பகுதிகள் கரம்பாக உள்ளது. மேலும், மேற்படி, புலத்தில் 400 மீட்டர் தொலைவில் உமா புல மெட்டல்ஸ் கல்குவாரி மற்றும் கிரசர் உள்ளது.

7) அனுமதி வழங்க கோரும் புலத்திலிருந்து சுமார் 300 மீட்டர் பரப்புக்குள் கிராம நத்தம் மற்றும் அரசு அங்கிகரிக்கப்பட்ட வீட்டுமனை பிரிவுகள், நிரந்தர குடியிருப்புகள், மயானங்கள், கோவில்கள், ஏதும் இல்லை.

8) மேலும், அனுமதி கோரும் புலம் சம்பந்தமாக அளவீடு செய்து புலப்படம் சமர்ப்பிக்கப்பட்டுள்ளது.

மேலும், செய்யூர் வட்டம், ஆக்கிணாம்பட்டு கிராமம், புல எண். 264/1A, 264/1B மற்றும் 266/3-ல் மனுதாரரின் மிகுதியான நிலத்தில் அணுகுபாதை உள்ளது என கிராம விசாரணையில் தெரியவருகிறது.

இந்நேரவில் செய்யூர் வட்டம், இலத்தூர் குறுவட்டம், நெ.94, நெல்வாய்ப்பாளையம் கிராமம், புல எண்கள். 75/6 - பரப்பு : 0.15.50 ஏர்ஸ், மற்றும் சிலவற்றில் மண் எடுக்க அனுமதி கோரிய மனு அளித்தது சம்பந்தமாக ஆட்சேபனை மனு வரப்பெற்றது ஆட்சேபனைதாரர்கள் 1) திரு. விமலதாசன், 2) திரு. குமார், 3) திரு. இளவழகன், 4) திரு. சேகர், 5) திரு. கெங்காதரன், 6) திரு. ஏழுமலை, 7) திரு. கமலக்கண்ணன், 8) திரு. அருமைச்செல்வம், 9) திரு. வினோத்குமார், ஆகியோரிடம் 04.08.2023 அன்று வட்டாட்சியர் அலுவலகத்தில் நடைபெற்ற விசாரணையில் ஆஜராகி கீழ்க்கண்டவாறு வாக்குமூலம் அளித்துள்ளனர்.

நெ.114, ஆக்கிணாம்பட்டு கிராமத்தில் ஏற்கனவே இயங்கும் இரண்டு குவாரிகளால் ஐந்துக்கும் மேற்பட்ட உயிர்கள் பலியாகி இருப்பதையும், அடிக்கடி நூற்றுக்கணக்கில் குவாரிகளுக்கு செல்லும் களரக வாகனங்களால் பல சாலை விபத்துக்கள் நடந்திருப்பதையும், வாகனங்களால் மக்கள் சாலையில் செல்ல முடியாத நிலை இருப்பதையும், அதன பாதாளமாக தோண்டப்பட்ட பள்ளங்களால் நிலத்தடி நீர்மட்டம் வெகுவாக குறைந்து விட்டதையும் ஆதாரமாக விளக்கினோம் என்றும், விபத்துக்களை

எனவே,
நெ.94, நெல்வா
புரப்பு : 0.10
புரப்பு :
0.41.5

ஏற்படுத்தும் குவாரிகளை மூட வேண்டும் என்றும் பலமுறை மாவட்ட ஆட்சியர் அவர்களிடம் மனு கொடுக்கப்பட்டுள்ளதாகவும், மேற்படி, பத்திரிக்கையாளர் ஒருவரும் குவாரி வாகனத்தால் விபத்துக்குள்ளானதும், மேற்கண்ட சர்வே எண்களில் சர்வே எண்.85-DC நிலம் என அரசால் ஆய்வு செய்யப்பட்டுள்ளது எனவும், மேற்படி, அருகில் இருக்கும் அனைத்து DC நிலங்களையும் இந்த குவாரிகள் பாதிக்கும் என்பதால் இதுவரை இயங்கி வரும் இரண்டு குவாரிகளையும் மூடவேண்டும் என்றும், இனியும் நெல்வாய்ப்பாளைம் மற்றும் அருகில் உள்ள கிராமங்களில் எந்த ஒரு புதிய குவாரிகளுக்கு அனுமதி கொடுக்க வேண்டாம் என்றும் கிராம மக்கள் சார்பில் கேட்டுக்கொள்கிறோம் என வாக்குமுலத்தில் தெரிவித்துள்ளனர்.

மேலும், திரு.சேகர் த/பெ சின்னசாமி, என்பவர் சர்வே எண்.88/1-ல் அருகில் சர்வே எண்.90/2A, நிலம் உள்ளது என்றும், மேற்படி, நிலத்தில் தற்புசணி வேர்கடலை மற்றும் பயிர் செய்து வருகிறேன் என்றும், சர்வே எண்.88/1-ல் செங்கல்பட்டு, முதன்மை நீதிமன்றத்தில் வழக்கு எண். O.S.No.596/2022-ன்படி எனக்கும் பட்டாதாரான திருமதி.மனோன்மணி, என்பவருக்கும் வழக்கு நிலுவையில் உள்ளது என்றும், எனவே, மேற்படி, பகுதியில் குவாரி உரிமம் வழங்கும் பட்சத்தில் என்னுடைய விவசாய நிலம் பாதிக்கப்படும் எனவும் தனது வாக்குமுலத்தில் தெரிவித்துள்ளனர்.

இந்நேரவில், விபத்துக்கள் அதிகமாக ஏற்படுவதாக தெரிவித்துள்ள ஆட்சேபணை யுகத்தின் அடிப்படையில் உள்ளது ஆட்சேபணைதாரர்கள் DC-நிலம் தெரிவிக்கும் புல எண்.85-ன் மீது விசாரணை செய்து நடவடிக்கை மேற்கொள்ள சட்டரீதியான வழிவகையில்லை என தெரிவித்து வருவாய் நிலை ஆணை எண்.31(8)-ன் கீழ் உத்தரவிடப்பட்டுள்ளது என்பதை தெரிவித்து மேற்படி நபர்களது ஆட்சேபணையினை நிராகரிக்கலாம்.

மேலும் திரு.சேகர் த/பெ சின்னசாமி, என்பவர் சர்வே எண்.88/1-ல் பக்கத்திலேயே சர்வே எண்.90/2A, நிலம் உள்ளது என்று தெரிவித்துள்ளார், மேற்படி குவாரி உரிமத்தில் பாதுகாப்பு இடைவெளிவிடப்பட வேண்டும் என நிபந்தனையுடன் ஆணை வழங்கலாம், சர்வே எண்.88/1-ல் O.S.No.596/2022, -ன்படி செங்கல்பட்டு, முதன்மை நீதிமன்றத்தில் ஆட்சேபணைதாரரான திரு.சேகர் த/பெ சின்னசாமி என்பவருக்கும் பட்டாதாரான திருமதி.மனோன்மணி, என்பவருக்கும் வழக்கு நிலுவையில் உள்ளதால் மேற்படி, பகுதியில் குவாரி உரிமம் வழங்க ஆட்சேபணை தெரிவித்துள்ளார். இந்நேரவில் நீதிமன்றத்தில் நிலுவையில் உள்ளது என ஆட்சேபணைதாரரான திரு.சேகர் என்பவர் குறிப்பிடும் வழக்கு இறுதி தீர்ப்பினை மனுதாரர் பெற்றுவரும்பட்சத்தில் தீர்ப்பின் அடிப்படையில் மனுதாரர் மனு தொடர்பாக இறுதி செய்யப்படும், தற்போதைய நிலையில் மனுதாரரது மனுவினை ஏற்க வழிவகையில்லை எனவே நிராகரிக்கலாம்.

எனவே, மேற்படி, செங்கல்பட்டு மாவட்டம், செய்யூர் வட்டம், இலத்தூர் குறுவட்டம், நெ.94, நெல்வாய்ப்பாளையம் கிராமம், புல எண்கள் 75/6 - பரப்பு : 0.15.50 ஏர்ஸ், 75/7 - பரப்பு : 0.10.50 ஏர்ஸ், 75/8 - பரப்பு : 0.16.00 ஏர்ஸ், 75/9, பரப்பு : 0.09.00 ஏர்ஸ், 85/1 - பரப்பு : 0.05.00 ஏர்ஸ், 85/2 - பரப்பு : 0.16.00 ஏர்ஸ், 88/1 - 1.00.00 ஏர்ஸ், 88/2 - 0.41.50 ஏர்ஸ், 88/3 - பரப்பு : 0.08.00 ஏர்ஸ், 88/4 - பரப்பு : 0.50.00 ஏர்ஸ். மொத்த பரப்பு : 2.71.50 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் / கிராவல் மண் வெட்டி எடுக்க பத்து ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்க கோரி திரு.சுந்தரமூர்த்தி த/பெ கன்னியப்பன், என்பவருக்கு அனுமதி வழங்கலாம் என பரிந்துரை செய்கிறேன். மேலும், இத்துடன் வட்டாட்சியர் அறிக்கை மற்றும் கிராம கணக்குகள் ஆகியவற்றை இணைத்தனுப்பப்படுகிறது என்பதை கனிவுடன் தெரிவித்துக்கொள்கிறேன்.

3. 
 வருவாய் கோட்ட அலுவலர்
 மதுரைநகரம்


 14/8/22
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வருவாய் கோட்டாட்சியரின் புலத்தணிக்கை குறிப்பு

வட்டம்	:	மதுராந்தகம்
கிராமம்	:	நெ.94,நெல்வாய்பாளையம் கிராமம்
புல எண்	:	புல எண்கள்.75/6 மற்றும் சில
பரப்பு	:	மொத்த பரப்பு : 2.71.50 ஹெக்டேர்
பொருள்	:	திரு.சுந்தரமூர்த்தி த/பெ கன்னியப்பன், என்பவர் சாதாரண கற்கள் / கிராவல் மண் வெட்டி எடுக்க பத்து ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்க கோரியது தொடர்பாக
புலத்தணிக்கை அலுவலர்	:	வருவாய் கோட்டாட்சியர், மதுராந்தகம்
புலத்தணிக்கை நாள்	:	14.08.202

செங்கல்பட்டு மாவட்டம், செய்யூர் வட்டம், இலத்தூர் குறுவட்டம், நெ.94,நெல்வாய்பாளையம் கிராமம், புல எண்கள்.75/6 - பரப்பு : 0.15.50 ஏர்ஸ், 75/7 - பரப்பு : 0.10.50 ஏர்ஸ், 75/8 - பரப்பு : 0.16.00 ஏர்ஸ், 75/9, பரப்பு : 0.09.00 ஏர்ஸ், 85/1 - பரப்பு : 0.05.00 ஏர்ஸ், 85/2 - பரப்பு : 0.16.00 ஏர்ஸ், 88/1 - 1.00.00 ஏர்ஸ், 88/2 - 0.41.50 ஏர்ஸ், 88/3 - பரப்பு : 0.08.00 ஏர்ஸ், 88/4 - பரப்பு : 0.50.00 ஏர்ஸ், மொத்த பரப்பு : 2.71.50 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் / கிராவல் மண் வெட்டி எடுக்க பத்து ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்க கோரி திரு.சுந்தரமூர்த்தி த/பெ கன்னியப்பன். என்பவர் பார்வை 1-ல் காணும் மனு அளித்தது சம்பந்தமாக பார்வை 2-ல் காணும் கடிதத்தில் குத்தகை உரிமம் வழங்க கேட்கும் புலத்தின் எல்லைகள் குறித்த விவரம் மற்றும் பொது மக்களிடம் ஆட்சேபனை குறித்த அபிநோட்டிஸ் அங்கீகரிக்கப்பட்ட குடியிருப்புகள் போன்ற விவரங்களை தணிக்கை செய்து குவாரி அமைப்பதற்கான பரிந்துரையியுடன் அறிக்கை அனுப்பி வைக்க கோரப்பட்டுள்ளது. அதனடிப்படையில் புலத்தணிக்கை மற்றும் விசாரணை செய்து எனதறிக்கையை கீழ்க்கண்டவாறு சமர்ப்பிக்கிறேன்.

செங்கல்பட்டு மாவட்டம், செய்யூர் வட்டம், இலத்தூர் குறுவட்டம், நெ.94,நெல்வாய்பாளையம் கிராமம், புல எண்கள். 75/6 - பரப்பு : 0.15.50 ஏர்ஸ், 75/7 - பரப்பு : 0.10.50 ஏர்ஸ், 75/8 - பரப்பு : 0.16.00 ஏர்ஸ், 75/9, பரப்பு : 0.09.00 ஏர்ஸ், 85/1 - பரப்பு : 0.05.00 ஏர்ஸ், 85/2 - பரப்பு : 0.16.00 ஏர்ஸ், 88/4 - பரப்பு : 0.50.00 ஏர்ஸ், பட்டா எண்.652-ல், திரு.சுந்தரமூர்த்தி (வ) பெயரில் கிராம கணக்கில் பட்டா தாக்கலாகி உள்ளது. மேலும், புல எண்.88/1 - 1.00.00 ஏர்ஸ், பட்டா எண்.594-ல் திருமதி.மனோன்மணி க/பெ

சுந்தரமூர்த்தி, என்பவர் பெயரில் கிராம கணக்கில் தாக்கலாகி உள்ளது. புல எண்.88, 0.41.50 ஏர்ஸ், பட்டா எண்.598- மற்றும் 88/3 - பரப்பு : 0.08.00 ஏர்ஸ், பட்டா எண்.594 திரு.சுந்தரமூர்த்தி த/பெ கன்னியப்ப நாயக்கர், என்பவர் பெயரில் கிராம கணக்கில் தாக்கலாகி வருகிறது.

மேற்கண்ட புலத்தின் நான்கு எல்லைகள் பின்வருமாறு :

வடக்கு : புல எண்.74, அய்யாகண்ணு

தெற்கு : புல எண்.85, மிகுதியான நிலம்

கிழக்கு : புல எண்.81, உமா புல மெட்டல் நிறுவனம்.

மேற்கு : புல எண்.87, கல்லாங்குத்து புறம்போக்கு நிலம்.

மேலும், குத்தகை உரிமம் கோரும் புலத்தில் விவரங்கள் கீழ்க்கண்டவாறு

- 1) குத்தகை உரிமம் கோரும் புலத்தில் எல்லை கற்கள் நடப்பட்டுள்ளது.
- 2) மேற்கண்ட புலங்களில் மண் வெட்டி எடுக்க குத்தகை உரிமம் கோரியது சம்பந்தமாக பொதுமக்களிடம் பொது விளம்பரம் 29.06.2023-ல் செய்யப்பட்டது. இதில் கிராம பொதுமக்களுக்கு ஆட்சேபனை ஏதேனும் உள்ளதா என்று "ஏ1" நோட்டீஸ் தகவல் பலகை மற்றும் பொது விளம்பரம் செய்யப்பட்டு கையொப்பம் பெறப்பட்டுள்ளது.
- 3) மேற்படி, புல எண்களில் அமைந்துள்ள அமைவிடத்தில் 50-மீட்டருக்குள் எந்தவிதமான உயர் மின்னழுத்தமோ அல்லது தாழ்மின்னழுத்தமோ ஏதும் இல்லை.
- 4) அனுமதி வழங்க கோரும் பகுதியிலிருந்து 500 மீட்டர் சுற்றளவிற்குள் புராதான சின்னங்கள் மற்றும் தொல்பொருள் பாகங்கள் பகுதியாக அனுமதிக்கப்படவில்லை.
- 5) அனுமதி கோரும் புலத்திலிருந்து 1-கிலோ மீட்டர் சுற்றளவில் வனத்துறையால் அறிவிக்கப்பட்டுள்ள சுற்றுச்சூழல் பாதுகாப்பு பகுதிகள், தேசிய பூங்காக்கள், வனவிலங்கு சரணாலயங்கள், புலிகள் சரணாலயங்கள், யானை வழிதடங்கள் மற்றும் 60 மீட்டர் சுற்றளவில் காப்பு காடுகள் ஏதும் இல்லை.

6)மேற்படி, குவாரி உரிமம் கோரும் புலத்திற்கு அருகில் விவசாயம் செய்யப்படுகிறது. சில பகுதிகள் கரம்பாக உள்ளது. மேலும், மேற்படி, புலத்தில் 400 மீட்டர் தொலைவில் உமாபுரம் மெட்டல்ஸ் கல்குவாரி மற்றும் கிரைட் உள்ளது.

7)அனுமதி வழங்க கோரும் புலத்திலிருந்து சுமார் 300 மீட்டர் பரப்புக்குள் கிராம நடுத்தம் மற்றும் அரசு அங்கிகரிக்கப்பட்ட வீட்டுமனை பிரிவுகள், நிரந்தர குடியிருப்புகள், மயானங்கள், கோவில்கள், ஏதாம் இல்லை.

8)மேலும், அனுமதி கோரும் புலம் சம்பந்தமாக அளவீடு செய்து புலப்படம் சமர்ப்பிக்கப்பட்டுள்ளது.

மேலும், செய்யூர் வட்டம், ஆக்கிணாம்பட்டு கிராமம், புல எண்.264/1A, 264/1B மற்றும் 266/3-ல் மனுதாரரின் மிகுதியான நிலத்தில் அனுசூபதை உள்ளது என கிராம விசாரணையில் தெரியவருகிறது.

இந்நேர்வில் செய்யூர் வட்டம், இலத்தூர் குறுவட்டம், நெ.94,நெல்வாப்பாளையம் கிராமம், புல எண்கள்.75/6 - பரப்பு : 0.15.50 ஏர்ஸ், மற்றும் சிலவற்றில் மண் எடுக்க அனுமதி கோரிய மனு அளித்தது சம்பந்தமாக ஆட்சேபனை மனு வரப்பெற்றது ஆட்சேபனைதாரர்கள் 1)திரு.விமலதாசன், 2)திரு.குமார், 3)திரு.இளவழகன், 4)திரு.சேகர். 5)திரு.கெங்காதரன், 6)திரு.ஏழுமலை, 7)திரு.கமலக்கண்ணன், 8)திரு.அருமைச்செல்வம், 9)திரு.வினோத்குமார், ஆகியோரிடம் 04.08.2023 அன்று வட்டாட்சியர் அலுவலகத்தில் நடைபெற்ற விசாரணையில் ஆஜராகி கீழ்க்கண்டவாறு வாக்குமூலம் அளித்துள்ளனர்.

நெ.114,ஆக்கிணாம்பட்டு கிராமத்தில் ஏற்கனவே இயங்கும் இரண்டு குவாரிகளால் ஐந்துக்கும் மேற்பட்ட உயிர்கள் பலியாகி இருப்பதையும், அடிக்கடி நூற்றுக்கணக்கில் குவாரிகளுக்கு செல்லும் கனரக வாகனங்களால் பல சாலை விபத்துக்கள் நடந்திருப்பதையும், வாகனங்களால் மக்கள் சாலையில் செல்ல முடியாத நிலை இருப்பதையும், அதன் பாதாளமாக தோண்டப்பட்ட பள்ளங்களால் நிலத்தடி நீர்மட்டம் வெகுவாக குறைந்து விட்டதையும் ஆதாரமாக விளக்கினோம் என்றும், விபத்துக்களை ஏற்படுத்தும் குவாரிகளை மூட வேண்டும் என்றும் பலமுறை மாவட்ட ஆட்சியர் அவர்களிடம் மனு கொடுக்கப்பட்டுள்ளதாகவும், மேற்படி, பத்திரிக்கையாளர் ஒருவரும் குவாரி வாகனத்தால் விபத்துக்குள்ளானதும், மேற்கண்ட சர்வே எண்களில் சர்வே எண்.85- DC நிலம் என அரசால் ஆய்வு செய்யப்பட்டுள்ளது எனவும், மேற்படி, அருகில் இருக்கும் அனைத்து DC நிலங்களையும் இந்த குவாரிகள் பாதிக்கும் என்பதால் இதுவரை இயங்கி வரும் இரண்டு

0.15.00 ஏர்ஸ் 85/2
பெறக்கூடாது பரப்பு : 0.08.1
ஆண்டுக்கு பரப்பின்
கண்ணையப்பர்

குவாரிகளையும் முடவேண்டும் என்றும், இனியும் நெல்வாய்பாணைம் மற்றும் அருகில் கிராமங்களில் எந்த ஒரு புதிய குவாரிகளுக்கு அனுமதி கொடுக்க வேண்டாம் என்றும் கிராமங்கள் சார்பில் கேட்டுக்கொள்கிறோம். என வாக்குமூலத்தில் தெரிவித்துள்ளனர்.

மேலும், திரு.சேகர் த/பெ சின்னசாமி, என்பவர் சர்வே எண்.88/1-ல் அருகில் சர்வே எண்.90/2A, நிலம் உள்ளது என்றும், மேற்படி, நிலத்தில் தற்புசணி வேர்கடலை மற்றும் பயிர் செய்து வருகிறேன் என்றும், சர்வே எண்.88/1-ல் செங்கல்பட்டு, முதன்மை நீதிமன்றத்தில் வழக்கு எண். O.S.No.596/2022-ன்படி எனக்கும் பட்டாதாரான திருமதி.மனோம்மாணி. என்பவருக்கும் வழக்கு நிலுவையில் உள்ளது என்றும், எனவே, மேற்படி, பகுதியில் குவாரி உரிமம் வழங்கும் பட்சத்தில் என்னுடைய விவசாய நிலம் பாதிக்கப்படும் எனவும் தனது வாக்குமூலத்தில் தெரிவித்துள்ளனர்,

இந்நேரவில், விபத்துக்கள் அதிகமாக ஏற்படுவதாக தெரிவித்துள்ள ஆட்சேபணையுக்கத்தின் அடிப்படையில் உள்ளது, ஆட்சேபணைதாரர்கள் DC-நிலம் தெரிவிக்கும் புல எண்.85-ன் மீது விசாரணை செய்து நடவடிக்கை மேற்கொள்ள சட்டரீதியான வழிவகையில்லை என தெரிவித்து வருவாய் நிலை ஆணை எண்.31(8)-ன் கீழ் உத்தரவிடப்பட்டுள்ளது என்பதை தெரிவித்து மேற்படி நபர்களது ஆட்சேபணையினை நிராகரிக்கலாம்.

மேலும் திரு.சேகர் த/பெ சின்னசாமி, என்பவர் சர்வே எண்.88/1-ல் பக்கத்திலேயே சர்வே எண்.90/2A, நிலம் உள்ளது என்று தெரிவித்துள்ளார். மேற்படி குவாரி உரிமத்தில் பாதுகாப்பு இடைவெளிவிடப்பட வேண்டும் என நிபந்தனையுடன் ஆணை வழங்கலாம், சர்வே எண்.88/1-ல் O.S.No.596/2022, -ன்படி செங்கல்பட்டு, முதன்மை நீதிமன்றத்தில் ஆட்சேபணைதாரான திரு.சேகர் த/பெ சின்னசாமி என்பவருக்கும் பட்டாதாரான திருமதி.மனோம்மாணி, என்பவருக்கும் வழக்கு நிலுவையில் உள்ளதால் மேற்படி, பகுதியில் குவாரி உரிமம் வழங்க ஆட்சேபணை தெரிவித்துள்ளார். இந்நேரவில் நீதிமன்றத்தில் நிலுவையில் உள்ளது என ஆட்சேபணைதாரான திரு.சேகர் என்பவர் குறிப்பிடும் வழக்கு இறுதி தீர்ப்பினை மனுதாரர் பெற்றுவரும்பட்சத்தில் தீர்ப்பின் அடிப்படையில் மனுதாரர் மனு தொடர்பாக இறுதி செய்யப்படும், தற்போதைய நிலையில் மனுதாரது மனுவினை ஏற்க வழிவகையில்லை எனவே நிராகரிக்கலாம்.

எனவே, மேற்படி, செங்கல்பட்டு மாவட்டம், செய்யூர் வட்டம், இலத்தூர் குறுவட்டம், நெ.94,நெல்வாய்பாணையம் கிராமம், புல எண்கள்.75/6 - பரப்பு : 0.15.50 ஏர்ஸ், 75/7 - பரப்பு : 0.10.50 ஏர்ஸ், 75/8 - பரப்பு : 0.16.00 ஏர்ஸ், 75/9, பரப்பு : 0.09.00 ஏர்ஸ், 85/1 - பரப்பு :

மற்றும் அருகில்
வண்டிகள் என்றும் கிராம
பஞ்சாயத்து கமிட்டி
பயிர்

1.05.00 ஏர்ஸ், 85/2 - பரப்பு : 0.16.00 ஏர்ஸ், 88/1 - 1.00.00 ஏர்ஸ், 88/2 - 0.41.50 ஏர்ஸ்,
88/3 - பரப்பு : 0.08.00 ஏர்ஸ், 88/4 - பரப்பு : 0.50.00 ஏர்ஸ், மொத்த பரப்பு : 2.71.50
ஹெக்டேர் பரப்பில் சாதாரண கற்கள் / கிராவல் மண் வெட்டி எடுக்க பத்து
ஆண்டுகளுக்கு குவாரி குத்தகை உரிமை வழங்க கோரி திரு.கந்தரமுர்த்தி த/பெ
கன்னியப்பன். என்பவருக்கு அனுமதி வழங்கலாம் என பரிந்துரை செய்கிறேன்.

14.8.2023
வருவாய் கோட்ட அலுவலர்
மதுராந்தகம்

93
14/8/23

UDAYAM EXPLOSIVES

No. 6/22, Ramani Nagar, 2nd Street, Krishna Nagar,
West Tambaram, Chennai - 600 045

Proprietor
J. SIVAKUMAR

Date..06.11.2023..

To,
Mr, K.SUNDRAMOORTHY,
S/o, Kanniyappan,
No.1/31, Lingamedu Street, Manamai Village,
Thirukazhukkundram Taluk,
Chengalpattu District,
Tamil Nadu State - 603 102.

Sub: Regarding blasting work using explosive in your proposed quarry

Sir,

We are having explosive license in Form 22 holding no. **E/SC/TN/22/164 (E10462)** situate in Survey No.4/1, Nattarasanpattu Village, Sriperumbudhur Taluk, Kanchipuram District, our office functioning at address 6/22, Ramani Nagar, 2nd Street, Mudichur Road, West Tambaram, Chennai 600 045.

We are enacting explosive vans for transporting detonators and class:2 separately for our magazine to our work site. We are well experienced with licensed blasters and shot fired for safe blasting work since 10 years without untoward incident.

We are willing to undertake blasting work on contract basis at your proposed quarry at S.F.Nos. 75/6, 75/7, 75/8, 75/9, 85/1, 85/2, 88/1, 88/2A & 88/4A Over an extent of 2.35.98 Hectors. Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District.

Thank You,

For UDAYAM EXPLOSIVES



Proprietor

Signature

(For Udayam Explosives)

Enclosure: 1. License copies
2. E-Van license copies



GOVERNMENT OF INDIA
MINISTRY OF COMMERCE & INDUSTRY
PETROLEUM AND EXPLOSIVES SAFETY ORGANISATION (PESO)
(Formerly Department of Explosives)
A & D - Wing, Block I-8, Hind Floor, Shastri Bhavan
26 Haddous Road, Nungambakkam Chennai 600006
Tele: 28281023 Fax: 28284848
Email: jtucechennai@explosives.gov.in

No: E/SC/TN/25/1428(E113629)

Dated : 14/02/2023

To,

Udayam Explosives,

J. Sivakumar, Proprietor/Occupier, M/s Udayam Explosives No. 6/22, Ramani Nagar, 2nd street, Mudichur Road, West Tambaram

Town/Village - West Tambaram

Distt. KANCHIPURAM, State. Tamil Nadu, Pincode-600045

Subject: Road Van for the carriage of Explosives Registration No TN-11/AJ-2506 Licence No.E/SC/TN/25/1428(E113629) granted in Form LE-7 of of Explosives Rules 2008 - Renewal regarding

Sir(s).

Reference to your letter No.: 77327 dated: 25/01/2023, the subject licence duly renewed upto 31/3/2028 and issued in Form LE-7 of Explosives Rules, 2008 is forwarded herewith.

For further renewal of licence, please submit the following documents so as to reach **this office** on or before 31/3/2028.

- Application in Form RE-1 duly filled in and signed.
- Licence fees renewable for one to five years, to be submitted online through e-payment facility available on online application portal under the Explosives Rules, 2008.
- Original licence with approved plan.
- In this connection, please also refer to Rule 112 of Explosives Rules, 2008.

Please follow following instructions strictly:

1. The records of explosives transported by the licenced Roadvan shall be maintained in the proforma RE-6 under Part 5 of schedule V of Explosives Rules 2008.
2. Please ensure that persons whose antecedents verified by the local Police shall only be employed with the licenced explosives roadvan/compressor mounded truck as drivers or cleaners. List of such drivers and cleaner's alongwith the personal particulars shall be made available to the local police in advance. The re-verification of such staff shall also be made at least once in a year in compliance to Rule 61(3) of Explosives Rules 2008.
3. Please note that during transportation of explosives, the Roadvan shall always be attended to by two armed guards. If the consignment of explosives is likely to pass through sensitive areas notified by Ministry of Home Affairs, it should be escorted by armed Police escort / guard provided by District Police Administration as required in Rule 67(7) of Explosives Rules 2008.

Enclosures :

Yours faithfully,

(Manmeet Singh Manhas)
Dy. Controller of Explosives
For Joint Chief Controller of Explosives
South Circle, Chennai

Copy Forwarded to:

1. District Magistrate, KANCHIPURAM (Tamil Nadu) for information.

For Joint Chief Controller of Explosives
South Circle, Chennai

[For more information regarding status, fees and other details, please visit our web site <http://peso.gov.in>]

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- प्ररूप आरई-1 में विधिवत पूर्ण एवं हस्ताक्षरित आवेदन।
Application in Form RE-1 duly filled in and signed.
- एक से पाँच वर्ष के अनुज्ञप्ति शुल्को का, विस्फोटक नियम, 2008 के तहत ऑनलाइन आवेदन पोर्टल पर उपलब्ध ई-भुगतान सुविधा के माध्यम से लाइसेंस शुल्क ऑनलाइन जमा किया जाना है।
Licence fees renewable for one to five years, to be submitted online through e-payment facility available on online application portal under the Explosives Rules, 2008.
- अनुमोदित प्लान के साथ मूल अनुज्ञप्ति।
Original licence with approved plan.
- कृपया इस संबंध में विस्फोटक नियम, 2008 के नियम 112 का भी संदर्भ ग्रहण करें।
In this connection, please also refer to Rule 112 of Explosives Rules, 2008.
- विस्फोटकों के क्रय हेतु आरई-11 में मांगपत्र (इंडेंट) आपूर्तिकर्ता को दिया जाए और उसी की एक प्रति इस कार्यालय को भेजी जाए (आतिशबाजी गोदाम के लिए लागू नहीं)।
Indent for purchase of explosives shall be placed in RE-11 with the supplier and copy of the same shall be sent to this office.(Not applicable for fireworks store house)
- कृपया विस्फोटकों की त्रैमासीक विवरणी हर तिमाही के अंत में आरई-7 में प्रस्तुत की जाए। विवरणी इस कार्यालय के कार्यालय में आगामी तिमाही के 10 तारीख से पहले पहुंच जानी चाहिए (आतिशबाजी गोदाम के लिए लागू नहीं)। Please submit quarterly returns of explosives in RE-7 at the end of every quarter so as to reach this office by 10th of the succeeding quarter.(Not applicable for fireworks store house)
- सभी ब्लास्टिंग आपरेशन एक सक्षम द्वारा की जाएगी जो उपरोक्त नियमों के तहत एक वैध शॉट फायर प्रमाणपत्र धारक हो। हालांकि, खान अधिनियम 1952 के अधीन आने वाले खानों में ब्लास्टिंग आपरेशन करने वाले ब्लास्टर की योग्यता उसी अधिनियम से निर्धारित हो।
All blasting operations shall be carried out by a competent person holding a valid shot firer's permit granted under above rules. However, blasting operations in mines coming under the purview of the Mines Act 1952, the blaster shall have qualifications prescribed in the regulations framed under the said Act.

भवदीय | Your's faithfully

(डा.टी.एल.थनुलिंगम | Dr. T. L. THANULINGAM)

उप मुख्य विस्फोटक नियंत्रक | Deputy Chief Controller of Explosives
कृते संयुक्त मुख्य विस्फोटक नियंत्रक | For Joint Chief Controller of Explosives
दक्षिणांचल, चेन्नै | South Circle, Chennai

प्रतिलिपि प्रेषित | Copy Forwarded to:

1. ज़िला मजिस्ट्रेट (District Magistrate), KANCHIPURAM (Tamil Nadu)- सूचना के लिए (for information.)
कृते संयुक्त मुख्य विस्फोटक नियंत्रक | For Joint Chief Controller of Explosives
दक्षिणांचल, चेन्नै | South Circle, Chennai
(अधिक जानकारी जैसे आवेदन की स्थिति, शुल्क आदि के लिए हमारी वेबसाइट <http://peso.gov.in> देखें.)
(For more information regarding status, fees and other details please visit our website <http://peso.gov.in>)

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Disclaimer : This page gives the latest action taken by this organization on your application. This page is made available for the information of concerned applicant/licensee only. For documentary purposes, only the original documents issued under the seal and signature of the respective offices of Petroleum & Explosives Safety Organization, shall be valid. All efforts have been made to secure this information. However, PESO will not be responsible for any misuse of the information by unauthorised persons including the hackers.



भारत सरकार | Government of India

वाणिज्य और उद्योग मंत्रालय | Ministry of Commerce & Industry
पेट्रोलियम तथा विस्फोटक सुरक्षा संगठन (पेसो) | Petroleum & Explosives Safety Organisation (PESO)

पूर्व नाम- विस्फोटक विभाग | Formerly- Department of Explosives
A और D - विंग, ब्लॉक 1-8, दूसरा तल, शास्त्री भवन | A & D - Wing, Block 1-8, IInd Floor, Shastri Bhavan
26 हड्डोउस रोड, नुंगम्बक्कम चेन्नै | 26 Haddous Road, Nungambakkam Chennai 600006
फोन (Phone):- 28281023 | फैक्स (Fax):- 28284848
ई-मेल Email: jtccechennai@explosives.gov.in

संख्या (No.):

E/SC/TN/22/164(E10462)

दिनांक (Date): 13/03/2023

सेवा में | To,

M/s.UDAYAM EXPLOSIVES Proprieter.J.Sivakumar,

NO.6/22, Ramani Nagar, 2nd Street, Mudichur Road, West Tambaram, Chennai,
Town/Village - Chennai

District-CHENNAI, State-Tamil Nadu, Pincode - 600045

विषय: Survey No(s).4/1, ग्राम Nattarasampattu, जिला KANCHIPURAM, राज्य Tamil Nadu में विस्फोटक के मैगजीन में उपयोग के लिए कब्जा हेतु विस्फोटक नियम, 2008 के अंतर्गत LE-3 में जारी अनुज्ञप्ति सं E/SC/TN/22/164(E10462) के नवीनीकरण संदर्भ में।

Possession for Use of of Explosives from magazine situated at Survey No(s).:4/1,

Subject: Nattarasampattu, Dist. KANCHIPURAM, Tamil Nadu -Licence No.: E/SC/TN/22/164(E10462) granted in Form LE-3 of Explosives Rules, 2008 - Renewal regarding

महोदय | Sir,

आपका उपर्युक्त विषय पर पत्र संख्या X दिनांक 25/01/2023 का संदर्भ ग्रहण करें। विस्फोटक नियम, 2008 के अंतर्गत प्ररूप LE-3 में जारी अनुज्ञप्ति दिनांक

31/3/2028

तक नवीनीकृत कर इस पत्र के साथ भेजी जा रही है।

Reference to your letter No.: X dated: 25/01/2023, the subject licence duly renewed upto

31/3/2028

and issued in Form LE-3 of Explosives Rules, 2008 is forwarded herewith.

अनुज्ञप्ति के आगामी नवीकरण हेतु कृपया निम्नलिखित दस्तावेज दिनांक

31/03/ 2028

से पहले

इस कार्यालय

को भेजे जाएं.

For further renewal of licence, please submit the following documents so as to reach

this office

on or before

31/3/2028

**TOPOGRAPHICAL VIEW OF NELVAIPALAYAM ROGH STONE AND
GRAVEL QUARRY LEASE APPLIED AREA**




Name of the Applicant : **K. Sundramoorthy,**
S/o. Kanniyappan,
Address : No.1/31, Lingamedu Street, Manamai Village,
Thirukazhukkundram Taluk,
Chengalpattu District,
Tamil Nadu State – 603 102.

Location:

S.F.Nos. : 75/6, 75/7, 75/8, 75/9, 85/1, 85/2, 88/1, 88/2A and 88/4A
Extent : 2.35.98Ha
Village : Nelvaipalayam
Taluk : Cheyyur
District : Chengalpattu

Signature of the applicant


(K. Sundramoorthy)


செ. 94.93.2வி.கமலா
(Village Administrative Officer)
தென்சென்னை மாவட்டம்,
Attestation



DR.JAYANTHLM, 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.7052/1(a)/EC.No:4346/2020 dated: 10.09.2020

To

Thiru.S. Balaji
S/o. Sundharamoorthi
Manamai Village and Post
Kalpakkam
Thirukalukundram Taluk
Kanchipuram District - 603 102.

Sir/Madam,

Sub: SEIAA-TN – Rough Stone and Gravel Quarry over an extent of 1.62.0 Ha in S.F.Nos. 264/1A (part) in Akkinampattu Village, Cheyyur Taluk, Kancheepuram District, Tamil Nadu by Thiru.S. Balaji - issue of Environmental Clearance – Reg.

- Ref:**
1. Online Proposal No. SLA/TN/MIN/39657/2019, Dated: 20.07.2019.
 2. Application for Environmental Clearance dated: 21.08.2019.
 1. Minutes of the 147th SEAC meeting held on 06.03.2020.
 2. Minutes of the 376th SEIAA meeting held on 19.05.2020.
 3. Minutes of the 164th SEAC meeting held on 20.07.2020.
 3. Minutes of the 393rd SEIAA meeting held on 09.09.2020

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.



Jaym
MEMBER SECRETARY
SEIAA-TN

1	Name of Project Proponent and address	Thiru.S. Balaji S/o. Sundharamoorthi manamai Village and Post Kalpakkam Thirukalukundram Taluk Kanchipuram District - 603 102
2	Location of the Proposed Activity	
	Survey Number	264/1A (part)
	Latitude and Longitude	12°25'54.84"N to 12°25'58.60"N 80°02'50.76"E to 80°02'56.77"E
	Village	Akkinampattu
	Taluk	Cheyyur
	District	Kancheepuram
3	Proposed Activity	
	i. Minor mineral	Rough Stone and Gravel
	ii. Mining Lease Area	1.62.0 Ha
	iii. Approved quantity	3,31,500cu.m of Rough stone & 3400cu.m of Gravel
	iv. Depth of Mining	42m (12m above ground level + 30m below ground level)
	v. Type of mining	Opencast Mechanized Mining
	vi. Category(B1/B2)	B2
	vii. Precise area communication approved by the District Collector Kancheepuram District with date	Rc.No.227/Q3/2018, Dated: 27.05.2019.
	viii. Mining plan approval by Assistant Director of Geology and Mining, with date	Rc.No.227/Q2/2018, Dt: 04.07.2019.
	ix. Mining period	5 Years



4	Whether Project area attracts any General conditions specified in the EIA notification, 2006 as amended:-	Not attracted. Affidavit furnished.
5	Man Power requirement per day:	33 Employees
6	Utilities	
	i. Source of Water :	Water Vendors
	ii. Quantity of Water Requirement in KLD:	4 KLD
	a. Domestic & Drinking purpose	1 KLD
	b. Green Belt & Dust Suppression	3.0 KLD
	iii. Power Requirement:	
	a. Domestic Purpose	TNEB
	b. Industrial purpose	272400 Liters of HSD
7	Cost	
	i. Project Cost	Rs. 76.92 Lakhs
	ii. EMP Cost	Rs. 3.80 Lakhs
8	Validity: This Environmental Clearance is granted for the production of 3,31,500cu.m of Rough stone & 3400cu.m of Gravel for the period of 5 Years from the date of execution of the mining lease.	

Affidavit

The Proponent has furnished affidavit in Hundred Rupees stamp paper attested by the Notary stating that

I, Thiru.S. Balaji, S/o. Sundharamoorthi, manamai Village and Post, Kalpakkam, Thirukalukundram Taluk, Kanchipuram District - 603 102 solemnly declare and sincerely affirm that:

I have applied for getting Environmental Clearance to SEIAA, Tamil Nadu for mining lease for mining of - Rough Stone and Gravel Quarry over an extent of 1.62.0 Ha in S.F.Nos. 264/1A (part) in Akkinampattu Village, Cheyyur Taluk, Kancheepuram District, Tamil Nadu.



Jagan
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SEIAA-TN

1. I swear to state and confirm that within 10km area of the mine site, I have applied for Environmental Clearance, none of the following is situated.
 - a. Protected areas notified under the Wild Life (Protection) Act, 1972.
 - b. Critically polluted areas as notified by the Central Pollution Control Board constituted under Water (Prevention and Control of Pollution) Act, 1974.
 - c. Eco – Sensitive areas as notified.
 - d. Interstate boundaries within 10km 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 Plantation along the either sides of Melputhur Village roads	80.72	1.615
Total cost Allocation	80.72	1.615

3. The total area of following quarries located within 500m radius from the periphery of my quarry site details as shown below

Proposed Quarry

Sl.No.	Name and Address of the Applicant	Taluk & Village	S.F. No	Extent (in Hects)	Classification of land
1	S. Balaji	Akkinampattu Village, Cheyyur Taluk	264/1A (Part)	1.62.0	Patta land

Expired quarry

Sl.No	Name and Address of the Applicant	S.F. No	Taluk & Village	Extent (in Hects)	Proceedings Letter/Lease Period
1.	S. Manonmani, Manamail Village, Kalpakkam 603 102, Thirukalukundram, Kancheepuram 603 102	266/3	Akkinampattu	1.21.00	RC. No. 133/Q3/2014, Dt: 16.03.2015, 16.03.2015 to 15.06.2020



[Signature]
MEMBER SECRETARY
SEIAA-TN

Abandoned Quarry

Sl.No	Name and Address of the Applicant	S.F. No, Taluk & Village	Extent (in Hects)	Classification of land	Lease period	Remarks
NIL						

4. There will not be hindrance or disturbance to the people living due to quarrying activities and transportation.
5. There is no approved habitation within 300m radius from the periphery of my quarry.
6. I swear that afforestation will be carried out during the course of quarrying operation and maintained.
7. The required insurance will be taken in the name of the labourers working in my quarry site.
8. The existing road from the main road to quarry is in good condition 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 equipments will be provided to all the labourers working in my quarry.
11. No permanent structures, temples, etc., are located within 500m radius from the periphery of my quarry.

I ensure to do all the social and Environment commitment as mentioned in the Mining Plan to the best of my knowledge.

Details of Quarries located within 500M radius from the proposed quarry:

The Project Proponent has submitted a copy of the letter obtained from the Assistant Director of Geology & Mining, Kancheepuram District in his RC.No. 227/Q3/2018, dt: 03.12.2019 has stated that the details of other quarries within a radius 500m from the boundary of the proposed quarry site as follows:

Existing quarries

Sl.No.	Name of the Owner	Taluk & Village	S.F. No	Extent (in Hects)	Lease Period	Remarks
1	S. Manonmani, Manamail Village, Kalpakkam Kancheepuram 603 102,	Akkinampattu Village, Cheyyur Taluk	266/3	1.21.00	16.03.2015 to 15.03.2020	Operation



Proposed area:

Sl.No	Name of the Owner	S.F. No	Taluk & Village	Extent (in Hects)	Lease period	Remarks
1.	Thiru.S. Balaji S/o. Sundharamoorthi Manamai Village and Post Kalpakkam Thirukalukundram Taluk Kanchipuram District	264/1 A (P)	Akkinampattu	1.62.00	---	Under processing (present Application)
Total				1.62.00		

Abandoned Quarry

Sl.No	Name of the Owner	S.F. No	Taluk & Village	Extent (in Hects)	Lease period	Remarks
1.	S. Manonmani, Manamail Village, Kalpakkam 603 102, Thirukalukundram, Kancheepuram 603 102	264/1 A	Akkinampattu	2.83.50	17.10.2009 To 16.10.2014	Lease Expired
Total				2.83.50		
Grand Total				5.66.50		

Appraisal by SEAC:-

The proposal was placed in the 147th SEAC Meeting held on 06.03.2020 & 164th SEAC Meeting held on 20.07.2020. Based on the presentation made by the proponent and the documents furnished, the committee decided to recommend the proposal to SEIAA for issue of Environmental Clearance, subject to the following conditions:

1. Ground water quality monitoring should be conducted once in every Six months and the report should be submitted to TNPCB.
2. The depth of mining should be restricted to 42 m.



Jaya
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SEIAA-TN

3. The proponent shall provide the fencing around the boundary of the proposed area and shall furnish the photocopies of the same to TNPCB before commencement of the quarry.
4. After mining is completed proper levelling should be done by the Project proponent & Environmental Management Plan furnished by the Proponent should be strictly followed.
5. 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.
6. 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 a condition which is fit for growth of fodder, flora, fauna etc.
7. Proper barrier for reducing the Noise level shall be established like providing Green Belt along the boundary of the quarrying site, etc. and to prevent dust pollution, suitable working methodology needs to be adopted taking wind direction into consideration.
8. The operation of the quarry should no way impact the agriculture activities & water bodies near the project site.
9. Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.
10. The Project Proponent shall comply with the mining and other relevant rules and regulations where ever applicable.
11. The 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.
12. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.
13. 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 Member Secretary Chairman (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.



Jaya
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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).

14. To ensure safety measures along the boundary of the quarry site, security guards are to be posted during the entire period of mining operation.
15. The mine closure plan submitted by the project proponent shall be strictly followed after the lapse of the mine.
16. The CER fund of 2% from the total project cost shall be spent as per Office Memorandum of MoEF& CC dated 01.05.2018 before obtaining the CTO from TNPCB.
17. **Depth of Mining is restricted upto depth a of 42m (12m above ground level + 30m below ground level) with Rough Stone quantity of 3,31,500Cu.m of and 3400 Cu.m of gravel for five years with individual bench height of 5 m as per the approved mining plan.**

Discussion by SEIAA and the Remarks:-

The proposal was placed before the SEIAA in its 393rd Meeting held on 09.09.2020. After detailed discussion the Authority decided to grant Environmental Clearance subject to the conditions as recommended by the SEAC in its 147th & 164th meetings and subject to General conditions and General conditions.

1. All the condition imposed by the Assistant Director of Geology and Mining vide Rc.No.227/Q2/2018, Dated 04.07.2019 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

<ol style="list-style-type: none"> 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. The mine closure plan submitted by the project proponent shall be strictly followed after the lapse of the mine.
4. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
5. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
6. A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.
7. 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.
8. The proponent shall ensure that First Aid Box is available at site.
9. The excavation activity shall not alter the natural drainage pattern of the area.
10. The excavated pit shall be restored by the project proponent for useful purposes.
11. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.



Jaya
MEMBER SECRETARY
SEIAA-TN

12. The quarrying operation shall be restricted between 7AM and 5 PM.
13. 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.
14. A minimum distance of 50mts. from any civil structure shall be kept from the periphery of any excavation area.
15. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
16. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
17. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
18. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
19. 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.
20. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF& CC, Gol on 16.11.2009.
21. 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
22. 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.
23. 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.
 24. 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.
 25. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
 26. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
 27. 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.
 28. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous& other wastes (Management, and Trans Boundary Movement) Rules, 2016 and its amendments thereof to the recyclers authorized by TNPCB.
 29. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
 30. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
 31. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of



- sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
32. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
33. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
34. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
35. 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.
36. 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.
37. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
38. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
39. Bunds to be provided at the boundary of the project site.
40. 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.



41. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
42. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
43. The Project Proponent shall provide solar lighting system to the nearby villages.
44. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
45. Safety equipments to be provided to all the employees.
46. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
47. 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.
48. 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.
49. 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.
50. 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.
51. 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.
52. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
53. 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.
54. 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.



55. 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.
56. All the commitment made by the project proponent in the proposal shall be strictly followed.
57. 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.
58. 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.
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.



Jay
MEMBER SECRETARY
SEIAA-TN

7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities



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SEIAA-TN

- would be considering the project on merits and be taking decisions independently of the Environmental Clearance
18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
 19. The SEIAA, Tamil Nadu may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the Environmental Clearance.
 20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
 21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006, Wildlife Protection Act, 1972, Forest Conservation Act, 1980, Biodiversity Conservation Act, 2016, the Biological Diversity Act, 2002 and Biological diversity Rules, 2004 and Rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.
 22. Any other conditions stipulated by other Statutory/Government authorities shall be complied.
 23. Any appeal against this Environmental Clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.




MEMBER SECRETARY
SEIAA-TN

24. The Environmental Clearance is issued based on the documents furnished by the project proponent. In case any documents found to be incorrect/not in order at a later date the Environmental Clearance issued to the project will be deemed to be revoked/ cancelled.


MEMBER SECRETARY
SEIAA-TN

Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The 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, Kancheepuram District.
8. The Commissioner of Geology and Mines, Guindy, Chennai-32
9. EIA Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.



184 A

From
R. Perumal Raja, M.Sc.,
Assistant Director,
Geology and Mining,
Kancheepuram.

To
Tvl. Uma Blue Metals,
Vettaikarakuppam,
Kodur Post, Cheyyur Taluk,
Kancheepuram District.

Rc. No.60/Q3/2018 dated:04.09.2018

Sir,

Sub: Mines and Minerals - Kancheepuram District - Minor Mineral - Rough Stone / Gravel Patta lands - S.No. 270/1 (1.16.00), 270/2 (0.59.00), 272/4 (0.57.00), 272/5A (0.88.00) Over an Extent of 3.20.00 Hectares of Akkinambattu Village, Cheyyur Taluk - Tvl. Uma Blue Metals - Submission of Mining Plan for approval - Approved - regarding.

- Ref: 1. Application for Rough Stone/Gravel quarry permission preferred by Tvl. Uma Blue Metals, Vettaikarakuppam, Kodur Post, Cheyyur Taluk, Kancheepuram District dated 31.01.2018.
2. G.O. Ms. No. 79 / Industries (MMC 1) Department dated 06.04.2015.
3. The District Collector, Kanchipuram, precise area communication letter No.60/Q3/2018, dated 23.08.2018.
4. Mining Plan submitted by Tvl. Uma Blue Metals, Vettaikarakuppam, Kodur Post, Cheyyur Taluk, Kancheepuram District in letter dated.27.08.2018.

In the reference 4th cited above, Tvl. Uma Blue Metals, Vettaikarakuppam, Kodur Post, Cheyyur Taluk, Kancheepuram District have submitted three copies of Mining Plan prepared by the RQP, for the Rough Stone and Gravel quarry in S.F.Nos.270/1 (1.16.00), 270/2 (0.59.00), 272/4 (0.57.00), 272/5A (0.88.00) over a total extent of 3.20.00 Hectares in Akkinambattu Village, Cheyyur Taluk, Kancheepuram District and requested to approve the Mining plan.

In the reference 3rd cited, Precise Area has been Communicated for the Rough Stone and Gravel Quarry in S.F.Nos.270/1 (1.16.00), 270/2 (0.59.00), 272/4 (0.57.00), 272/5A (0.88.00) over a total extent of 3.20.00 Hectares in Akkinambattu Village, Cheyyur Taluk, Kancheepuram District.

Now in the reference 4th cited the lessee has submitted a Mining Plan prepared by RQP with a request to approve the same for production of Rough Stone and Gravel for a total quantum of 7,63,760 M³ & 37,022 M³ respectively in S.F.Nos.270/1 (1.16.00), 270/2 (0.59.00), 272/4 (0.57.00), 272/5A (0.88.00) over a total extent of 3.20.00 Hectares in Akkinambattu Village, Cheyyur Taluk, Kancheepuram District.

The Mining Plan has been verified in detail and found that it has been prepared in accordance with the guidelines / instructions issued by the Commissioner of Geology and Mining vide letter in Rc.No.3868/LC/2012 dated 19.11.2012.

Therefore in exercise of the powers conferred under Rule 41(2) of Tamil Nadu Minor Mineral Concession Rules, 1959, read with G.O. (Ms). No.79 / Industries (MMC 1) Department dated 06.04.2015, the Mining Plan is hereby approved subject to the following conditions.

Part-I

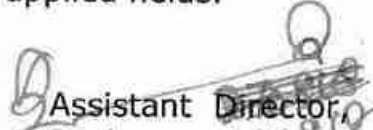
- (i) The mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
- (ii) This approval of the mining plan does not in any way convey the approval of the Government in terms or 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, Explosives Act, 1884 (Central Act IV of 1884) Minor Mineral Concession and Development Rules, 2010 and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.

- (iii) The mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- (iv) The validity of the mining plan is co-terminus with the lease period.
- (v) Quarrying shall be done in accordance with the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
- (vi) If anything is found to be concealed as required by the Mines Act in the contents of the Mining Plan and the proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.
- (vii) If any black granite deposit found in the applied area during quarry work the lease granted will be cancelled as per Rules.

Part-II

- (a) There are no minor mineral quarries exceeding an extent of 25.00.0 hectares in total within a radial distance of 500 meters from the periphery of the applied fields.

Encl: One copy of Approved Mining Plan


Assistant Director,
Geology and Mining,
Kanchipuram.

Copy to:

1. Thiru. S. Lakshmikanthan M.Sc.,
Recognised Qualified Person,
Mohana Plaza,
IInd Floor, No.7, Junction Main Road,
Salem- 636 005.
2. The Commissioner of Geology and Mining,
Chennai-32. (with AMP).


04/19/18

c1/dquarry/mplan/65-2018

TEST REPORT

Report No	EHS360/TR/2022-23/001	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/001
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 1 – Core Zone-12°25'59.33"N 80° 2'54.15"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
01.03.2024	7:00-7:00	47.7	21.3	5.9	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.03.2024	7:15-7:15	46.9	21.7	6.3	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.03.2024	7:00-7:00	44.6	22.9	5.1	24.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.03.2024	7:15-7:15	45.7	21.4	4.9	25.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.03.2024	7:00-7:00	44.9	22.7	5.5	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.03.2024	7:15-7:15	44.9	21.5	5.9	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.03.2024	7:00-7:00	45.7	22.4	6.6	24.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.03.2024	7:15-7:15	45.7	21.8	5.7	25.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.03.2024	7:00-7:00	46.9	20.6	6.5	24.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.03.2024	7:15-7:15	46.4	20.5	7.4	24.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.04.2024	7:00-7:00	44.9	21.8	7.3	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.04.2024	7:15-7:15	44.6	22.7	5.4	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.04.2024	7:00-7:00	45.8	22.7	5.1	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.04.2024	7:15-7:15	46.3	21.1	6.6	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.04.2024	7:00-7:00	46.6	21.8	6.4	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.04.2024	7:15-7:15	46.5	21.6	6.8	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.04.2024	7:00-7:00	45.2	20.7	5.4	24.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.04.2024	7:15-7:15	45.7	21.6	5.1	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.05.2024	7:00-7:00	46.9	21.8	5.7	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
04.05.2024	7:15-7:15	45.3	20.2	5.4	25.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.05.2024	7:00-7:00	45.5	22.3	4.7	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.05.2024	7:15-7:15	44.7	20.8	6.1	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.05.2024	7:00-7:00	45.3	21.4	5.8	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.05.2024	7:15-7:15	44.9	23.6	4.6	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.05.2024	7:00-7:00	45.1	22.8	5.2	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.05.2024	7:15-7:15	45.2	21.3	6.1	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<100	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/001	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District..		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/001
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 1 – Core Zone-12°25'59.33"N 80° 2'54.15"E		

Date	Period. hrs	SPM (µg/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)
01.03.2024	7:00-7:00	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.03.2024	7:15-7:15	65.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.03.2024	7:00-7:00	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.03.2024	7:15-7:15	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.03.2024	7:00-7:00	63.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.03.2024	7:15-7:15	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.03.2024	7:00-7:00	67.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.03.2024	7:15-7:15	65.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.03.2024	7:00-7:00	64.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.03.2024	7:15-7:15	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.04.2024	7:00-7:00	66.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.04.2024	7:15-7:15	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.04.2024	7:00-7:00	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.04.2024	7:15-7:15	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.04.2024	7:00-7:00	66.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.04.2024	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.04.2024	7:00-7:00	65.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.04.2024	7:15-7:15	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.05.2024	7:00-7:00	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
04.05.2024	7:15-7:15	63.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.05.2024	7:00-7:00	66.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.05.2024	7:15-7:15	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.05.2024	7:00-7:00	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.05.2024	7:15-7:15	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.05.2024	7:00-7:00	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.05.2024	7:15-7:15	63.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

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Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/002	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/002
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 2 – Near Project Area- 12°26'1.95"N 80° 2'58.58"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
01.03.2024	7:00-7:00	42.7	20.7	5.6	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.03.2024	7:15-7:15	44.3	21.9	5.1	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.03.2024	7:00-7:00	43.4	20.5	5.2	26.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.03.2024	7:15-7:15	42.7	20.3	4.7	26.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.03.2024	7:00-7:00	41.9	20.5	4.1	22.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.03.2024	7:15-7:15	43.6	20.3	4.3	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.03.2024	7:00-7:00	42.5	21.9	4.7	26.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.03.2024	7:15-7:15	41.8	21.8	5.1	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.03.2024	7:00-7:00	43.3	21.5	5.6	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.03.2024	7:15-7:15	42.7	21.1	5.2	24.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.04.2024	7:00-7:00	42.5	20.6	5.8	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.04.2024	7:15-7:15	43.5	21.7	5.5	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.04.2024	7:00-7:00	43.6	21.3	4.2	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.04.2024	7:15-7:15	41.8	21.8	6.1	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.04.2024	7:00-7:00	44.6	21.5	6.6	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.04.2024	7:15-7:15	42.7	21.6	4.6	25.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.04.2024	7:00-7:00	41.3	21.7	5.1	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.04.2024	7:15-7:15	42.8	20.9	4.7	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.05.2024	7:00-7:00	44.7	20.5	4.6	26.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
04.05.2024	7:15-7:15	42.3	20.7	5.4	26.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.05.2024	7:00-7:00	43.5	20.2	5.1	26.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.05.2024	7:15-7:15	41.9	21.6	5.7	27.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.05.2024	7:00-7:00	42.5	21.5	5.8	27.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.05.2024	7:15-7:15	44.3	20.8	5.1	26.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.05.2024	7:00-7:00	43.8	20.5	4.6	25.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.05.2024	7:15-7:15	43.3	20.0	4.7	25.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<100	<60	<80	<80	<100	<400

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

Page 1 of 1

Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/002	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/002
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 2 – Near Project Area- 12°26'1.95"N 80° 2'58.58"E		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
01.03.2024	7:00-7:00	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.03.2024	7:15-7:15	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.03.2024	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.03.2024	7:15-7:15	67.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.03.2024	7:00-7:00	63.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.03.2024	7:15-7:15	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.03.2024	7:00-7:00	65.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.03.2024	7:15-7:15	66.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.03.2024	7:00-7:00	62.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.03.2024	7:15-7:15	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.04.2024	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.04.2024	7:15-7:15	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.04.2024	7:00-7:00	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.04.2024	7:15-7:15	66.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.04.2024	7:00-7:00	64.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.04.2024	7:15-7:15	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.04.2024	7:00-7:00	65.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.04.2024	7:15-7:15	63.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.05.2024	7:00-7:00	68.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
04.05.2024	7:15-7:15	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.05.2024	7:00-7:00	68.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.05.2024	7:15-7:15	67.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.05.2024	7:00-7:00	67.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.05.2024	7:15-7:15	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.05.2024	7:00-7:00	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.05.2024	7:15-7:15	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

Page 1 of 1

Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/003	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/003
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ3 – Near Existing Quarry - 12°25'54.07"N 80° 2'50.29"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
01.03.2024	7:00-7:00	45.4	22.3	7.0	25.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.03.2024	7:15-7:15	46.7	21.2	7.7	26.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.03.2024	7:00-7:00	45.3	20.5	7.2	26.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.03.2024	7:15-7:15	45.8	22.8	7.6	26.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.03.2024	7:00-7:00	46.9	22.5	6.8	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.03.2024	7:15-7:15	46.7	21.9	6.3	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.03.2024	7:00-7:00	47.5	23.5	7.6	26.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.03.2024	7:15-7:15	47.6	22.4	6.2	26.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.03.2024	7:00-7:00	47.7	20.6	7.1	27.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.03.2024	7:15-7:15	45.5	20.5	6.4	26.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.04.2024	7:00-7:00	45.6	21.7	7.5	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.04.2024	7:15-7:15	46.5	22.3	7.1	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.04.2024	7:00-7:00	46.2	21.8	6.3	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.04.2024	7:15-7:15	48.6	20.9	6.4	26.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.04.2024	7:00-7:00	48.3	20.4	4.5	26.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.04.2024	7:15-7:15	47.7	20.3	5.9	25.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.04.2024	7:00-7:00	47.9	20.7	5.6	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.04.2024	7:15-7:15	45.8	21.3	6.4	26.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.05.2024	7:00-7:00	45.2	22.6	5.2	28.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
04.05.2024	7:15-7:15	46.6	24.7	5.9	26.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.05.2024	7:00-7:00	46.7	23.3	7.3	26.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.05.2024	7:15-7:15	45.2	22.9	7.1	26.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.05.2024	7:00-7:00	44.5	20.7	7.8	27.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.05.2024	7:15-7:15	44.8	22.4	6.2	26.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.05.2024	7:00-7:00	43.6	21.3	7.3	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.05.2024	7:15-7:15	44.7	21.7	7.2	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<100	<60	<80	<80	<100	<400

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

Page 1 of 1

Verified by



Authorised Signatory

AS7

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/003	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/003
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ3 – Near Existing Quarry - 12°25'54.07"N 80° 2'50.29"E		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
01.03.2024	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.03.2024	7:15-7:15	66.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.03.2024	7:00-7:00	67.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.03.2024	7:15-7:15	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.03.2024	7:00-7:00	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.03.2024	7:15-7:15	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.03.2024	7:00-7:00	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.03.2024	7:15-7:15	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.03.2024	7:00-7:00	67.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.03.2024	7:15-7:15	67.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.04.2024	7:00-7:00	68.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.04.2024	7:15-7:15	68.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.04.2024	7:00-7:00	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.04.2024	7:15-7:15	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.04.2024	7:00-7:00	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.04.2024	7:15-7:15	69.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.04.2024	7:00-7:00	69.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.04.2024	7:15-7:15	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.05.2024	7:00-7:00	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
04.05.2024	7:15-7:15	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.05.2024	7:00-7:00	68.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.05.2024	7:15-7:15	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.05.2024	7:00-7:00	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.05.2024	7:15-7:15	66.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.05.2024	7:00-7:00	68.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.05.2024	7:15-7:15	68.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

[Signature]

Authorised Signatory

[Signature]

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/004	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/004
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ4 – Nelvaipalayam- 12°26'51.17"N 80° 3'1.18"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
01.03.2024	7:00-7:00	46.3	23.2	7.0	26.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.03.2024	7:15-7:15	44.9	24.4	6.3	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.03.2024	7:00-7:00	45.2	22.8	7.6	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.03.2024	7:15-7:15	45.5	23.1	7.5	26.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.03.2024	7:00-7:00	46.6	23.5	7.4	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.03.2024	7:15-7:15	47.3	21.6	6.3	25.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.03.2024	7:00-7:00	47.8	21.5	4.5	26.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.03.2024	7:15-7:15	45.5	20.7	6.5	26.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.03.2024	7:00-7:00	46.9	21.5	6.6	27.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.03.2024	7:15-7:15	45.3	21.2	7.5	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.04.2024	7:00-7:00	46.3	21.7	4.5	26.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.04.2024	7:15-7:15	46.6	22.7	4.3	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.04.2024	7:00-7:00	45.5	22.9	5.4	25.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.04.2024	7:15-7:15	45.7	23.6	6.6	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.04.2024	7:00-7:00	46.8	22.8	6.3	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.04.2024	7:15-7:15	46.5	23.4	6.4	26.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.04.2024	7:00-7:00	47.9	22.7	4.5	25.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.04.2024	7:15-7:15	45.7	21.9	5.7	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.05.2024	7:00-7:00	45.5	23.4	6.6	26.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
04.05.2024	7:15-7:15	46.6	21.7	6.3	25.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.05.2024	7:00-7:00	46.5	20.9	6.7	28.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.05.2024	7:15-7:15	45.4	21.6	5.4	26.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.05.2024	7:00-7:00	44.7	20.4	6.8	25.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.05.2024	7:15-7:15	46.3	21.5	6.4	26.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.05.2024	7:00-7:00	45.1	20.3	6.4	25.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.05.2024	7:15-7:15	46.5	20.1	7.1	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<100	<60	<80	<80	<100	<400

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/004	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/004
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ4 – Nelvaipalayam- 12°26'51.17"N 80° 3'1.18"E		

Date	Period. hrs	SPM (µg/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)
01.03.2024	7:00-7:00	69.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.03.2024	7:15-7:15	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.03.2024	7:00-7:00	69.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.03.2024	7:15-7:15	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.03.2024	7:00-7:00	69.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.03.2024	7:15-7:15	69.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.03.2024	7:00-7:00	68.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.03.2024	7:15-7:15	67.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.03.2024	7:00-7:00	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.03.2024	7:15-7:15	68.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.04.2024	7:00-7:00	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.04.2024	7:15-7:15	67.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.04.2024	7:00-7:00	68.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.04.2024	7:15-7:15	67.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.04.2024	7:00-7:00	69.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.04.2024	7:15-7:15	69.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.04.2024	7:00-7:00	68.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.04.2024	7:15-7:15	66.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.05.2024	7:00-7:00	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
04.05.2024	7:15-7:15	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.05.2024	7:00-7:00	67.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.05.2024	7:15-7:15	68.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.05.2024	7:00-7:00	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.05.2024	7:15-7:15	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.05.2024	7:00-7:00	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.05.2024	7:15-7:15	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/005	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/005
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ5 – Kodur- 12°24'46.75"N 80° 4'38.96"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
01.03.2024	7:00-7:00	39.9	19.9	6.9	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.03.2024	7:15-7:15	39.7	19.6	7.3	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.03.2024	7:00-7:00	40.2	19.7	5.9	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.03.2024	7:15-7:15	40.5	19.4	6.8	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.03.2024	7:00-7:00	40.6	19.6	7.7	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.03.2024	7:15-7:15	40.7	19.2	7.2	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.03.2024	7:00-7:00	40.9	19.4	5.9	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.03.2024	7:15-7:15	39.9	19.3	6.2	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.03.2024	7:00-7:00	39.8	18.6	5.4	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.03.2024	7:15-7:15	39.8	18.9	6.8	24.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.04.2024	7:00-7:00	39.2	20.3	7.9	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.04.2024	7:15-7:15	39.2	20.5	6.8	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.04.2024	7:00-7:00	39.4	20.4	7.9	23.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.04.2024	7:15-7:15	38.5	20.9	6.9	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.04.2024	7:00-7:00	38.6	21.4	5.3	22.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.04.2024	7:15-7:15	38.3	18.9	7.1	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.04.2024	7:00-7:00	41.1	19.5	6.5	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.04.2024	7:15-7:15	41.3	19.4	5.4	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.05.2024	7:00-7:00	41.5	19.3	6.3	23.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
04.05.2024	7:15-7:15	40.4	20.1	6.9	23.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.05.2024	7:00-7:00	40.7	20.5	5.9	22.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.05.2024	7:15-7:15	40.3	20.3	5.3	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.05.2024	7:00-7:00	40.7	20.1	7.9	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.05.2024	7:15-7:15	40.2	20.4	4.6	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.05.2024	7:00-7:00	41.5	20.5	4.5	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.05.2024	7:15-7:15	41.1	21.4	5.8	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<100	<60	<805	<80	<100	<400

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/005	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/005
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ5 – Kodur- 12°24'46.75"N 80° 4'38.96"E		

Date	Period. hrs	SPM (µg/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)
01.03.2024	7:00-7:00	59.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.03.2024	7:15-7:15	59.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.03.2024	7:00-7:00	59.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.03.2024	7:15-7:15	59.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.03.2024	7:00-7:00	58.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.03.2024	7:15-7:15	58.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.03.2024	7:00-7:00	57.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.03.2024	7:15-7:15	58.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.03.2024	7:00-7:00	58.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.03.2024	7:15-7:15	59.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.04.2024	7:00-7:00	59.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.04.2024	7:15-7:15	59.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.04.2024	7:00-7:00	59.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.04.2024	7:15-7:15	58.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.04.2024	7:00-7:00	57.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.04.2024	7:15-7:15	57.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.04.2024	7:00-7:00	57.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.04.2024	7:15-7:15	57.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.05.2024	7:00-7:00	58.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
04.05.2024	7:15-7:15	58.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.05.2024	7:00-7:00	58.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.05.2024	7:15-7:15	58.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.05.2024	7:00-7:00	58.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.05.2024	7:15-7:15	59.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.05.2024	7:00-7:00	57.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.05.2024	7:15-7:15	57.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

[Signature]

Authorised Signatory

[Signature]

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/006	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/006
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 6 – Lathur-12°28'40.82"N 80° 0'44.26"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
01.03.2024	7:00-7:00	44.8	22.3	8.7	26.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.03.2024	7:15-7:15	43.2	22.9	6.3	24.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.03.2024	7:00-7:00	42.5	21.7	5.9	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.03.2024	7:15-7:15	43.9	20.4	5.4	25.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.03.2024	7:00-7:00	41.5	20.9	7.8	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.03.2024	7:15-7:15	42.8	21.7	5.9	25.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.03.2024	7:00-7:00	43.3	20.3	5.1	25.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.03.2024	7:15-7:15	44.5	21.9	5.1	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.03.2024	7:00-7:00	42.7	20.4	7.3	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.03.2024	7:15-7:15	43.4	21.9	6.3	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.04.2024	7:00-7:00	42.9	20.7	5.0	26.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.04.2024	7:15-7:15	44.6	21.5	7.9	25.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.04.2024	7:00-7:00	42.6	21.9	6.3	26.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.04.2024	7:15-7:15	44.7	20.7	8.1	25.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.04.2024	7:00-7:00	43.3	21.4	5.9	26.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.04.2024	7:15-7:15	42.5	20.3	6.9	25.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.04.2024	7:00-7:00	41.8	21.8	8.7	26.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.04.2024	7:15-7:15	42.7	20.6	5.3	25.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.05.2024	7:00-7:00	42.5	21.8	6.9	25.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
04.05.2024	7:15-7:15	43.6	20.3	5.8	25.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.05.2024	7:00-7:00	42.5	20.9	6.3	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.05.2024	7:15-7:15	44.9	20.4	5.9	26.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.05.2024	7:00-7:00	44.1	20.9	7.4	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.05.2024	7:15-7:15	43.2	21.3	5.2	25.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.05.2024	7:00-7:00	42.6	21.6	7.6	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.05.2024	7:15-7:15	42.8	21.1	7.8	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<100	<60	<80	<80	<100	<400

Note: BDL: Below Detection Limit ; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

Page 1 of 1

Verified by



Authorised Signatory

A 17

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/006	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/006
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 6 – Lathur-12°28'40.82"N 80° 0'44.26"E		

Date	Period. hrs	SPM (µg/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)
01.03.2024	7:00-7:00	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.03.2024	7:15-7:15	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.03.2024	7:00-7:00	65.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.03.2024	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.03.2024	7:00-7:00	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.03.2024	7:15-7:15	64.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.03.2024	7:00-7:00	69.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.03.2024	7:15-7:15	69.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.03.2024	7:00-7:00	69.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.03.2024	7:15-7:15	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.04.2024	7:00-7:00	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.04.2024	7:15-7:15	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.04.2024	7:00-7:00	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.04.2024	7:15-7:15	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.04.2024	7:00-7:00	65.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.04.2024	7:15-7:15	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.04.2024	7:00-7:00	65.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.04.2024	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.05.2024	7:00-7:00	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
04.05.2024	7:15-7:15	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.05.2024	7:00-7:00	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.05.2024	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.05.2024	7:00-7:00	66.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.05.2024	7:15-7:15	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.05.2024	7:00-7:00	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.05.2024	7:15-7:15	65.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

Page 1 of 1

Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/007	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/007
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ7 – Siruvangunam-12°24'24.69"N 80° 1'40.83"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
01.03.2024	7:00-7:00	43.9	22.8	6.7	27.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.03.2024	7:15-7:15	44.3	21.4	5.1	26.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.03.2024	7:00-7:00	44.7	22.3	5.3	26.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.03.2024	7:15-7:15	43.8	21.9	5.7	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.03.2024	7:00-7:00	43.5	20.5	5.8	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.03.2024	7:15-7:15	42.6	21.9	6.2	25.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.03.2024	7:00-7:00	44.2	20.7	6.4	26.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.03.2024	7:15-7:15	42.9	21.5	5.3	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.03.2024	7:00-7:00	43.8	21.4	7.3	26.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.03.2024	7:15-7:15	43.5	20.5	7.6	25.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.04.2024	7:00-7:00	43.6	20.3	4.7	26.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.04.2024	7:15-7:15	44.5	20.7	5.3	27.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.04.2024	7:00-7:00	43.4	21.5	6.4	25.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.04.2024	7:15-7:15	45.7	22.6	6.7	26.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.04.2024	7:00-7:00	45.3	23.4	7.5	25.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.04.2024	7:15-7:15	46.9	21.9	7.3	24.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.04.2024	7:00-7:00	46.7	20.6	6.5	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.04.2024	7:15-7:15	43.2	20.5	6.3	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.05.2024	7:00-7:00	44.9	23.9	5.6	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
04.05.2024	7:15-7:15	43.9	24.9	5.2	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.05.2024	7:00-7:00	44.5	21.5	5.7	26.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.05.2024	7:15-7:15	44.9	23.3	6.3	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.05.2024	7:00-7:00	45.5	21.4	5.9	26.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.05.2024	7:15-7:15	44.3	22.4	4.1	26.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.05.2024	7:00-7:00	43.3	21.3	6.6	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.05.2024	7:15-7:15	45.8	21.6	6.3	25.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<100	<60	<80	<80	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

Page 1 of 1

Verified by




Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/007	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/007
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ7 – Siruvangunam-12°24'24.69"N 80° 1'40.83"E		

Date	Period. hrs	SPM (µg/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)
01.03.2024	7:00-7:00	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.03.2024	7:15-7:15	66.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.03.2024	7:00-7:00	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.03.2024	7:15-7:15	67.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.03.2024	7:00-7:00	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.03.2024	7:15-7:15	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.03.2024	7:00-7:00	65.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.03.2024	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.03.2024	7:00-7:00	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.03.2024	7:15-7:15	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.04.2024	7:00-7:00	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.04.2024	7:15-7:15	66.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.04.2024	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.04.2024	7:15-7:15	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.04.2024	7:00-7:00	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.04.2024	7:15-7:15	67.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.04.2024	7:00-7:00	65.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.04.2024	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.05.2024	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
04.05.2024	7:15-7:15	67.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.05.2024	7:00-7:00	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.05.2024	7:15-7:15	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.05.2024	7:00-7:00	66.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.05.2024	7:15-7:15	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.05.2024	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.05.2024	7:15-7:15	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

[Signature]

Authorised Signatory

[Signature]
Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 008	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 008
Sample Description	Ambient Noise	Sample Collected Date	24.05.2024

Location	N1 – Core Zone- 12°25'59.35"N 80° 2'54.66"E			N2 – Near Project Area- 12°26'1.43"N 80° 2'58.62"E		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	38.9	43.7	41.9	34.4	37.8	36.4
07:00-08:00	40.2	43.9	42.4	35.9	38.5	37.4
08:00-09:00	41.8	44.7	43.5	36.9	39.5	38.4
09:00-10:00	41.1	45.5	43.8	35.4	38.9	37.5
10:00-11:00	42.9	45.9	44.7	36.7	41.3	39.6
11:00-12:00	43.7	44.3	44.0	35.8	42.5	40.3
12:00-13:00	44.1	43.1	43.6	35.1	44.5	42.0
13:00-14:00	41.6	46.9	45.0	35.1	45.5	42.9
14:00-15:00	45.8	46.1	46.0	30.8	41.5	38.8
15:00-16:00	42.2	47.2	45.4	34.5	45.6	42.9
16:00-17:00	42.7	42.3	42.5	33.9	44.3	41.7
17:00-18:00	40.2	42.1	41.3	31.2	45.7	42.8
18:00-19:00	42.2	45.8	44.4	32.6	46.7	43.9
19:00-20:00	41.1	43.2	42.3	38.4	46.6	44.2
20:00-21:00	43.3	45.1	44.3	35.6	45.5	42.9
21:00-22:00	37.1	39.2	38.3	32.6	41.6	39.1
22:00-23:00	34.2	36.1	35.3	35.8	46.3	43.7
23:00-00:00	33.2	35.3	34.4	31.9	38.5	36.3
00:00-01:00	31.2	33.7	32.6	34.2	39.4	37.5
01:00-02:00	34.2	36.2	35.3	32.8	39.8	37.6
02:00-03:00	33.1	35.1	34.2	33.7	38.9	37.0
03:00-04:00	32.4	34.2	33.4	32.8	36.8	35.2
04:00-05:00	34.2	36.9	35.8	33.5	37.1	35.7
05:00-06:00	36.2	38.1	37.3	34.1	36.5	35.5
Result	Day Means		42.9	Day Means		40.8
	Night Means		34.7	Night Means		36.4

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

Verified by




Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report.
3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client.
4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 009	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 009
Sample Description	Ambient Noise	Sample Collected Date	24.05.2024

Location	N3 – Near Existing Quarry- 12°25'53.44"N 80°2'51.03"E			N4 – Nelvaipalayam- 12°26'52.08"N 80°3'1.74"E			
	Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	39.7	46.1	44.0	37.1	40.1	38.9	
07:00-08:00	40.2	46.2	44.2	35.9	43.5	41.2	
08:00-09:00	41.5	47.1	45.1	36.5	43.9	41.6	
09:00-10:00	42.7	47.3	45.6	35.6	40.1	38.4	
10:00-11:00	43.6	45.4	44.6	33.8	46.6	43.8	
11:00-12:00	42.8	46.5	45.0	31.2	38.5	36.2	
12:00-13:00	42.3	44.5	43.5	36.4	41.3	39.5	
13:00-14:00	42.5	44.8	43.8	35.5	40.3	38.5	
14:00-15:00	42.9	45.3	44.3	32.7	42.9	40.3	
15:00-16:00	43.2	45.2	44.3	36.5	43.8	41.5	
16:00-17:00	42.3	44.8	43.7	32.3	40.9	38.5	
17:00-18:00	41.7	44.5	43.3	34.2	43.2	40.7	
18:00-19:00	40.2	42.1	41.3	35.5	44.9	42.4	
19:00-20:00	44.2	46.5	45.5	36.9	40.7	39.2	
20:00-21:00	43.4	45.1	44.3	32.8	36.6	35.1	
21:00-22:00	37.1	39.1	38.2	33.6	38.4	36.6	
22:00-23:00	36.2	38.1	37.3	32.5	38.6	36.5	
23:00-00:00	35.9	37.2	36.6	36.4	37.2	36.8	
00:00-01:00	34.1	36.6	35.5	37.1	35.5	36.4	
01:00-02:00	33.2	35.4	34.4	34.9	36.1	35.5	
02:00-03:00	35.8	37.6	36.8	32.6	35.5	34.3	
03:00-04:00	33.5	35.6	34.7	35.6	36.9	36.3	
04:00-05:00	32.4	36.7	35.1	36.6	38.8	37.8	
05:00-06:00	36.2	38.1	37.3	36.8	37.8	37.3	
Result	Day Means		39.7	Day Means		39.4	
	Night Means		40.2	Night Means		36.4	

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 010	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 010
Sample Description	Ambient Noise	Sample Collected Date	24.05.2024

Location	N5 – Kodur- 12°24'47.43"N 80° 4'38.91"E			N6 – Lathur- 12°28'40.73"N 80° 0'45.12"E		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	32.9	35.5	34.4	31.5	38.1	35.9
07:00-08:00	31.3	39.7	37.3	32.6	40.7	38.3
08:00-09:00	32.6	41.6	39.1	33.9	41.4	39.1
09:00-10:00	33.7	42.8	40.3	31.4	39.5	37.1
10:00-11:00	34.6	44.6	42.0	32.5	40.2	37.9
11:00-12:00	36.2	45.8	43.2	33.8	41.4	39.1
12:00-13:00	38.2	46.2	43.8	35.6	43.6	41.2
13:00-14:00	36.4	45.1	42.6	31.8	38.4	36.2
14:00-15:00	36.9	43.4	41.3	33.9	41.7	39.4
15:00-16:00	34.6	42.9	40.5	32.5	40.9	38.5
16:00-17:00	32.7	40.7	38.3	34.8	43.6	41.1
17:00-18:00	36.9	43.2	41.1	32.6	40.4	38.1
18:00-19:00	32.1	40.6	38.2	35.1	43.1	40.7
19:00-20:00	34.9	43.2	40.8	36.1	40.2	38.6
20:00-21:00	32.6	40.7	38.3	34.2	43.6	41.1
21:00-22:00	33.7	41.3	39.0	36.5	47.1	44.5
22:00-23:00	34.3	36.4	35.5	33.8	41.2	38.9
23:00-00:00	32.6	42.8	40.2	33.9	42.1	39.7
00:00-01:00	35.8	40.2	38.5	31.5	39.4	37.0
01:00-02:00	33.6	38.8	36.9	32.9	40.2	37.9
02:00-03:00	31.2	37.1	35.1	33.4	41.7	39.3
03:00-04:00	32.4	35.7	34.4	31.7	38.5	36.3
04:00-05:00	31.6	39.5	37.1	32.6	40.8	38.4
05:00-06:00	33.9	36.6	35.5	31.3	38.6	36.3
Result	Day Means		39.7	Day Means		39.2
	Night Means		36.8	Night Means		37.9

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

*****End of Report*****

Page 1 of 1

Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 011	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 011
Sample Description	Ambient Noise	Sample Collected Date	24.05.2024

Location	N7 – Siruvangunam- 12°24'24.85"N 80° 1'41.66"E			N8 – Nerkunapattu- 12°27'22.44"N 80° 5'29.77"E		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	35.6	40.1	38.4	33.9	40.5	38.3
07:00-08:00	34.2	38.2	36.6	36.1	43.6	41.3
08:00-09:00	33.1	38.8	36.8	33.2	44.9	42.2
09:00-10:00	35.8	40.3	38.6	34.7	43.2	40.8
10:00-11:00	34.6	42.3	40.0	31.6	40.9	38.4
11:00-12:00	32.6	38.2	36.2	32.5	41.2	38.7
12:00-13:00	33.8	35.2	34.6	36.2	43.2	41.0
13:00-14:00	36.1	40.3	38.7	35.9	44.8	42.3
14:00-15:00	34.6	44.3	41.7	31.9	39.1	36.8
15:00-16:00	36.4	45.1	42.6	33.6	41.4	39.1
16:00-17:00	31.5	41.2	38.6	31.5	39.2	36.9
17:00-18:00	32.6	38.2	36.2	32.8	40.7	38.3
18:00-19:00	31.8	36.5	34.8	32.6	40.3	38.0
19:00-20:00	32.4	35.4	34.2	32.7	41.7	39.2
20:00-21:00	34.2	38.6	36.9	33.9	42.5	40.1
21:00-22:00	33.5	35.2	34.4	34.2	43.1	40.6
22:00-23:00	32.6	34.6	33.7	36.1	45.9	43.3
23:00-00:00	31.2	33.2	32.3	33.8	41.7	39.3
00:00-01:00	32.6	34.1	33.4	31.9	40.3	37.9
01:00-02:00	34.2	36.5	35.5	33.1	41.9	39.4
02:00-03:00	36.1	38.4	37.4	32.9	33.9	33.4
03:00-04:00	33.8	35.2	34.6	31.3	34.8	33.4
04:00-05:00	31.5	32.6	32.1	33.8	36.5	35.4
05:00-06:00	33.6	35.1	34.4	31.9	38.5	36.3
Result	Day Means		37.2	Day Means		39.7
	Night Means		34.2	Night Means		36.5

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 012	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 012
Sample Description	Soil 1	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 KG	Sample Received On	25.05.2024
Sample Condition	Good	Test Commenced On	25.05.2024
Sampling Location	Core Zone		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.65
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	495 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	47.5 %
04	Bulk Density	By Cylindrical Method	1.11 g/cm ³
05	Porosity	By Gravimetric Method	46.6 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	51.6 mg/kg
07	Magnesium as Mg		34 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	55.3 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0011 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	5.2 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	400 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.67 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.97 %

*****End of Report*****

Page 1 of 1

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Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 012	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 012
Sample Description	Soil 1	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 KG	Sample Received On	25.05.2024
Sample Condition	Good	Test Commenced On	25.05.2024
Sampling Location	Core Zone		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	31.9 %
	Sand		33.6 %
	Silt		34.5 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	13.1 mg/kg
16	Zinc as Zn		3.39 mg/kg
17	Boron as B		3.45 mg/kg
18	Potassium as K		22 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		2.16 mg/kg
23	Iron as Fe		3.56 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****

Page 1 of 1

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Authorised Signatory

Name: Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 013	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 013
Sample Description	Soil 2	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 KG	Sample Received On	25.05.2024
Sample Condition	Good	Test Commenced On	25.05.2024
Sampling Location	Soil – 2 – Nelvaipalayam		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.76
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	500 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	47.9 %
04	Bulk Density	By Cylindrical Method	1.01 g/cm ³
05	Porosity	By Gravimetric Method	46.4 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	71.2 mg/kg
07	Magnesium as Mg		40.3 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	28 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0018 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	2.61 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	45.1 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.67 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.55 %

*****End of Report*****

Page 1 of 1

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Authorised Signatory

Name: Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 013	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 013
Sample Description	Soil 2	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 KG	Sample Received On	25.05.2024
Sample Condition	Good	Test Commenced On	25.05.2024
Sampling Location	Soil – 2 – Nelvaipalayam		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	33.9 %
	Sand		35.7 %
	Silt		30.4 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	21.9 mg/kg
16	Zinc as Zn		10.1 mg/kg
17	Boron as B		5.9 mg/kg
18	Potassium as K		39 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		1.53 mg/kg
23	Iron as Fe		4.4 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

TC-9583

Report No	EHS360/TR/2022-23/ 014	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 014
Sample Description	Soil 3	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 KG	Sample Received On	25.05.2024
Sample Condition	Good	Test Commenced On	25.05.2024
Sampling Location	Soil – 3 Kodur		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.95
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	443 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	46.8 %
04	Bulk Density	By Cylindrical Method	0.98 g/cm ³
05	Porosity	By Gravimetric Method	48.6 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	46.2 mg/kg
07	Magnesium as Mg		30 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	26.3 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0031 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	1.56 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	6.54 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.02 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.17 %

*****End of Report*****

Page 1 of 1

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Authorised Signatory

Name: Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 014	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 014
Sample Description	Soil 3	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 KG	Sample Received On	25.05.2024
Sample Condition	Good	Test Commenced On	25.05.2024
Sampling Location	Soil – 3 Kodur		

S.No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	28.6 %
	Sand		32.5 %
	Silt		38.9 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	30.9 mg/kg
16	Zinc as Zn		2.12 mg/kg
17	Boron as B		8.6 mg/kg
18	Potassium as K		5.51 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		2.09
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		1.18 mg/kg
23	Iron as Fe		1.55 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****

Page 1 of 1

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Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 015	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 015
Sample Description	Soil 4	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 KG	Sample Received On	25.05.2024
Sample Condition	Good	Test Commenced On	25.05.2024
Sampling Location	Soil – 4 – Lathur		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.61
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	316 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	46.1. %
04	Bulk Density	By Cylindrical Method	1.01 g/cm ³
05	Porosity	By Gravimetric Method	45.7 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	63.7 mg/kg
07	Magnesium as Mg		51.8 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	41.2 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0030 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	3.1 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	473.5 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.15 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.25 %

*****End of Report*****

Page 1 of 1

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Authorised Signatory

A S K

Name : Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 015	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 015
Sample Description	Soil 4	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 KG	Sample Received On	25.05.2024
Sample Condition	Good	Test Commenced On	25.05.2024
Sampling Location	Soil – 4 Lathur		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	29.1 %
	Sand		31.8 %
	Silt		39.1 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	7.26 mg/kg
16	Zinc as Zn		6.6 mg/kg
17	Boron as B		3.26 mg/kg
18	Potassium as K		30 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		12.6
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		2.1 mg/kg
23	Iron as Fe		5.3 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

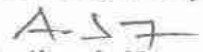
*****End of Report*****

Page 1 of 1

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Authorised Signatory



Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 016	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 016
Sample Description	Soil 5	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 KG	Sample Received On	25.05.2024
Sample Condition	Good	Test Commenced On	25.05.2024
Sampling Location	Soil – 5 – Siruvangunam		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.06
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	440 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	45.7 %
04	Bulk Density	By Cylindrical Method	1.09 g/cm ³
05	Porosity	By Gravimetric Method	46.6 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	61.8 mg/kg
07	Magnesium as Mg		35.5 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	30 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0017 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	2.64 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	356 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.93 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.12 %

*****End of Report*****

Page 1 of 1

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Authorised Signatory

Name: Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 016	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 016
Sample Description	Soil 2	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 KG	Sample Received On	25.05.2024
Sample Condition	Good	Test Commenced On	25.05.2024
Sampling Location	Soil – 5 – Siruvangunam		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	32.2 %
	Sand		32.9 %
	Silt		34.9 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	13.6 mg/kg
16	Zinc as Zn		4.15 mg/kg
17	Boron as B		3.3 mg/kg
18	Potassium as K		15 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		5.6
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		2.02 mg/kg
23	Iron as Fe		5.6 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****

Page 1 of 1

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Authorised Signatory

AS7

Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 017	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 017
Sample Description	Soil 6	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 KG	Sample Received On	25.05.2024
Sample Condition	Good	Test Commenced On	25.05.2024
Sampling Location	Soil – 6 Nerunapattu		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.57
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	450 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	48.0 %
04	Bulk Density	By Cylindrical Method	1.11 g/cm ³
05	Porosity	By Gravimetric Method	46.1 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	60.4 mg/kg
07	Magnesium as Mg		28.6 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	50.3 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0019 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	6.88 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	463.7 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.98 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.15 %

*****End of Report*****

Page 1 of 1

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Authorised Signatory

Name: Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 017	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 017
Sample Description	Soil 6	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 KG	Sample Received On	25.05.2024
Sample Condition	Good	Test Commenced On	25.05.2024
Sampling Location	Soil – 6 Nerkunapattu		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	30.5 %
	Sand		33.1 %
	Silt		36.4 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	22.3 mg/kg
16	Zinc as Zn		5.6 mg/kg
17	Boron as B		1.7 mg/kg
18	Potassium as K		20 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		10.2
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		1.63 mg/kg
23	Iron as Fe		4.5 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****

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Verified by



Authorised Signatory

A S K

Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 018	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/018
Sample Description	Surface Water (SW-1)	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	25.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	25.05.2024
Sampling Location	Nelvaipalayam Eri		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical		
1	Colour	IS 3025 Part 4:1983	10 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.86
4	Conductivity @ 25°C	IS 3025 Part 14:2013	959 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	5.5 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	566 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	188.75 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	33.3 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	25.7 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	171.5 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	100 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	55.3 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.21 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.19 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	9.76 mg/l

*****End of Report*****

Page 1 of 1

Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

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Report No	EHS360/TR/2022-23/018	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/018
Sample Description	Surface Water (SW-1)	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	25.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	25.05.2024
Sampling Location	Nelvaipalayam Eri		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	BOD @ 27°C for 3 days	IS 3025 Part 44:1993 (Reaff:2019)	8.1 mg/l
32	Chemical Oxygen Demand	IS 3025 Part 58:2006 (Reaff:2017)	40 mg/l
33	Dissolved Oxygen	IS 3025 Part 38:1989 (Reaff:2019)	5.4 mg/l
34	Barium as Ba	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL:0.05 mg/l)
35	Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Reaff. 2019)	1.6 mg/l
36	Sulphide as H ₂ S	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:0.01 mg/l)
37	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
38	Total Arsenic as As	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
39	Total Suspended Solids	IS 3025 Part 17 -1984 (Reaff:2017)	16.5 mg/l
	Discipline: Biological	Group: Water	
40	Total Coliform	APHA 23 rd Edn. 2017:9221B	525 MPN/100ml
41	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	150 MPN/100ml

Verified by



Authorised Signatory

 Name: Santhosh Kumar A
 Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/019	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/019
Sample Description	Surface Water (SW-2)	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	25.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	25.05.2024
Sampling Location	Palar River		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical		
1	Colour	IS 3025 Part 4:1983	5 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.26
4	Conductivity @ 25°C	IS 3025 Part 14:2013	768 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	6.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	454 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	167.61 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	30.1 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	22.5 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	145 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	72.6 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	40 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.14 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.29 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	10.5 mg/l

*****End of Report*****

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Authorised Signatory

A S F
Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/019	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/019
Sample Description	Surface Water (SW-2)	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	25.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	25.05.2024
Sampling Location	Palar River		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	BOD @ 27°C for 3 days	IS 3025 Part 44:1993 (Reaff:2019)	12.1 mg/l
32	Chemical Oxygen Demand	IS 3025 Part 58:2006 (Reaff:2017)	60 mg/l
33	Dissolved Oxygen	IS 3025 Part 38:1989 (Reaff:2019)	5.7 mg/l
34	Barium as Ba	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL:0.05 mg/l)
35	Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Reaff. 2019)	1.2 mg/l
36	Sulphide as H ₂ S	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:0.01 mg/l)
37	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
38	Total Arsenic as As	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
39	Total Suspended Solids	IS 3025 Part 17 -1984 (Reaff:2017)	14.6 mg/l
	Discipline: Biological	Group: Water	
40	Total Coliform	APHA 23 rd Edn. 2017:9221B	753 MPN/100ml
41	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	177 MPN/100ml

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 020	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/020
Sample Description	Ground Water (WW-1)	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	25.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	25.05.2024
Sampling Location	Near Project Area		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical		
1	Colour	IS 3025 Part 4:1983	5 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.60
4	Conductivity @ 25°C	IS 3025 Part 14:2013	968 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	1.2 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	572 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	200.0 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	35.5 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	27.1 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	180 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	112 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	49.2 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.31 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.22 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	8.5 mg/l

*****End of Report*****

Page 1 of 1

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Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 020	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/020
Sample Description	Ground Water (WW-1)	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	25.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	25.05.2024
Sampling Location	Near Project Area		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	BOD @ 27°C for 3 days	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Chemical Oxygen Demand	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Dissolved Oxygen	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Barium as Ba	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Sulphide as H ₂ S	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
37	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
38	Total Arsenic as As	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
39	Total Suspended Solids	IS 3025 Part 17 -1984 (Reaff:2017)	BDL (DL:0.0005 mg/l)
	Discipline: Biological	Group: Water	
40	Total Coliform	APHA 23 rd Edn. 2017:9221B	144 MPN/100ml
41	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 021	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/021
Sample Description	Ground Water (WW-2)	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	25.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	25.05.2024
Sampling Location	Siruvangunam		

S.No.	Parameters	Test Method	RESULTS
Discipline: Chemical			
1	Colour	IS 3025 Part 4:1983	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	6.96
4	Conductivity @ 25°C	IS 3025 Part 14:2013	914 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	1.1 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	539 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	196.15 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	33.3 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	27.5 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	188.1 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	105 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	60 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.26 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.17 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	6.84 mg/l

*****End of Report*****



Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 021	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/021
Sample Description	Ground Water (WW-2)	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	25.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	25.05.2024
Sampling Location	Siruvangunam		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	Group: Water	
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	177 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

*****End of Report*****

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Verified by



Authorised Signatory

A S K
Name: Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 022	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/022
Sample Description	Ground Water (BW-1)	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	25.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	25.05.2024
Sampling Location	Near Project Area		

S.No	Parameters	Test Method	RESULTS
	Discipline: Chemical		
1	Colour	IS 3025 Part 4:1983	5 Hz
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.75
4	Conductivity @ 25°C	IS 3025 Part 14:2013	877 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	1.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	517 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	189.43 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	31.1 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	27.2 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	145 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	86.4 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	64.5 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.25 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.31 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	5.55 mg/l

*****End of Report*****

Page 1 of 1

Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 022	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/022
Sample Description	Ground Water (BW-1)	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	25.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	25.05.2024
Sampling Location	Near Project Area		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	Group: Water	
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	130 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

*****End of Report*****

Page 1 of 1

Verified by



Authorised Signatory

AS7

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 023	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/023
Sample Description	Ground Water (BW-2)	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	25.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	25.05.2024
Sampling Location	Lathur		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical		
1	Colour	IS 3025 Part 4:1983	5 Hz
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.68
4	Conductivity @ 25°C	IS 3025 Part 14:2013	1064 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	1.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	628 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	230.22 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	40.2 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	31.6 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	200 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	119 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	70.3 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.25 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.21 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	8.6 mg/l

*****End of Report*****

Page 1 of 1

Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 023	Report Date	01-06-2024
Site Location	THIRU. K. SUNDRAMOORTHY ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 88/1, 88/2A and 88/4A, Nelvaipalayam Village, Cheyyur Taluk, Chengalpattu District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/023
Sample Description	Ground Water (BW-2)	Sample Collected Date	24.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	25.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	25.05.2024
Sampling Location	Lathur		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	Group: Water	
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	200 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

*****End of Report*****

Page 1 of 1

Verified by



Authorised Signatory

A S K

Name: Santhosh Kumar A
Designation: Quality Manager

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National Accreditation Board for Education and Training



Certificate of Accreditation

Geo Exploration & Mining Solutions, Salem

No. 17, Advaita Ashram Road, Fairlands, Salem – 636 004, Tamilnadu, India.

The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –

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

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated Jan 06, 2023 and posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/23/2684 dated Feb 20, 2023. The accreditation needs to be renewed before the expiry date by Geo Exploration & Mining Solutions, Salem following due process of assessment.

Sr. Director, NABET
Dated: Feb 20, 2023

Certificate No.
NABET/EIA/2225/RA 0276

Valid up to
August 06, 2025

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