

**DRAFT ENVIRONMENTAL IMPACT ASSESSMENT
&
ENVIRONMENT MANAGEMENT PLAN**

“B1” CATEGORY – MINOR MINERAL – CLUSTER - NON-FOREST LAND-PATTA LAND

Total Extent of Cluster – 30.28.8 Ha

CHENDARAPALLI GREY GRANITE CLUSTER QUARRIES

At

Chendarapalli Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State

S.Nos.	Proponent Name	S.F.no	Extent (Ha)
1	Thiru. Mir Tahar Ali,	380/1(P)	2.48.0
2	M/s. Zak Exports	380/1 (P)	3.50.0

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

Complied as per ToR Obtained Vide

1. Lr.No. SEIAA-TN/F.No.4902/1 (a) /TOR-966/2021 Dated: 08.05.2021- Thiru. Mir Tahar Ali,
- 2.Lr.No.SEIAA-TN/F.No.10152/ToR-1530/2023 Dated:07.08.2023- M/s. Zak Exports

Project Proponents

Thiru. Mir Tahar Ali, No.18/16, 3 rd cross, Co-operative colony Krishnagiri - 635 203.	M/s. Zak Exports No.35/13, 2 nd Cross cooperative colony, Krishnagiri - 635 001.
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**Environmental Consultant
GEO EXPLORATION AND MINING SOLUTIONS**

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**Accredited for sector 1 Category ‘A’, 31 Category ‘B’ & 38 Category ‘B’
Certificate No : NABET/EIA/2225/RA 0276**

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ENVIRONMENTAL LAB
KGS ENVIRO LABORATORY PRIVATE LIMITED
(NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)
Cholambedu Main Road, Thirumullaivoyal, Chennai -600 062.

Baseline Monitoring Period – March 2022-May 2022

JULY 2023

For easy representation of Proposed, Existing, 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	S.F. Nos	Extent	Status
P1	Thiru. MIR TAHAR ALI, No.18/16, 3rd cross, Co-operative colony Krishnagiri - 635 203.	380/1(P)	2.48.0	Obtained ToR vide Lr.No. SEIAA- TN/F.No.4902/1 (a) /TOR-966/2021 Dated: 08.05.2021
P2	M/s. Zak Exports No.35/13, 2nd Cross cooperative colony, Krishnagiri - 635 001	380/1(P)	3.50.0	Obtained ToR vide Lr.No.SEIAA- TN/F.No.10152/ToR- 1530/2023 Dated:07.08.2023
P3	Thiru. Syed Nazar Babulal	373/1A, 373/1B (P)	1.10.0	-
P-4	Thiru.Salman Sathar*	341/1(P)	1.36.8 ha	Applied area and under process
P-5	M/s. Bismilah Exports*	339/1(P)	1.02.0 ha	Applied area and under process
P-6	M/s. Tamil Nadu Minerals Ltd*	383/1	6.94.5 ha	Applied area and under process
		Total	16.41.3	
EXISTING QUARRIES				
E-1	Thiru. B.K.Murali, S/o.C.Krishnan, No..70/53, Kara kuppam Road, Bargur, Krishnagiri	382/5A, 5B,6A, 6B etc	2.78.5	28.02.2011 to 27.02.2031
E-2	Thiru.B.S.Ravi	369/2	2.46.5	10.11.2003 to 09.11.2023
E-3	Thiru.B.S.Ravi	339/2	1.19.0	27.03.2006 to 26.03.2026
E-4	Thiru.A.Sathar*	375/2D etc	1.78.0	01.09.2016 to 31.08.2036
E-5	Thiru.A.Sathar*	375/2A etc	1.03.5	07.10.2013 to 06.10.2033
E-6	Tmt.Rukkammal, W/o	335/4A1	1.20.0	14.12.2009 to 13.12.2029
E-7	Thiru. A.Ameed,*	377/1B, etc.,	2.85.5	03.03.2016 to 02.03.2036
E-8	Tmt. Mariam Banu*	378/3 etc.,	3.90.0	01.03.2016 to 29.02.2036
E-9	Tmt.M.Varalakshmi *	335/4B, 341/4	1.08.5	14.06.2018 to 13.06.2036
E-10	Thiru.Venkatesan*	9 (P)	3.22.0	
		Total	21.51.5 Ha	

Expired/Abandoned Quarries				
A-1	M/s.TAMIN, Chennai	361 & 368	5.86.5	26.06.1999 to 20.06.2019
A-2	Thiru.P.K.Selvaraj	383/4 & 384/2	0.64.5	04.04.1994 to 03.04.2004
A-3	Tvl. Enterprising Enterprises	401 (P)	4.05.0	26.01.1996 - 25.01.2016
		Total	10.56.0	
TOTAL CLUSTER EXTENT			30.28.8 Ha * Cluster Quarry	

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

TERMS OF REFERENCE (ToR) COMPLIANCE
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M/s. Zak Exports-P2

“ToR issued vide Lr.No.SEIAA-TN/F.No.10152/ToR-1530/2023 Dated:07.08.2023”

SPECIFIC CONDITIONS		
1	The PP shall submit the 'Action Taken' report on appropriate mitigating measures carried out (or) proposed for the non-compliance items on the Certified Compliance Report obtained from the office of the concerned DEE/TNPCB (or) IRO, MoEF& CC, Chennai.	Noted and agreed
2	The PP shall carry out the scientific studies to assess the slope stability of the existing quarry wall and the working benches to be constructed during the proposed operations. by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad. NIRM/Bangalore, Division of Geotechnical Engineering- IIT-Madras. NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.	Noted and agreed
3	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.	Noted and agreed detailed in water environment 1km radius covered water bodies and impact details.
4	The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.	Noted and agreed
ANNEXURE-I		
1	In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated. (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal /illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area (viii) Condition of Safety zone/benches (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.	➤ It is an Existing Lease application.

2	Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.	Noted and agreed.
3	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m. (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.	Noted, 500m radius map and VAO Letter copy will be furnished.
4	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.	Noted and agreed.
5	The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.	Detailed in chapter 3 Bio diversity study
6	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.	Noted and agreed.
7	In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-I IT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai/CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.	Noted and agreed
8	However, in case of the fresh, virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30m below ground level.	Noted and agreed
9	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/Ist Class mines manager appointed by the proponent.	Noted and agreed
10	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.	Noted and agreed.

11	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent till the past, either in the same location or else where in the State with video and photographic evidences.	Noted and agreed
12	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,	➤ It is an existing proposed Lease application. This is a patta land.
13	what was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	➤ It is an existing proposed Lease application.
14	Quantity of minerals mined out a) Highest production achieved in any one year b) Detail of approved depth of mining c) Actual depth of the mining achieved earlier d) Name of the person already mined in that leases area e) If EC and CTO already obtained' the copy of the same shall be submitted f) whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	It is an existing proposed Lease application. Detailed chapter 2 discuss about production and depth of mining.
15	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Noted and agreed. Project area boundary coordinates superimposed on Toposheet – Figure No. 1.3.
16	he PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,	Noted and agreed
17	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	Noted and agreed
18	The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.	Details of Geological Resources and Proposed reserves are discussed under Chapter No. 2.
19	The Project Proponent shall provide the organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	Discussed about Organization chart in Chapter 6,
20	The project proponent shall conduct the hydro-geological study considering the contour map of	The hydro-geological study was conducted to evaluate the possible impact on the ground water

	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.	table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 3.
21	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & Flora/fauna including traffic/vehicular movement study.	Baseline Data were collected for One Season (Summer season) Mar to May2022 as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3.
22	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil, health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	The Cumulative impact study due to mining operations is explained in chapter – 7
23	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	Noted and agreed
24	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass pre operational, 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.
25	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.	Not applicable
26	Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.
27	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	Mine Closure in Chapter -2

28	Impact on local transport infrastructure due to the Project should be indicated.	Transportation details mentioned in Chapter -2
29	A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	Details of the trees in the buffer zone given in Chapter No.3 and afforestation plan chapter 4.
30	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	Mine closure plan is detailed in Chapter:4.
31	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	Noted and agreed
32	The purpose of green belt around the project is to capture the fugitive emissions. Carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of Small medium/tall trees alternating with shrubs should be planted in a mixed manner.	Species are proposed to plant in the safety barrier as mentioned in the ToR appendix. Proposed species are given in the Chapter No 4
33	Taller/one year old Saplings raised in appropriate size of bags; preferably eco-friendly bags should be planted in proper espacement 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.	It is a Proposed existing Lease. Around 300 trees are proposed quarry (P1-P2)
34	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Disaster management Plan details in Chapter-7
35	A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report.	A Risk Assessment and management Plan Chapter- 7
36	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical 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 chapter- 10
37	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed lemedial measures should be detailed along with budgetary allocations.	It is explained in Chapter -3
38	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity.	Details explained Socio economic and impacts studies reagarding Chapter:3 and chapter-4

	Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	
39	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	No Litigation is pending
40	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Noted and agreed
41	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.	It is Existing proposed Lease
42	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	Noted and agreed
43	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Reference besides attracting penal provisions in the Environment (Protection) Act, 1986.	Noted and agreed

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.	Details in chapter 7 salient features of quarry with existing 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..	Noted & agreed
3	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	Noted & agreed
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.	Transport density details in chapter-2

5	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan	Noted & agreed
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.	Noted & agreed
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 plan within the cluster.	Details discussed in chapter 7.
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	Details discussed in chapter 10.
10	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	Noted & agreed
11	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	Detailed discussed in chapter 7.
<i>Impact study of mining</i>		
12	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following a) Soil health & bio-diversity b) Climate change leading to Droughts, Floods etc. c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature' & Livelihood 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 streams.	Species Recommended for Plantation in chapter 3&10.
<i>Agriculture & Agro-Biodiversity</i>		

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 in Chapter 2,3 and 7
16	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora. fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	Details in Chapter 3
17	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	Noted & agreed
18	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands. Horticulture, Agriculture and livestock.	The project area is bounded by Existing quarries on the East and west side. Proponent proposed to erect green mesh along with fencing on the South side besides, Budgetary allocation given in the Chapter No. 10.
Forest		
19	The project proponent shall detail study on impact of mining on Reserve forests free ranging wildlife.	Noted and agreed, there is no reserve forest and wildlife in the buffer zone.
20	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	Ecology and Biodiversity environment deals in Chapter-3
21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	Ecology and Biodiversity environment deals in Chapter-3
22	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	Anticipated Environment Impact and Mitigation measures are detailed in Chapter No.4
Water Environment		
23	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks. canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary	Hydro-geological study considering the contour map of the water table detailing Chapter-3

	data and documentation in this regard may be provided, covering the entire mine lease period.	
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 wetlands, water bodies, rivers streams, lakes and farmer sites in water environment.
Energy		
31	The measures taken to control Noise. Air, Water. Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.	Details in Chapter 3 environmental monitoring details.
Climate Change		
32	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	Details of carbon emission and mitigation activities are given 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.
Mine Closure Plan		
34	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	Details in Chapter 2 mine closure plan
EMP		
35	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	Detailed under Chapter 10

36	The Environmental Impact Assessment should hold detailed study on EMP with budget for green belt development and mine closure plan including disaster management plan.	Details in Green belt development in chapter 4
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 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 3
40	As per the MoEF& CC office memorandum tr.No.22-651201 7-1A.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	Noted and agreed
41	The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	Details of carbon emission and mitigation activities are given in the Chapter No.4

TERMS OF REFERENCE (ToR) COMPLIANCE

Thiru. MIR TAHAR ALLI,-P1

“ToR issued vide Lr.No. SEIAA-TN/F.No.4902/1 (a) /TOR-966/2021 Dated: 08.05.2021”

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 (Cluster Condition).
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 scheme of Mining Plan as Annexure 1.
3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	Noted & agreed.

4	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	<p>Map showing –</p> <p>Project area is superimposed on Satellite imagery is enclosed in Figure No. 2.1</p> <p>Project area boundary coordinates superimposed on Toposheet – Figure No. 1.3</p> <p>Surface Features around the project area covering 10km radius – Figure No. 2.2</p> <p>Geology map of the project area covering 10km radius - Figure No. 2.7.</p> <p>Geomorphology Map of the Study Area covering 10 km radius – Figure No. 2.8.</p>
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.	<p>Map showing –</p> <p>Geology map of the project area covering 10km radius - Figure No. 2.7.</p> <p>Geomorphology Map of the Study Area covering 10 km radius – Figure No. 2.8.</p>
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.	<p>It is an opencast quarrying operation proposed to operate in Mechanized method. The Granite formation is a hard, compact and homogeneous body.</p> <p>The height and width of the bench will be maintained as 5m with 90⁰ bench angles.</p> <p>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.</p>

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 Granite will be transported to the needy customers. No Dumps is proposed outside the lease area.
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.	Not Applicable. There is no Forest Land involved in the proposed project area. The proposed project area is a patta land.
13	Status of forestry clearance for the broken-up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	Not Applicable. The proposed project area does not involve any Forest Land.
14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	Not Applicable. The project doesn't attract Recognition of Forest Rights Act, 2006.
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	No Reserve Forest within the Study Area.
16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.	Not Applicable. There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.

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

	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	<p>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</p> <p>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.</p>	<p>Baseline Data were collected for One Season (Summer) March – May 2022 as per CPCB Notification and MoEF & CC Guidelines.</p> <p>Details in Chapter No. 3.</p>
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.	<p>Air Quality Modelling for prediction of incremental GLC's of pollutant was carried out using AERMOD view 9.6.1 Model.</p> <p>Details in Chapter No. 4.</p>
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.	<p>Total Water Requirement: 2.0 KLD-P1</p> <p>Total Water Requirement: 2.5 KLD-P2</p> <p>Discussed under Chapter 2, Table No 2.15 .</p>
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	<p>Not Applicable.</p> <p>Water for dust suppression, greenbelt development and domestic use will be sourced from accumulated rainwater/seepage water in mine pits and purchased from local water vendors through water tankers on daily requirement basis.</p> <p>Drinking water will be sourced from the approved water vendors.</p>
26	Description of water conservation measures proposed to be adopted in the Project should be	Part of the working pit will be allowed to collect rain water during the spell of rain will be used for greenbelt development and dust suppression.

	given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	The Mine Closure Plan is prepared for converting the excavated pit into rain water harvesting structure and serve as water reservoir for the project village during draught season.
27	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	Impact Studies and Mitigation Measures of Water Environment including Surface Water and Ground Water are discussed in Chapter 4.
28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	Not Applicable. The ground water table inferred 62-57m below ground level. The ultimate depth of quarry is 33m agl. This proposal of 33m below ground level will not intersect the ground water table, which is inferred from the hydro-geological carried out at the project site. Discussed under Chapter 3.
29	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	Not Applicable. There is no stream, seasonal or other water bodies passing within the project area. Therefore, no modification/ diversion of water bodies is anticipated.
30	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and Bgl. A schematic diagram may also be provided for the same.	Highest elevation of the project area is 486m AMSL. Ultimate depth of the mine is 33-44m BGL Water level of the area is 62-57m BGL
31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.	Greenbelt Development Plan is discussed under Chapter 4, Page No.123.
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	Traffic density survey was carried out to analyse the impact of Transportation in the study area as per IRC guidelines 1961 and it is inferred that there is no significant impact due to the proposed transportation from the project area. Details in Chapter 2, Page No.30-32.

	Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.	
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Infrastructure & other facilities will be provided to the Mine Workers after the grant of quarry lease and the same has been discussed in the Chapter No.2 Page No.32.
34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	Discussed under Chapter 2. Mine Closure Plan is a part of scheme of Mining Plan enclosed as Annexure Volume – 1.
35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational Health Impacts of the project and preventive measures are detailed under Chapter 4, Page No.127.
36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	No Public Health Implications anticipated due to this project. Details of CER are discussed under Chapter 8, Page No. 148-149.
37	Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	No Negative Impact on Socio Economic Environment on the Study Area is anticipated and this project shall benefit the Socio-Economic Environment by ways of employment for 67 people directly and 100 people indirectly. Details in Chapter 2, Page No. 33.
38	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.	Detailed Environment Management Plan for the project to mitigate the anticipated impacts described under Chapter 4 is discussed under Chapter 10, Page No. 151 – 156.
39	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	The outcome of public hearing will be updated in the final EIA/AMP report.
40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	No litigation is pending in any court against this project.
41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	Project Cost is Rs.1,22,89,000/- CER Cost is Rs 5,00,000/- for P1 Project Cost is Rs.2,12,24,000/- CER Cost is Rs 5,00,000/- for P2
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	Enclosed as separate booklet.
b	All documents to be properly referenced with index and continuous page numbering.	All the documents are properly referenced with index and continuous page numbering.
c	Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.	List of Tables and source of the data collected are indicated.
d	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF & CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project	Baseline monitoring reports are enclosed with This report in Chapter 3. Original Baseline monitoring reports will be submitted in the final EIA report during appraisal.
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.	Noted & agreed. Instructions issued by MoEF & CC O.M. No. J-11013/41/2006-IA. II (I) Dated: 4th August, 2009 are followed.
h	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation	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	Surface Plan – Figure No. 2.2.

	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.	Geological Plan – Figure No 2.9. Working Plan – Figure No 2.9. Closure Plan – Figure No.2.10.
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CHAPTER – 1: INTRODUCTION

1.0 Preamble

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

This EIA report is prepared by considering Cumulative load of all proposed & existing quarries around Chendarapalli Grey Granite Quarries cluster quarry (extent of 30.28.8ha) in Chendarapalli Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State, consisting of 6 (Six) Proposed quarries and 10 (ten) Existing Quarries and 3 (three) abandoned quarries with total extent of Cluster of. 30.28.8 ha. Cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016.

This EIA Report is prepared in compliance with ToR obtained

TABLE 1.1: TOR OBTAINED PROJECTS

CODE	Name of the proponent	Extent (Ha)	Terms of Reference (ToR)
P1	Thiru. Mir Tahar Ali,	2.48.0	Lr.No. SEIAA-TN/F.No.4902/1 (a) /TOR-966/2021 Dated: 08.05.2021-
P2	M/s. Zak Exports	3.50.0	Lr.No.SEIAA-TN/F.No.10152/ToR-1530/2023 Dated:07.08.2023

Source: ToR Letter's of the respective Proposal project proponents

The Baseline Monitoring study has been carried out during the period of summer season March to May 2022 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) individually to minimize those adverse impacts.

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. 3977 (E) of 14th August 2018, Mining Projects are classified under two categories i.e., A (> 100 Ha) and B (≤ 100 Ha), and Schematic Presentation of Requirements on Environmental Clearance of Minor Minerals including cluster situation in Appendix–XI.

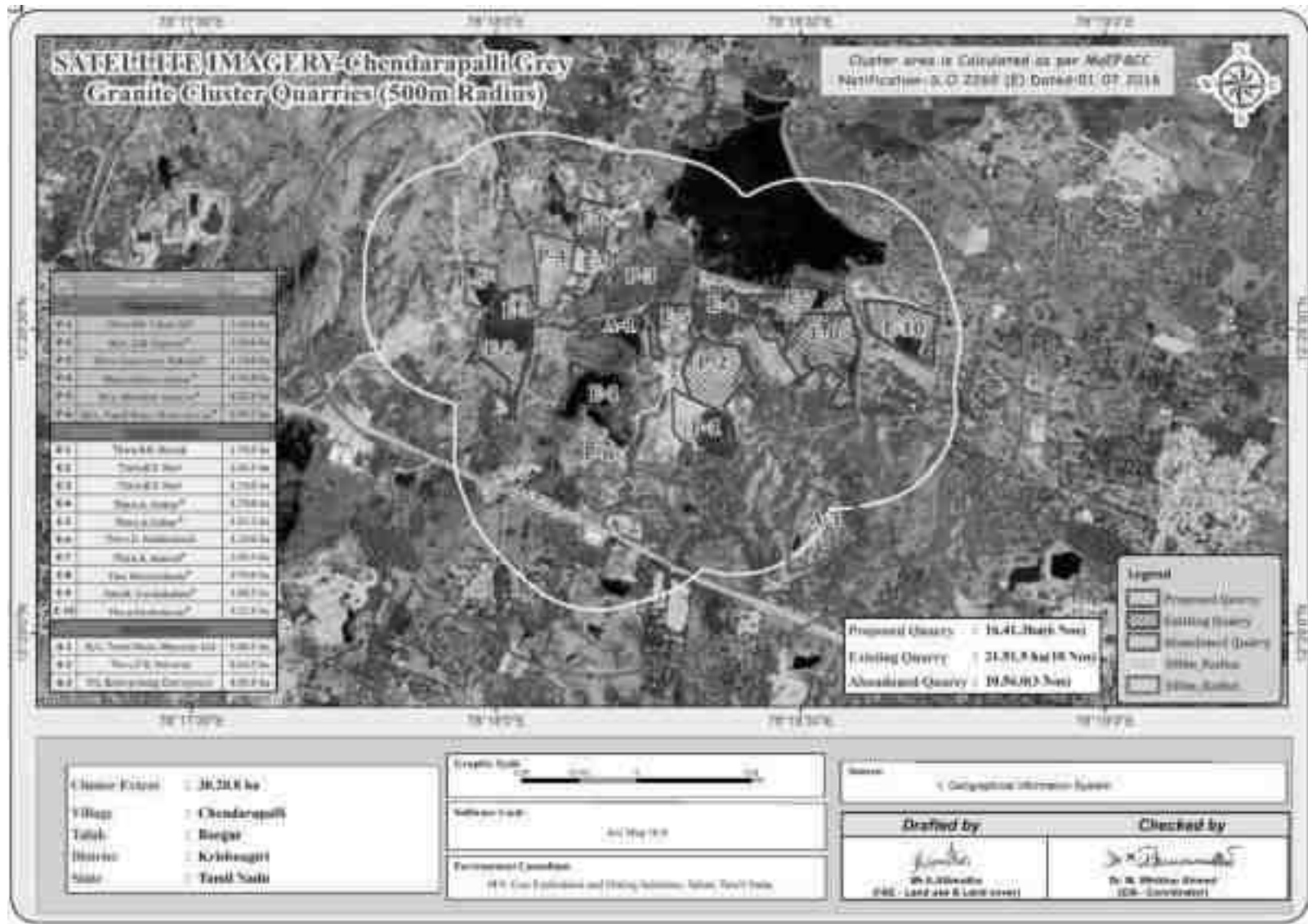
Now, as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018 clarified the requirement for EIA, EMP and therefore, Public Consultation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

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

Application to The Member Secretary of the Tamil Nadu Pollution Control Board (TNPCB) to conduct Public Hearing in a systematic, time bound and transparent manner ensuring widest possible public participation at the project site or in its close proximity in the district was submitted vide Ref: Nil.

“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”

Figure1.0: Cluster Quarries Map (500m Radius)



1.2 Identification of Project and Project Proponent

1.2.1 Identification of Project

The project areas in the cluster are Patta Land, no forest land is involved

TABLE 1.2: PROPOSED PROJECTS IN THE CLUSTER

Description	P1	P2
Name of the Project	Thiru. Mir Tahar Ali, Grey Granite quarry	M/s. Zak Exports, Grey Granite quarry
S.F. No.	380/1(P)	380/1(P)
Extent	2.48.0 Ha	3.50.0 Ha
Village Taluk and District	Chendarapalli Village, Bargur Taluk Krishnagiri District	

Source: SOM Approved Mining

1.2.2 Identification of Project Proponent

TABLE 1.3: DETAILS OF PROJECT PROPONENT

PROPOSAL – P1	
Name of the Company	Thiru. Mir Tahar Ali,
Address	No.18/16, 3rd cross, Co-operative colony, Krishnagiri - 635 203.
Mobile	+91 8489547086
Status	Proprietor
PROPOSAL – P2	
Name of the Company	M/s. Zak Exports
Address	No.35/13, 2nd Cross cooperative colony, Krishnagiri - 635 001
Mobile	+91 93442 23717
Status	Company

Source: SOM Approved Mining Plan of the respective projects

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 Hydraulic Excavator, Eco-friendly Diamond Wire Saw Cutting and minor amount of blasting only for removal of overburden and weathered portions.

On the basis of available reserves the life of the mine is computed and approved as 20 Years.

Proposed production for the Mining Plan Period (5 years) is described below–

Proposed Project -P1

Total Mineable Recoverable Reserves of Granite @ 30%	=	58,323m ³
Average Production per year @ 20%	=	14,742m ³ /5 Years = 2,948 m ³
Estimated Life of the quarry	=	58,323m ³ / 2,948m ³
Life of the quarry	=	20 Years

Table 1.4: Resources and Reserves of Project-P1

Description	ROM in m ³	Granite recovery @20 % in m ³	Granite waste @80% recovery	Side Burden in m ³	Top Soil in m ³
Geological Resources	7,22,025	1.44,405	5,77,620	-	14,611.6
Mineable Reserves	2,91,611	58,323	2,33,288	-	5,065
Year wise Production for Five years	73,710	14,742	58,968	-	680

Source: Approved 3rd Scheme of mining plan.

Proposed Project -P2

Total Mineable Recoverable Reserves of Granite @ 35%	=	1,67,853m ³
Average Production per year @ 35%	=	19,089m ³ /5 Years = 3,818m ³
Estimated Life of the quarry	=	1,67,853m ³ / 3,818m ³
Life of the quarry	=	44 Years

Table 1.5: Resources and Reserves of Project-P2

Description	ROM in m ³	Granite recovery @35 % in m ³	Granite waste @65% recovery	Side Burden in m ³	Top Soil in m ³
Geological Resources	14,01,309	4,90,460	9,10,849	-	72,714
Mineable Reserves	4,79,579	1,67,853	3,11,726	-	33,544
Year wise Production for Five years	54,539	19,089	35,450	-	-

Source: Approved first Scheme of mining plan.

Table 1.6: Salient Features of the Proposed Projects-P1

Name of the Quarry	Thiru. Mir Tahar Ali – Grey Granite quarry	
Lease period	20 years	
Mining Plan Period	5 Years	
Life of the Mine	20 years	
Existing Depth	NIL	
Previous lease particulars	It is a Patta land, registered name Thiru. Mir Mazahar Ali and Thiru.Mohammed Fareed Ali vide patta no. 2338. The lessee has obtained consent from the pattadars for the period of 25 years.	
Proposed Depth for five years plan period	33m	
Ultimate Depth	215m(L) x 142m (W) x 33m (D)	
Toposheet No	57 L/07	
Latitude between	12 ^o 29'15.49" N to 12 ^o 29'23.98" N	
Longitude between	78 ^o 18'17.37" E to 78 ^o 18'24.15" E	
Topography	Elevated terrain with gradient towards Northwest side. The highest elevation is 486m AMSL	
Machinery proposed	Jackhammer	6
	Compressor	2
	Hydraulic drilling machine	-
	Hydraulic/Crawler crane	1
	Mobile crane	-
	Excavator	1
	Tipper	1
	Diesel Generator	1
	Diamond wire saw	1
	Water pump	-
Water tanker	-	
Proposed manpower deployment	32	
Project cost	Rs.1,22,89,000/-	
EMP Cost	Rs. 3,80,800/-	
CER cost	Rs. 5,00,000/-	

Source: Approved 3rd Scheme of mining plan.**Table 1.7: Salient Features of the Proposed Projects-P2**

Name of the Quarry	M/s. Zak Exports – Grey Granite quarry
Lease period	20 years
Mining Plan Period	5 Years
Life of the Mine	20 years
Existing Depth (Previous)	112m(L) x 115m (W) x 9m (D)

Previous lease particulars		It is a Patta land, M/s. Zak Exports is a partnership firm executed on 14.10.2015 and the partnership deed reconstituted on 25.05.2016 with three partners. Thiru. Mir Mazahar ali is an authorized person for signing all the documents on behalf of this firm. Patta no 2338, the company has obtained consent from the pattadars for the period of 25 years from the data of 15.06.2016 to 14.06.2041.
Proposed Depth for five years plan period		44m
Ultimate Pit dimensions (Maximum)		185m(L) x 189m (W) x 44m (D)
Toposheet No		57 L/07
Latitude between		12 ^o 29'21.3975" N to 12 ^o 29'29.4083" N
Longitude between		78 ^o 18'18.3081" E to 78 ^o 18'26.5027" E
Topography		Elevated terrain with gradient towards Northwest side. The highest elevation is 482.5 to 484.5m AMSL
Machinery proposed	Jackhammer	5
	Compressor	2
	Hydraulic drilling machine	-
	Hydraulic/Crawler crane	1
	Mobile crane	-
	Excavator	2
	Tipper	2
	Diesel Generator	1
	Diamond wire saw	1
	Double disc blade cutting	2
Water tanker	-	
Proposed manpower deployment		35
Project cost		Rs.2,12,24,000/-
EMP Cost		Rs. 3,80,800/-
CER cost		Rs. 5,00,000/-

Source: Approved First Scheme of mining plan.

1.3.2 Location of the Project

The Proposed lease area is located about 10km Southeast side of Krishnagiri to Jagadevi and 2km West side of Chendarapalli Village The lease area is located at 750m on the Northern side of Chendarapalli -Krishnagiri District Road.

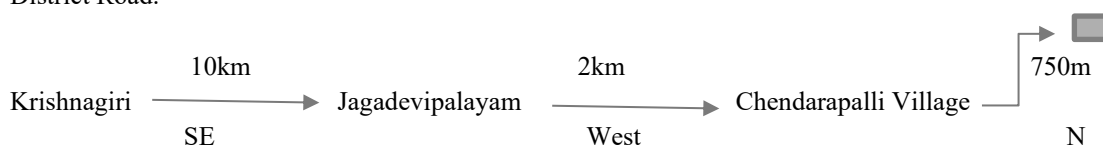


Figure 1.1: Key Map Showing the Location of the Project Site

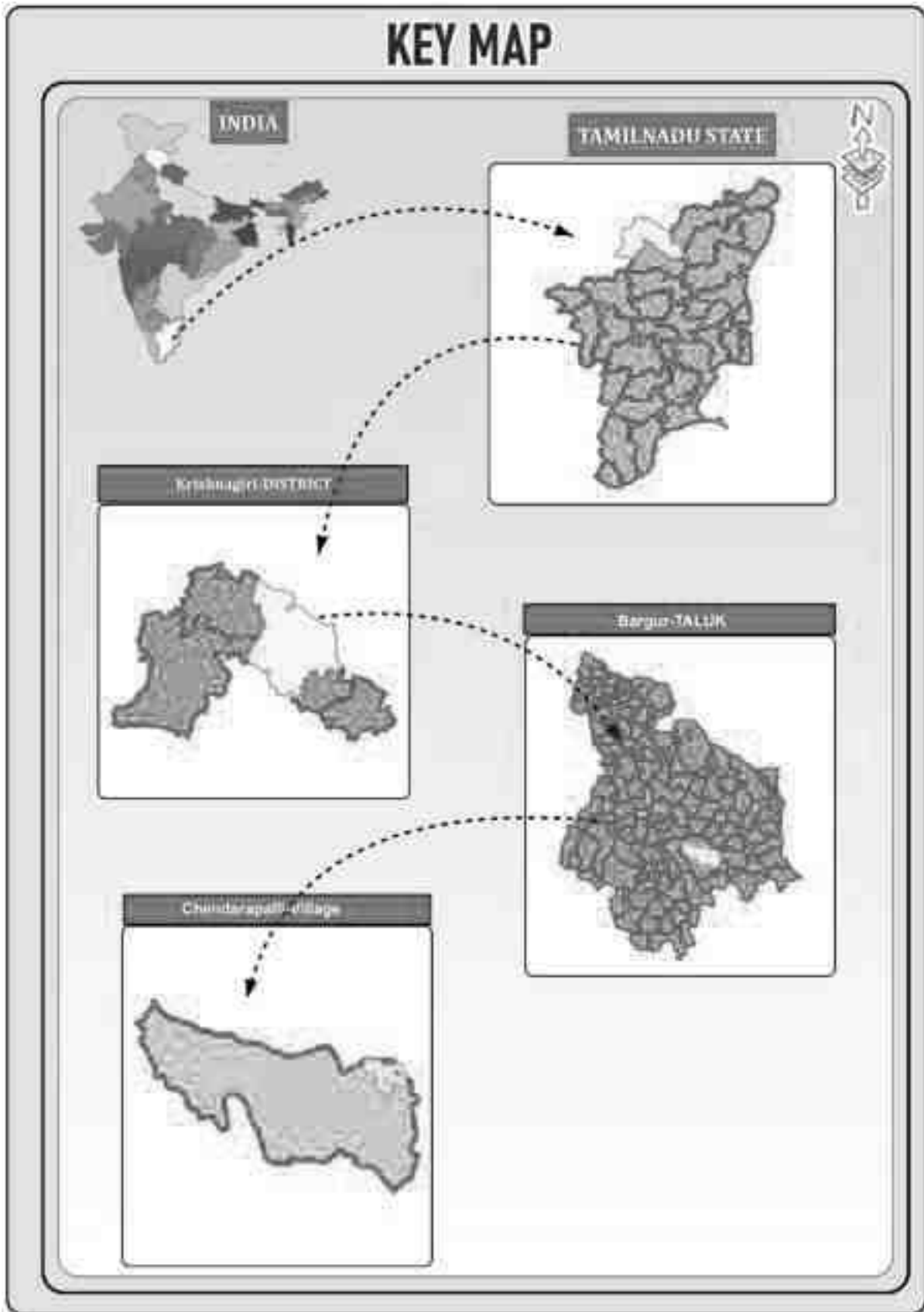


Figure 1.2: Toposheet Map of the Study Area 10 Km Radius

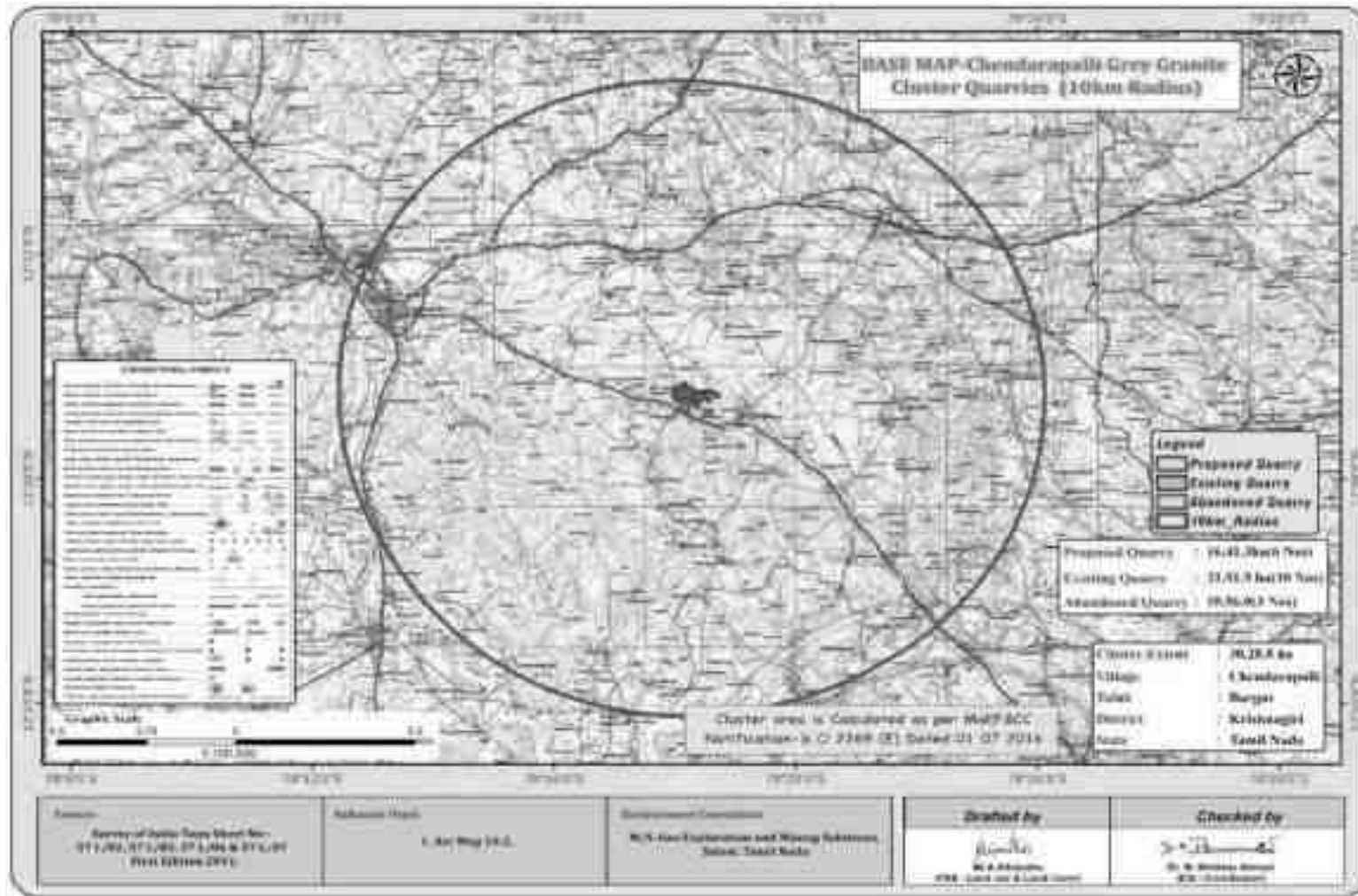
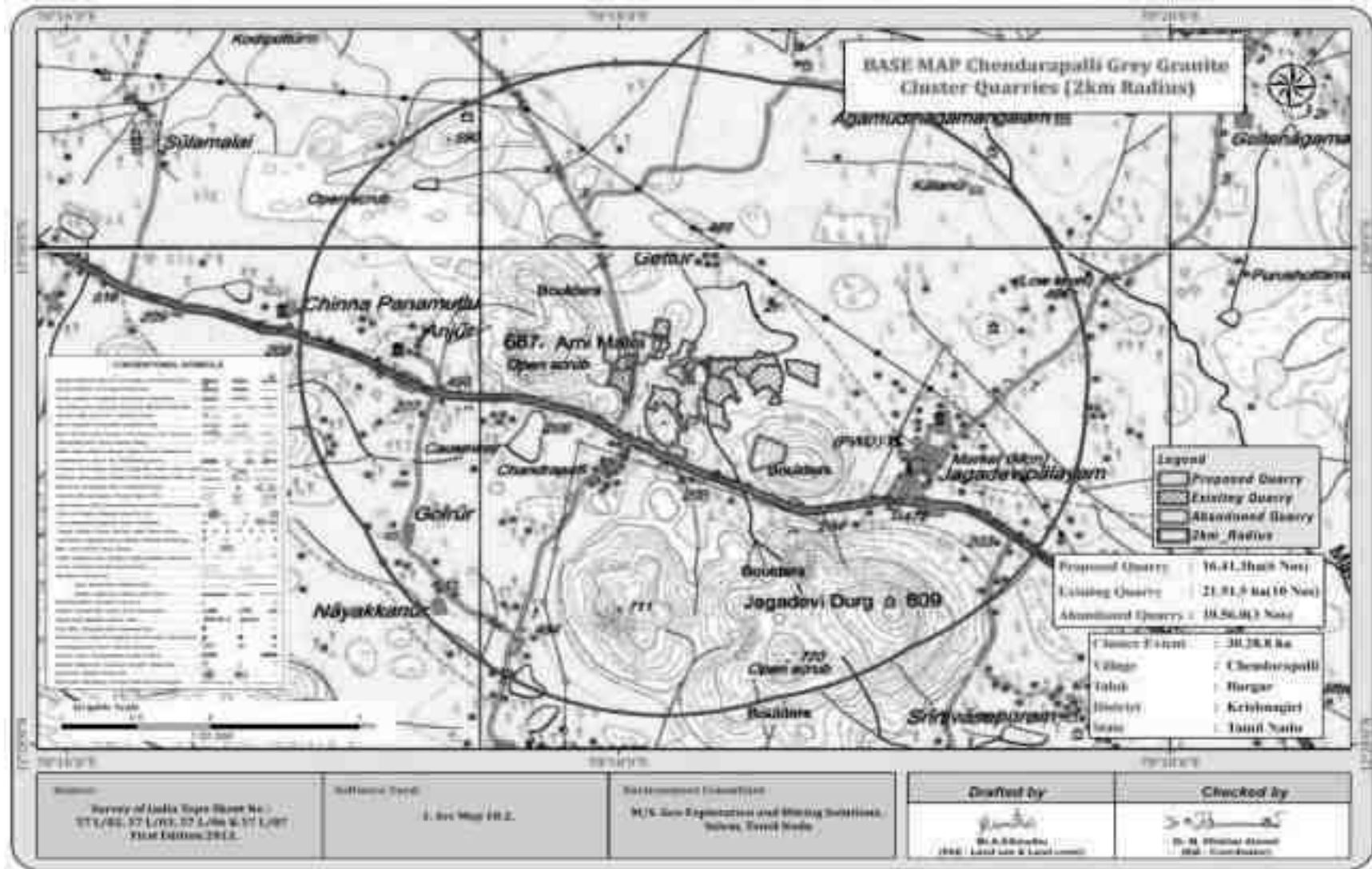


Figure 1.3: Toposheet Map of the Study Area 2 Km Radius



1.4 Environmental Clearance

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

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

SCREENING –P1

- The proponent applied for grey granite Quarry Dated: 24.1.2007
- Precise Area Communication Letter was issued by Additional chief Secretary to Government, Industries (MME.2) Department, Secretariat, Chennai vide G.O.No.(3D) No.79, Industries (MME.2) dated: 25.10.2007 for a period of 20 years from 10.12.2007 to 09.12.2027.
- 3rd Scheme of Mining plan got approved from the Director of Geology and Mining Industrial Estate Guindy, Chennai Vide Rc. No. 1193/MM4/2023, dated: 14.03.2023.
- Proponent applied for ToR to get Environmental Clearance vide online Proposal No. SIA/TN/MIN/23403/2018 Dated: 06.04.2018.

SCREENING –P2

- The proponent applied for grey granite Quarry Dated: 20.6.2016
- Precise Area Communication Letter was issued by Additional chief Secretary to Government, Industries (MME.2) Department, Secretariat, Chennai vide G.O.No.(3D) No.25, Industries (MME.2) dated: 21.11.2017 for a period of 20 years from 06.12.2017 to 05.12.2037.
- First Scheme of Mining plan got approved from the Director of Geology and Mining Industrial Estate Guindy, Chennai Vide Rc. No. 4969/MM4/2022, dated: 21.09.2022.
- Proponent applied for ToR to get Environmental Clearance vide online Proposal No. SIA/TN/MIN/430120/2023 Dated: 21.05.2023.

SCOPING –P1

- The proposal was placed in 107th SEAC meeting held on 14.04.2018 and the committee recommended for issue of ToR.
- The proposal was considered in 335th SEIAA meeting held on 31.12.2018 and issued ToR vide Lr.No. SEIAA-TN/F.No.4902/1 (a) /TOR-966/2021 Dated: 08.05.2021.

SCOPING –P2

- The proposal was placed in 394th SEAC meeting held on 21.07.2023 and the committee recommended for issue of ToR.
- The proposal was considered in 644th SEIAA meeting held on 07.08.2023 and issued ToR vide Lr.No.SEIAA-TN/F.No.10152/ToR-1530/2023 Dated:07.08.2023.

PUBLIC CONSULTATION –

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

APPRAISAL –

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

The report has been prepared using the following references:

- Guidance Manual of Environmental Impact Assessment for Mining of Minerals, Ministry of Environment and Forests, February, 2010
- EIA Notification, 14th September, 2006
ToR vide Lr.No. SEIAA-TN/F.No.4902/1 (a) /TOR-966/2021 Dated: 08.05.2021-P1
ToR vide Lr.No.SEIAA-TN/F.No.10152/ToR-1530/2023 Dated:07.08.2023-P2
- Scheme of Approved Mining Plan of this project
- In addition, other relevant standards for individual activities such as Sampling and Testing of Environmental attributes have been followed

1.5 Post Environment Clearance Monitoring

The proposed project 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.

1.6 Generic Structure of EIA Document

The overall contents of the EIA report follow the list of contents prescribed in the EIA Notification 2006 and the “Environmental Impact Assessment Guidance Manual for Mining of Minerals” published by MoEF & CC. A brief description of each Chapter is presented in Table No. 1.8.

TABLE 1.8 – STRUCTURE OF THE EIA REPORT

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

1.7 Scope of the Study

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster quarries and formulate the effective mitigation measures for each individual lease. 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

2022 to May 2022 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 1.9 – ENVIRONMENT ATTRIBUTES

Sl.No.	Attributes	Parameters	Source and Frequency
1	Ambient Air Quality	PM ₁₀ , PM _{2.5} , SO ₂ , NO ₂	24 hourly samples twice a week for three months at 8 locations
2	Meteorology	Wind speed and direction, temperature, relative humidity and rainfall	Near project site continuous for three months with hourly recording and from secondary sources of IMD station, Krishnagiri
3	Water quality	Physical, Chemical and Bacteriological parameters	Grab samples were collected at 4 ground water and 2 surface water locations once during study period.
4	Ecology	Existing terrestrial and aquatic flora and fauna within 10 km radius circle.	Limited primary survey and secondary data was collected from the Forest department.
5	Noise levels	Noise levels in dB(A)	At 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 assessment done for the mining associated activities

Source: Field Monitoring Data

The data has been collected as per the requirement of the ToR issued by SEIAA – TN and Standard ToR

Published by MoEF & CC.

1.7.1 Regulatory Compliance & Applicable Laws/Regulations

- Application for Quarrying Lease as per Tamil Nadu Minor Mineral Concession Rules, 1959
- Obtained Precise Area Communication Letter as per Tamil Nadu Minor Mineral Concession Rules, 1959 for Preparation of Mining Plan and obtaining Environmental Clearance
- The Mining Plan of Grey granite quarry 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.4902/1 (a) /TOR-966/2021 Dated: 08.05.2021-P1
- ToR vide Lr.No.SEIAA-TN/F.No.10152/ToR-1530/2023 Dated:07.08.2023-P2 Approved Mining of P1 to P2 the Grey granite quarry projects

Table 1.10: Environment Attributes

Sl.No.	Attributes	Parameters	Source and Frequency
1	Ambient Air Quality	PM10, PM 2.5, SO2, NO2	Continuous 24-hourly samples twice a week for three months at 8 locations (2 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 4 ground water and 2 surface water locations once during study period.
4	Ecology	Existing terrestrial and aquatic flora and fauna within 10 km radius circle.	Limited primary survey and secondary data was
5	Noise levels	Noise levels in dB(A)	8 locations – data monitored once for 24 hours during EIA study (2 Core & 6 Buffer)
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: Onsite Monitoring Data/Sampling by KGS Laboratories

The data has been collected as per the requirement of the ToR issued by SEIAA – TN.

1.7.1 Regulatory Compliance & Applicable Laws/Regulations

- Application for Quarrying Lease as per Tamil Nadu Minor Mineral Concession Rules, 1959
- Obtained Precise Area Communication Letter as per Tamil Nadu Minor Mineral Concession Rules, 1959 for Preparation of Mining Plan and obtaining Environmental Clearance
- The Mining Plan of Granite quarry 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.4902/1 (a) /TOR-966/2021 Dated: 08.05.2021-P1
ToR vide Lr.No.SEIAA-TN/F.No.10152/ToR-1530/2023 Dated:07.08.2023-P2

2. PROJECT DESCRIPTION

2.0 General

Proposed and Existing Quarry in Chendarapalli Village, Bargur Taluk, Krishnagiri District and Tamil Nadu State falls under Cluster Situation as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016 and the total extent of cluster is 17.73.5 ha consisting of three quarries. As the extent of cluster is more than 5 ha, the proposal falls under B1 Category as per the Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018, and requirement for EIA, EMP and Public Consultation for obtaining Environmental Clearance.

2.1 Description of the Project

The Proposed and Existing project is located in Chendarapalli Village, Bargur Taluk, Krishnagiri District and Tamil Nadu State. The proposed projects are site specific and there is no additional area required for this project. There is no effluent generation/discharge from the proposed and Existing quarries..

Grey Granite quarry operation will be carried out by opencast mechanized method involving Eco-friendly Diamond Wire Saw Cutting, Heavy earth moving machineries like Excavators Trucks for Granite exploitation. Shot hole drilling with controlled blasting using slurry explosives for removal of overburden and Weathered portions during initial stage of quarry operation.

2.2 Location of the Project

- The project area is located in Chendarapalli Village, Bargur Taluk, Krishnagiri District and Tamil Nadu State.
- Toposheet No: 57 L/07
- The project areas fall in the Latitude between 12°29'15.49" N to 12°29'23.98" N and Longitude between 78°18'17.37" E to 78°18'24.15" E
- The project area is patta land (Non-Forest Land)
- Cauvery (North) Wild life sanctuary is about 36 km West side of the project area.
- The Proposed lease area is located about 10km Southeast side of Krishnagiri to Jagadevi and 2km West side of Chendarapalli Village The lease area is located at 750m on the Northern side of Chendarapalli - Krishnagiri District Road.

Table 2.1: Site Connectivity to the Project Area

Nearest Roadway	AH-45-Krishnagiri to Bargur-5km-N NH-77-Krishnagiri to Uthangarai -340m-S Chinna Orappam to Chendarapalli Village Road 430m-W
Nearest Village	Chendarapalli Village – 750m- South
Nearest Town	Krishnagiri– 10 km - NW
Nearest Railway Station & Railway Line	Tirupathur – 28 km - E
Nearest Airport	Bangalore Airport –86 km – North West
Seaport	Chennai 226 km North East

Source: Survey of India Toposheet

Table 2.2: Boundary Co-Ordinates of Proposed Project-P1

Boundary Pillar No.	Latitude	Longitude
1	12 ^o 29'15.49" N	78 ^o 18'23.59" E
2	12 ^o 29'16.66" N	78 ^o 18'22.16" E
3	12 ^o 29'17.53" N	78 ^o 18'18.53" E
4	12 ^o 29'18.46" N	78 ^o 18'18.73" E
5	12 ^o 29'19.79" N	78 ^o 18'17.53" E
6	12 ^o 29'23.98" N	78 ^o 18'17.37" E
7	12 ^o 29'21.31" N	78 ^o 18'22.84" E
8	12 ^o 29'18.39" N	78 ^o 18'23.09" E
9	12 ^o 29'17.56" N	78 ^o 18'24.15" E

Table 2.3: Boundary Co-Ordinates of Proposed Project-P2

Boundary Pillar No.	Latitude	Longitude
1	12 ^o 29'23.1919" N	78 ^o 18'19.1630" E
2	12 ^o 29'25.9956" N	78 ^o 18'18.3081" E
3	12 ^o 29'29.1988" N	78 ^o 18'20.0394" E
4	12 ^o 29'29.4083" N	78 ^o 18'20.9912" E
5	12 ^o 29'28.3911" N	78 ^o 18'22.7160" E
6	12 ^o 29'28.2732" N	78 ^o 18'24.0932" E
7	12 ^o 29'26.2542" N	78 ^o 18'24.7702" E
8	12 ^o 29'25.2048" N	78 ^o 18'25.5806" E
9	12 ^o 29'24.3843" N	78 ^o 18'25.1411" E
10	12 ^o 29'23.5356" N	78 ^o 18'26.5027" E
11	12 ^o 29'22.4759" N	78 ^o 18'25.9305" E
12	12 ^o 29'24.3342" N	78 ^o 18'24.0774" E
13	12 ^o 29'22.4363" N	78 ^o 18'22.5183" E
14	12 ^o 29'21.9728" N	78 ^o 18'22.7282" E
15	12 ^o 29'21.3975" N	78 ^o 18'22.8382" E

Datum : UTM-WGS84

Figure 2.1: Photographs of the Project Area-P1

Figure 2.2: Photographs of the Project Area-P2



Figure 2.3: Fencing Photographs of the Project Area



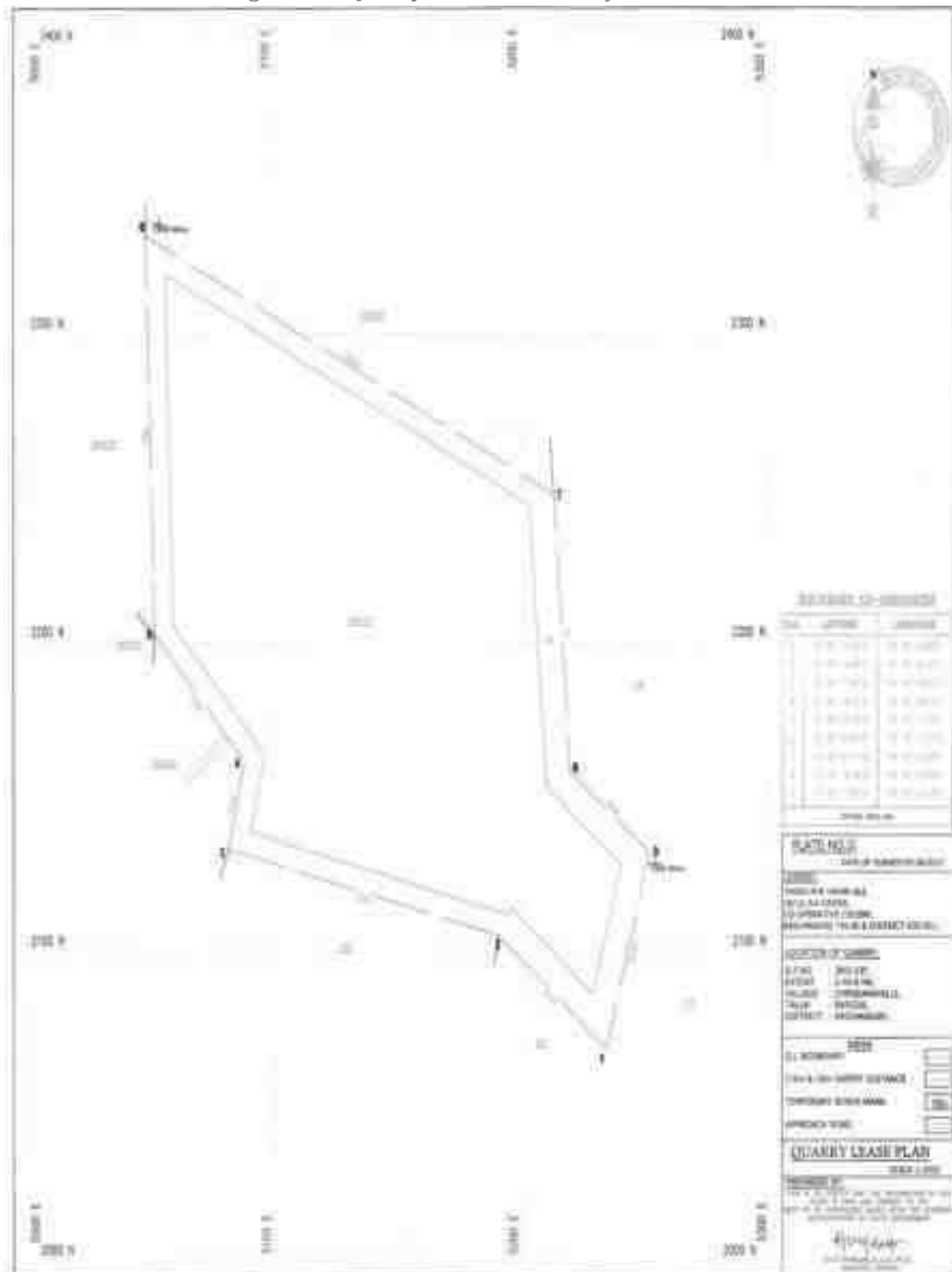
Figure 2.4: Google Image Showing Project Area-P1



Figure 2.5: Google Image Showing Project Area-P2

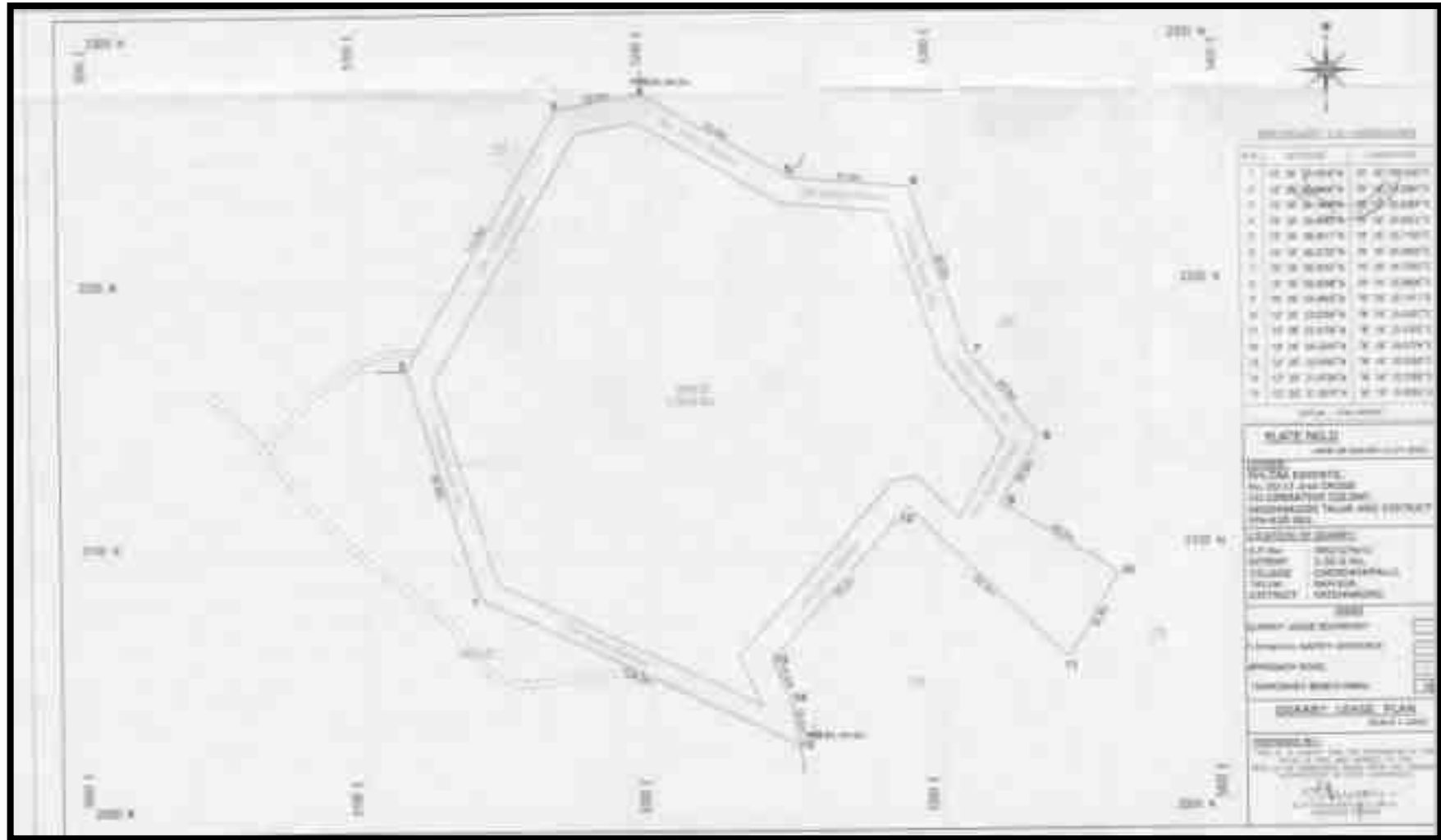


Figure 2.6: Quarry Lease Plan & Surface Plan-P1



Source: Approved 3rd Scheme of mining plan.

Figure 2.7: Quarry Lease Plan & Surface Plan-P2



Source: Approved Scheme of mining plan.

Figure 2.8: Image Showing Surface Features Around 10 Km Radius

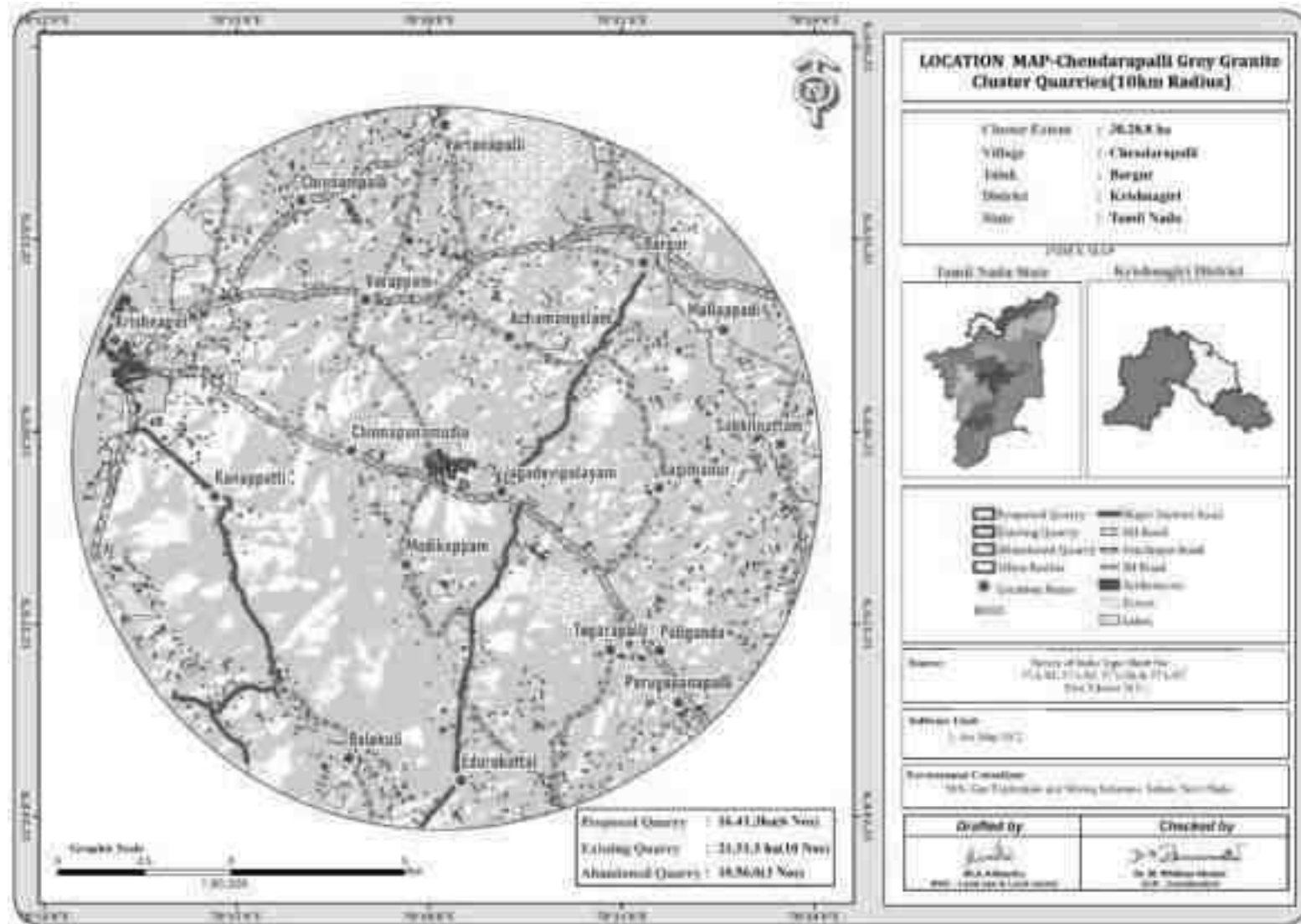


Figure 2.9: Image Showing Surface Features Around 5km Radius

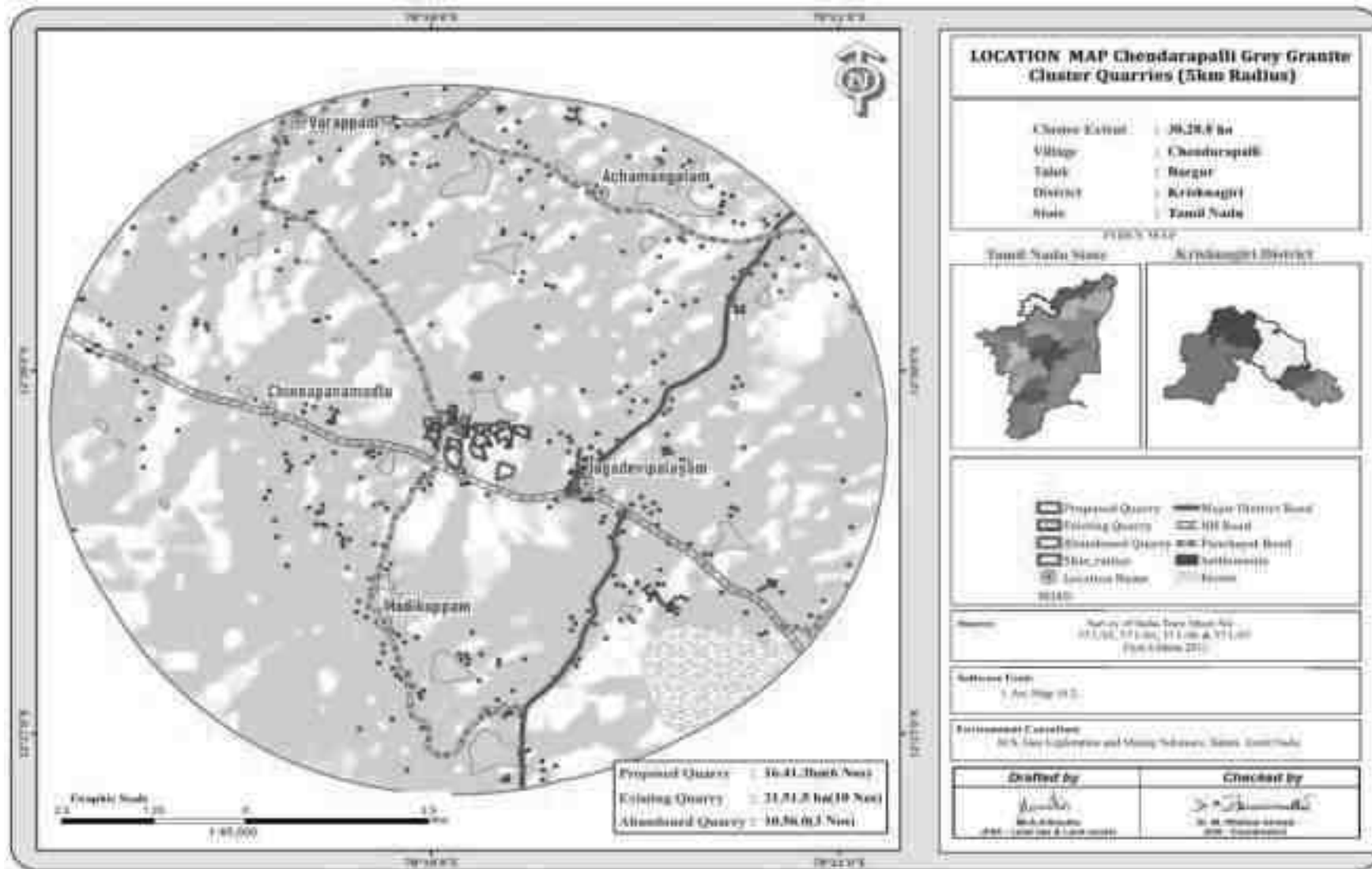
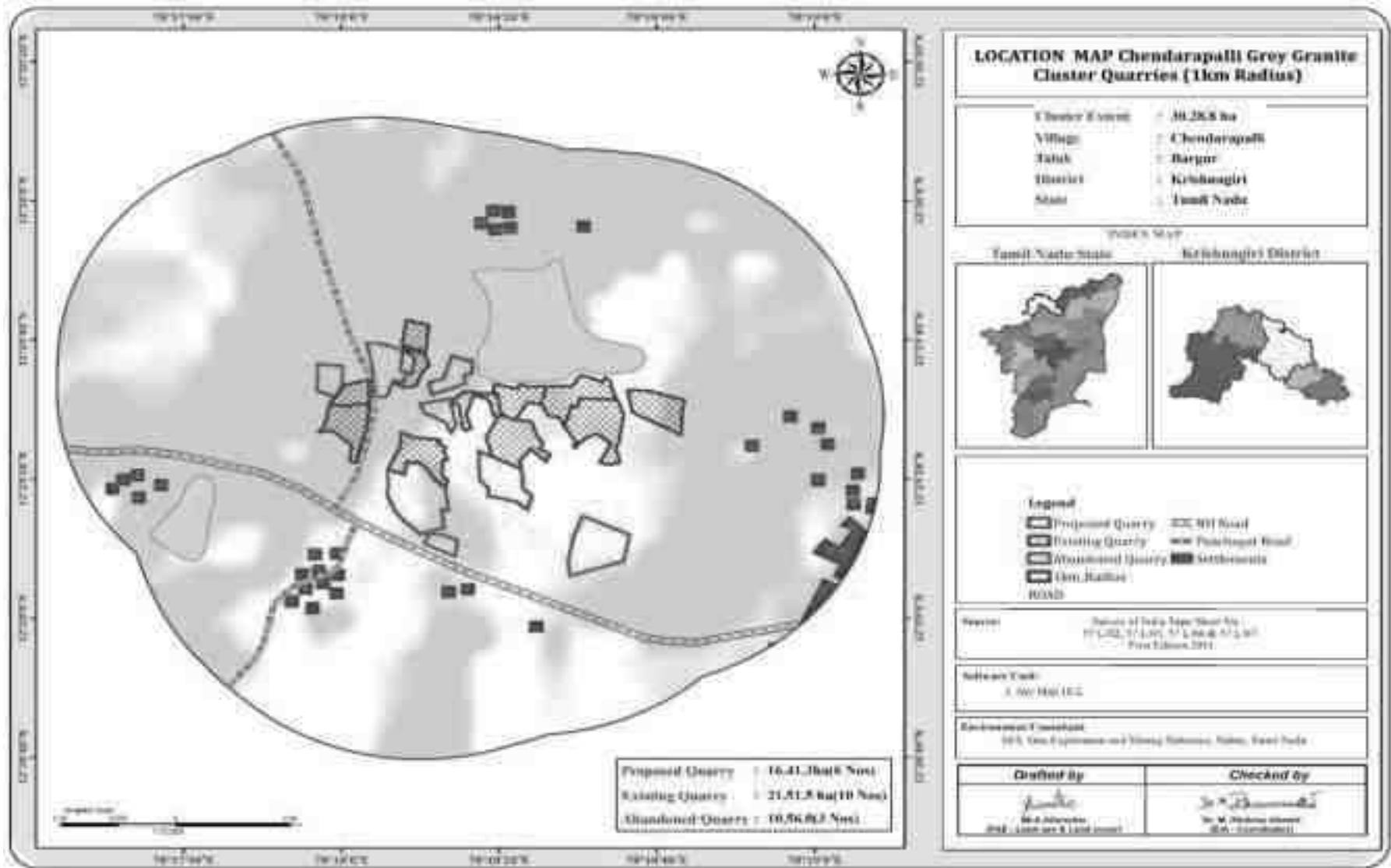


Figure 2.10: Image Showing Surface Features Around 1 Km Radius



2.2.1 Project Area

- The Topography of the Proposed Project is undulated topography, with Granite outcrops, which is site specific, Non – Captive use, opencast Mechanized quarry.
- There is No beneficiation or processing proposed inside the project area.
- Elevation is 486m above from MSL, showing gentle gradient towards Northwest
- There is no forest land involved in the proposed project area and the area is devoid of major vegetation.

Table 2.4: Land Use Pattern of the Existing and Proposed Project-P1

Description	Present area in Ha	Area to be required during this present scheme period (Ha)	Area at the end of life of quarry (Ha)
Area under quarry	1.83.0	Nil	2.25.4
Waste dump	0.63.0	Nil	Backfilled #
Infrastructure	Nil	Nil@	Nil@
Roads	0.02.0	Nil	Nil
Green Belt	Nil (0.03.0)	Nil * (0.15.5)	Nil * (0.18.5)
Stocking blocks	NIL	Nil	0.22.6
Total	2.48.0	Nil	2.48.0

Source: 3rd Scheme of approved mining plan

Table 2.5: Land Use Pattern of the Existing and Proposed Project-P2

Description	Present area in Ha	Area to be required during this present scheme period (Ha)	Area at the end of life of quarry (Ha)
Area under quarry	1.72.19	Nil	2.59.0
Waste dump	1.45.70	Nil	Backfilled #
Infrastructure	0.03.00	Nil@	0.03.00
Roads	0.01.00	0.01.00	0.02.00
Green Belt	Nil	Nil * (0.47.28)	0.81.10
Stocking blocks	0.28.11	0.27.11	0.04.90
Total	3.50.0	0.28.11	3.50.0

Source: First Scheme of approved mining plan

2.2.2 Size or Magnitude of Operation

Table 2.6: Operational Details-P1

Description	Details
Geological Resources ROM	7,22,025
Granite Recovery (20 % in m ³)	1,44,405
Granite Waste (80 % in m ³)	5,77,620
Weathered rock(m ³)	-
Side Burden(m ³)	-
Top Soil in m ³	14,611.6
Mineable Reserves ROM	2,91,611
Granite Recovery (20 % in m ³)	58,323
Granite Waste (80 % in m ³)	2,33,288
Weathered rock (m ³)	-
Side Burden (m ³)	-
Top Soil in m ³	5,065
Proposed Production for five years plan period ROM	73,710
Granite Recovery (20% in m ³)	14,742
Granite Waste (80 % in m ³)	58,968
Weathered rock(m ³)	-
Top Soil in m ³	680
Number of Working Days	300
Production of ROM per day in five-year plan period	49

Production of Granite per day	10
Total Waste per day (Granite was)	39
No of Lorry Loads per day for Transportation to Granite cutting units	1
No of Lorry loads for dump	1

Source: 3rd Scheme of approved mining plan

Table 2.7: Operational Details-P2

Description	Details
Geological Resources ROM	14,01,309
Granite Recovery (35% in m ³)	4,90,460
Granite Waste (65 % in m ³)	9,10,849
Weathered rock(m ³)	-
Side Burden(m ³)	-
Top Soil in m ³	72,714
Mineable Reserves ROM	4,79,579
Granite Recovery (35 % in m ³)	1,67,853
Granite Waste (65 % in m ³)	3,11,726
Weathered rock (m ³)	-
Side Burden (m ³)	-
Top Soil in m ³	33,544
Proposed Production for five years plan period ROM	54,539
Granite Recovery (35% in m ³)	19,089
Granite Waste (65 % in m ³)	35,450
Weathered rock(m ³)	-
Top Soil in m ³	-
Number of Working Days	300
Production of ROM per day in five-year plan period	36
Production of Granite per day	13
Total Waste per day (Granite was)	24
No of Lorry Loads per day for Transportation to Granite cutting units	2
No of Lorry loads for dump	1

Source: First Scheme of approved mining plan

2.3 Geology

2.3.1 Regional Geology

The Grey Granite is medium to coarse grained with feldspar and quartz as major constituents and garnet and other mafic minerals as accessories. The petrological settings of the area are simple and not a complicated phenomenon. There are no major minerals observed in the vicinity of the proposed existing quarry. A brief description of the regional geology is discussed below.

This area forms a part of peninsular gneiss the most wide spread group of rocks in many parts of Tamil Nadu. The southern domain of Tamil Nadu is characterized by the khondalite group of rocks (with subordinate amounts of charnockite) and marked by the absence of BMQ and dolerite dyke systems. The most common varieties of granite are pink, grey and multicolored ones.

The northern part of Tamil Nadu, north of Noyil – Cauvery River is characterized by the occurrences of a number of Dolerite dykes in contrast to the areas south of Noyil – Cauvery River where the dykes are absent. The dolerite dykes in general trending is in WNW- ESE and NNE – SSE directions and rarely in N-S and NNW – SSE directions.

Due to emplacement of Dolerite Dykes along narrower plains of weakness, the rock on solidification develops cracks and fractures mostly along the contacts with the country rocks. The dolerite dykes are mostly emplaced as ‘swarms’ in an area.

Granites were formed from molten rock referred to as “Magma” formed at great depths within the crust of the earth. During the cooling process, some of the minerals grow into larger crystals of colours peculiar to those minerals or get aligned along certain preferred directions giving rise to beautiful colors and patterns. Such rocks that were formed at great depths during the Archaean age are now exposed at the surface of the earth as a result of the combined actions of wind, air, sun and water and weathering and denudation over the past several million years.

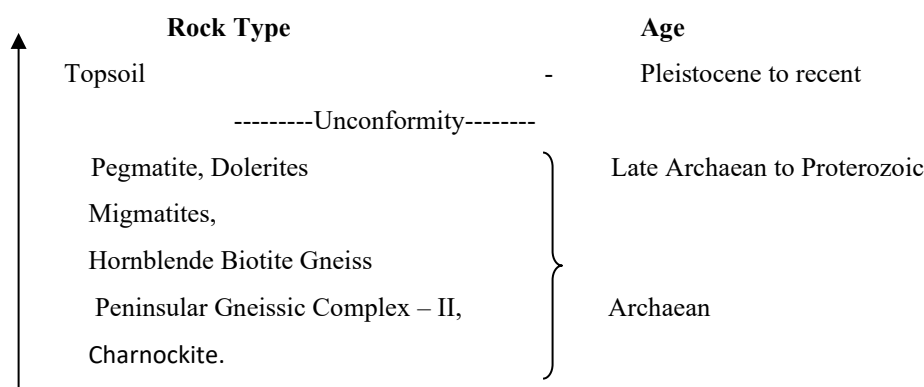
Geological succession of Krishnagiri District:

The Krishnagiri district is underlain by hard Crystalline rocks of Archaean age comprising of various rock types such as Gneiss, Charnockite, Migmatites, etc. The Gneissic type of Crystalline formation is found in the North and North Eastern part of the District Shoolagiri, Hosur, Mattur and Soolamalai areas covered by Granitic Gneiss (Migmatite).

In the Krishnagiri district of Tamil Nadu is characterized by the occurrences of Numerous Dolerite dykes. The dolerite dykes are general trending in NNW- SSE direction and rarely in NNE– SSW directions.

Order of superposition: -

STRUCTURAL SETTINGS OF THE AREA



The physical attitude of the Grey Granite deposit of this area is given below.

2.3.3. Geology of the lease applied area

The black granite is clearly visible right from the existing quarry pits and detached boulders are scattered within the lease area and remaining area concealed under reddish gravelly soil with an average thickness of 1m and followed by fresh black granite. The Granite Gneiss forms the country rock of the area with trending of NE-SW with almost vertical dipping and “Black Granite” (Dolerite) intruded between the batholithic formation of pre-existing country rock of Granite Gneiss discordantly with trending of East – West with Vertical dipping. The width of the black granite is varying from 22m to 68m which stretches about the entire area (Please refer Plate No-III and IV of Approved Scheme of Mining Plan). The black granite is clearly exposed in the existing quarry pit and few small detached boulders are scattered with linear strike direction of the dyke with spheroidal weathering and cuboidal and oblique joints.

The black granite (Dolerite dyke) rock is sub-ophitic, brownish black in color, equigranular, fine to medium grained texture. The colour of the rock changes depending upon the texture of the rock. The Dykes is fine grained at the contact of country rock. The Dolerite is composed of laths of plagioclase embedded in the plates of Augite (Ophitic texture), Apatite, magnetite and pyrite forms the secondary mineral.

Strike, dip and oblique joints are observed at the surface level which is likely to decrease in deep seated condition. The recovery of black granite is 15%, taking in to consideration of the above geological factors, an average recovery of 15% up to 31m depth (1m Topsoil + 30m Black granite) has been computed as economically viable at present market scenario. This mining plan is discussed based on 15% recovery factor. If there is considerable increase or decrease in the recovery factor a modified mining plan will be prepared and will be submitted to relevant authorities for subsequent clearance and approval.

Exploration studies

State Geology and Mining Department 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 Krishnagiri District, besides the Functional Area Experts (FAE) in Geology and Hydrogeology carried out detailed Geological studies in the area. The Granite outcrops is clearly visible in some places within the study area.

2.3.4 Hydrogeology

Krishnagiri district is underlined by Archaean crystalline formations with Recent alluvial deposits of limited areal extent and thickness along the courses of major rivers. The occurrence and movement of ground water are controlled by various factors such as physiography, climate, geology and structural features. Weathered, and fractured crystalline rocks constitute the important aquifer systems in the district. Ground water generally occurs under phreatic conditions in the weathered mantle and under semi-confined conditions in the fractured zones at deeper levels. The thickness of weathered zones in the district ranges from less than a meter to more than 15 m (Source Central Ground Water Board – Krishnagiri).

Figure 2.11: Regional Geology Map

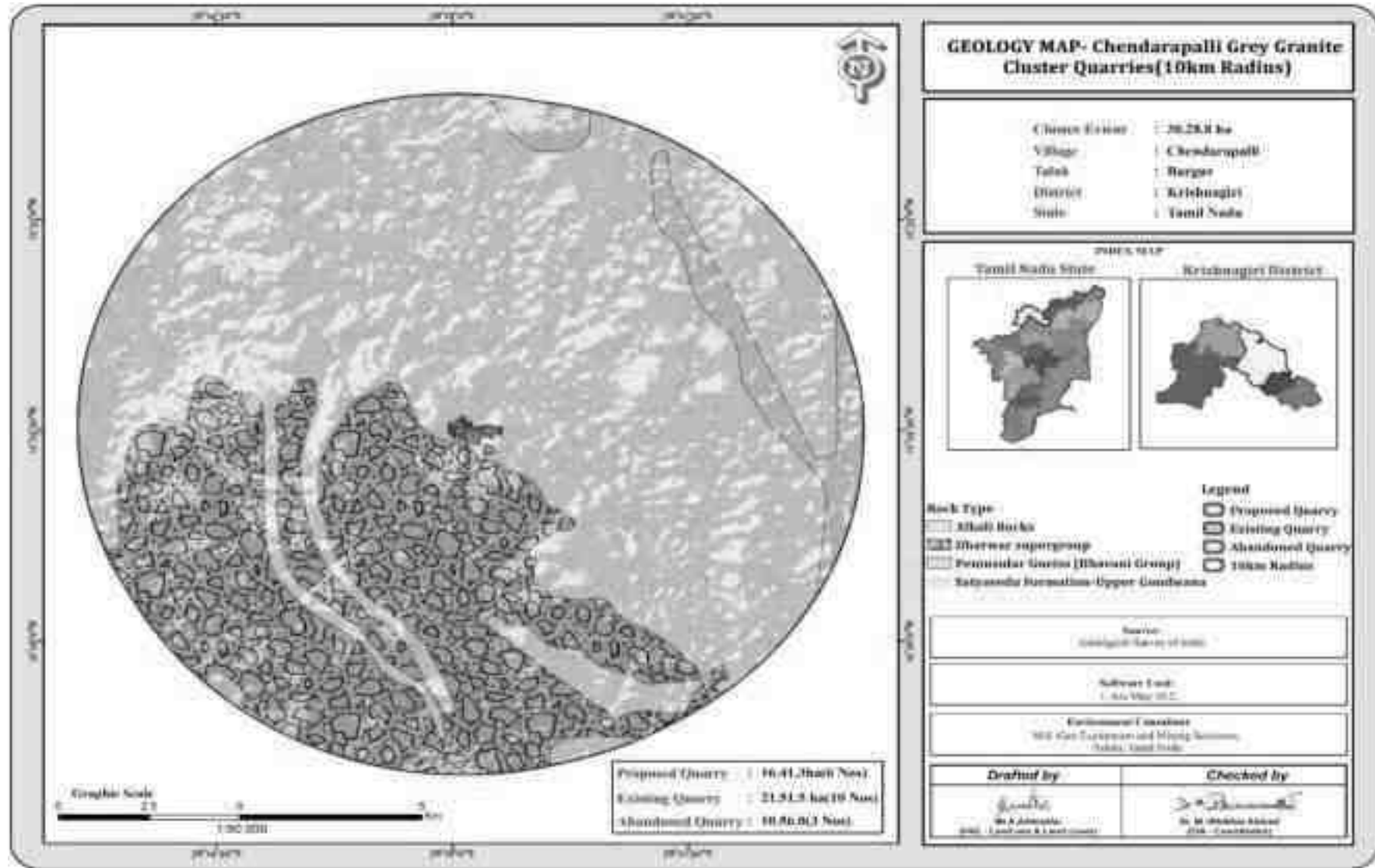


Figure 2.12: Geomorphology Map of The Study Area

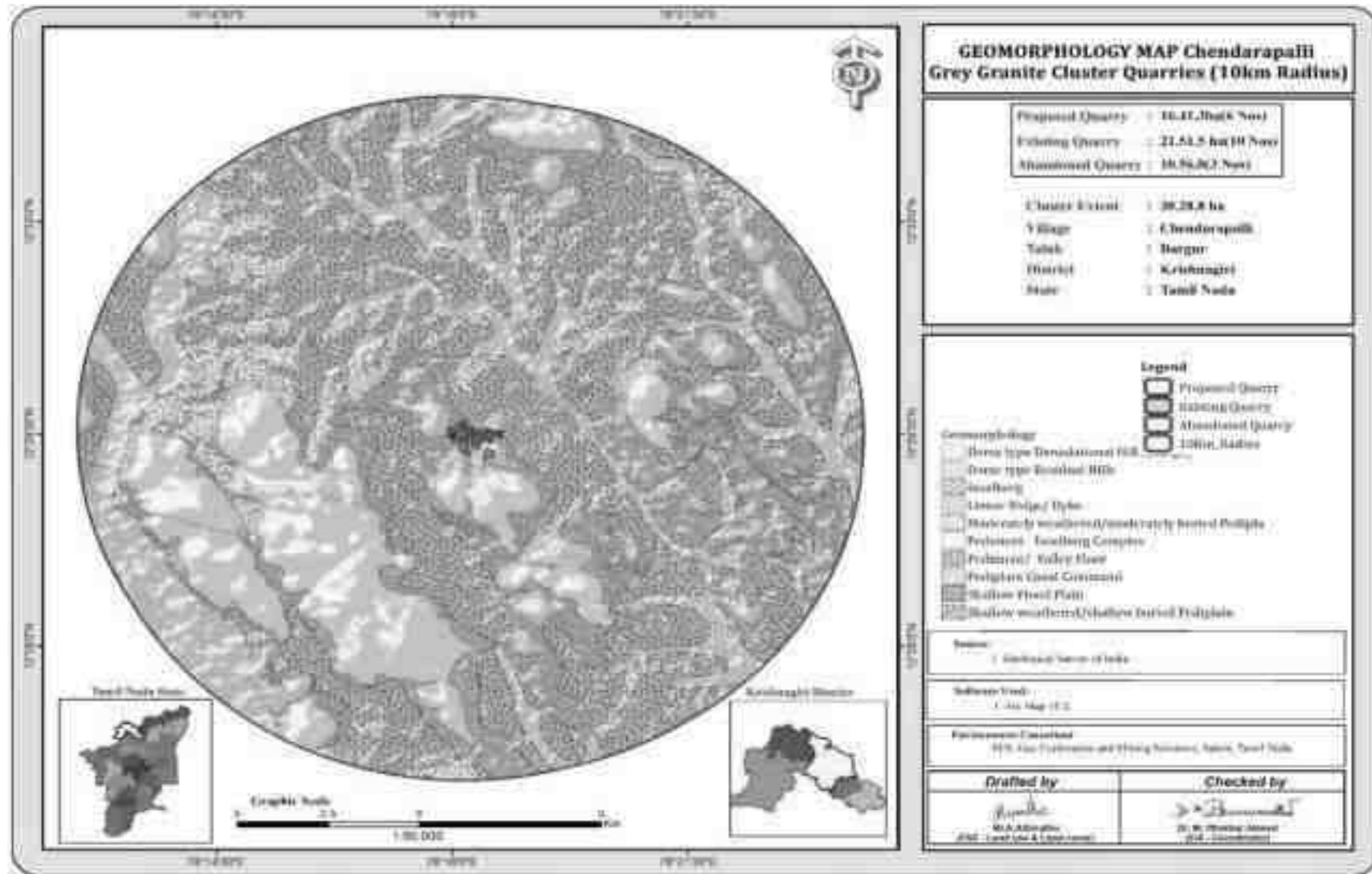
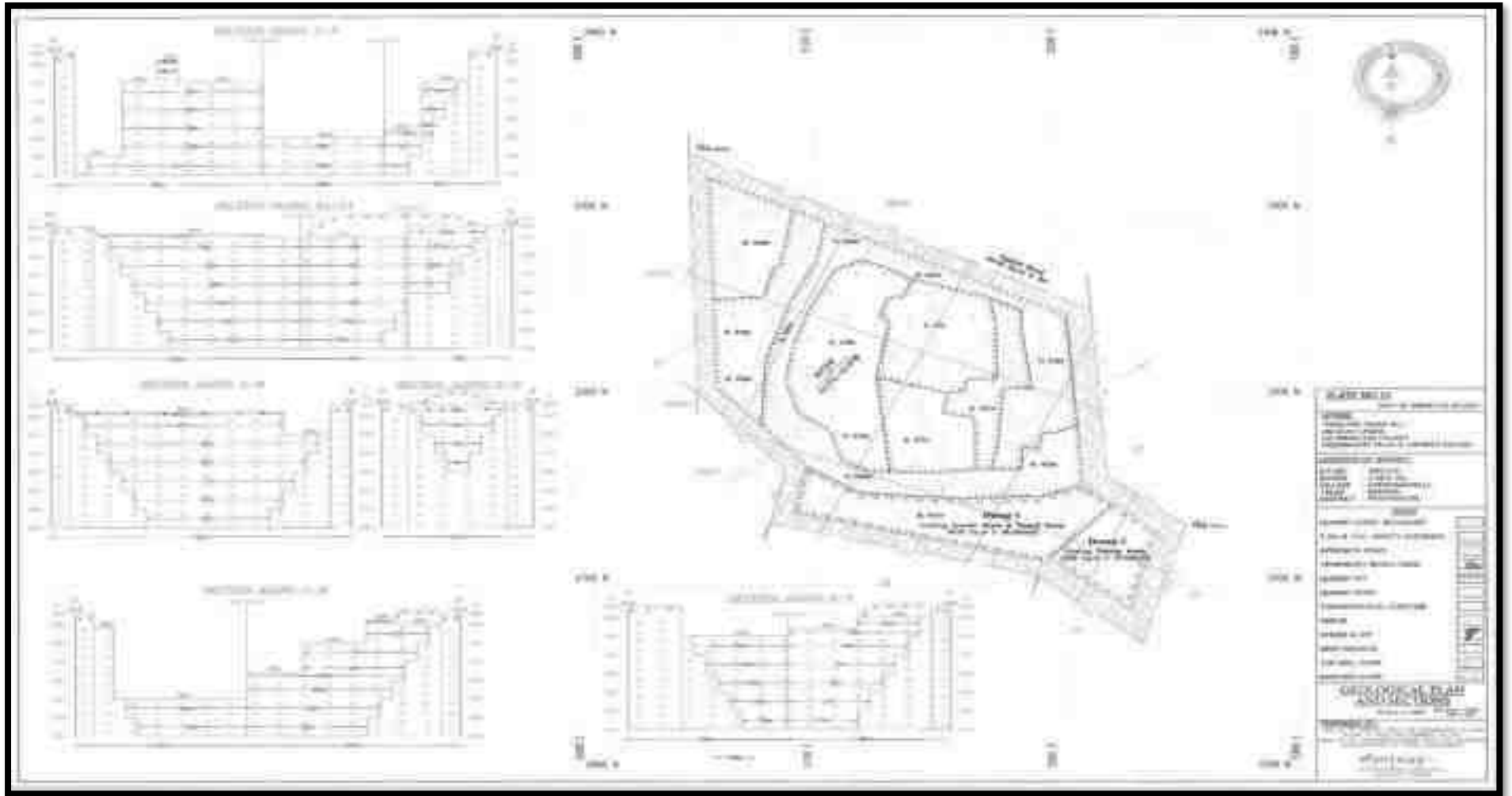


Figure 2.13: Topography, Geological Plan and Section -P1



Source: 3rd Scheme of approved mining plan

Figure 2.14: Topography, Geological Plan and Section -P2

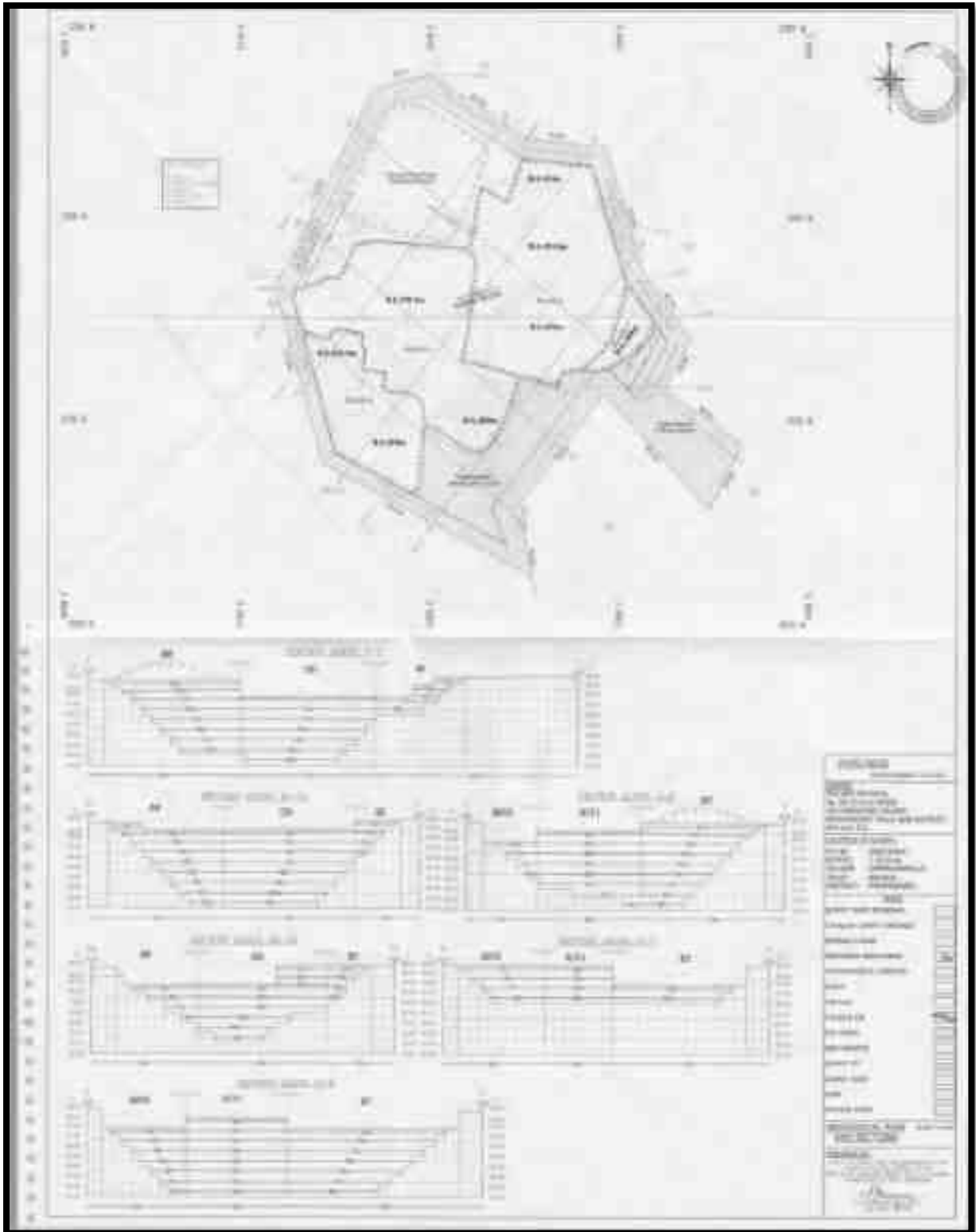
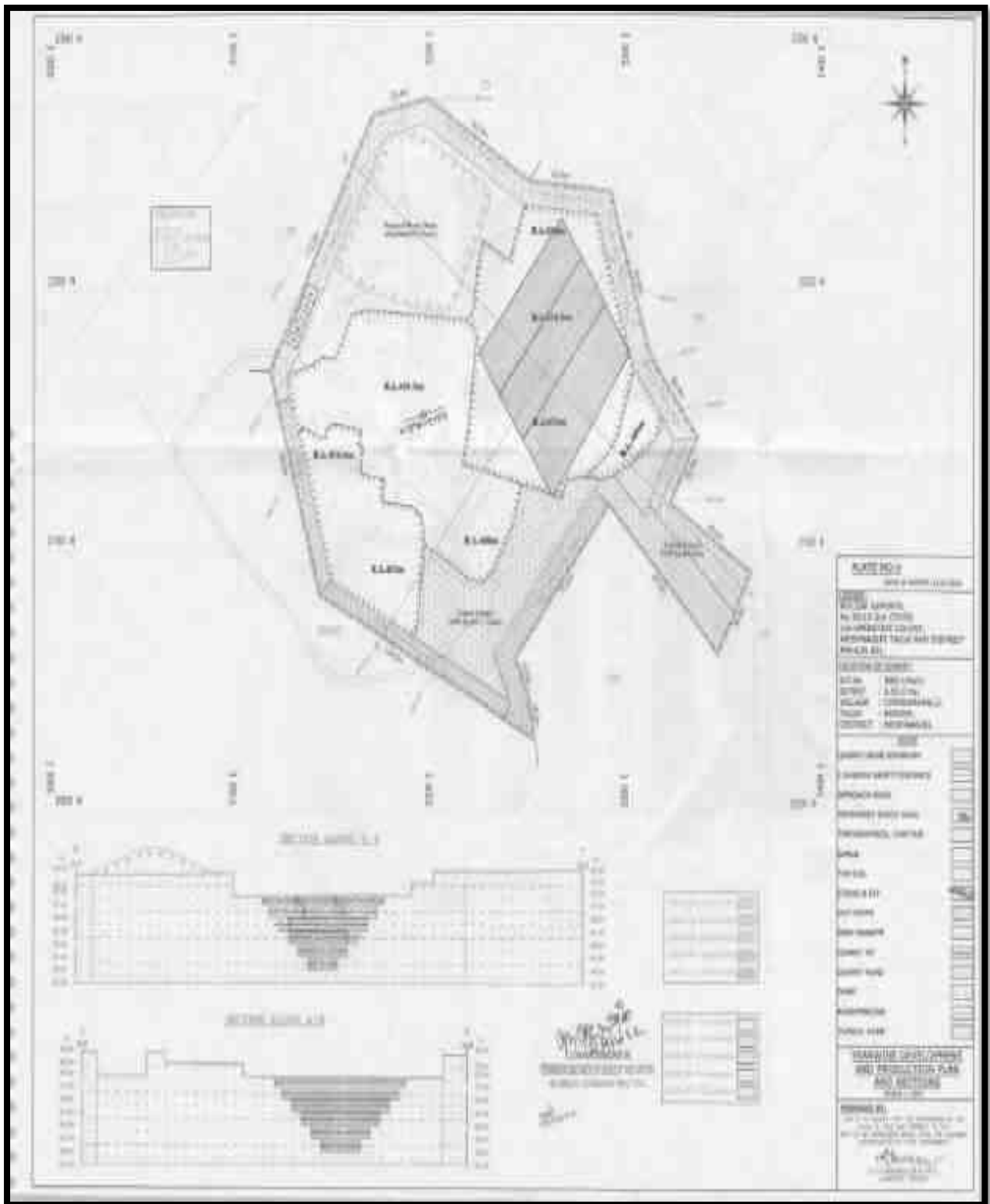


Figure 2.15: Year-Wise Development Production Plan and Section -P1



Source: 3rd Scheme of approved mining plan

Figure 2.16: Year-Wise Development Production Plan and Section -P2



Source: first Scheme of approved mining plan

2.4 Resources and Reserves

Grey Granite is occurring beneath the surface, Granite outcrops are visible in some places within the project area.

Table 2.8 Resources, Reserves-P1

Description	ROM in m ³	Granite recovery @20 % in m ³	Granite waste @80% recovery	Side Burden in m ³	Top Soil in m ³
Geological Resources	7,22,025	1,44,405	5,77,620	-	14,611.6
Mineable Reserves	2,91,611	58,323	2,33,288	-	5,065
Year wise Production for Five years	73,710	14,742	58,968	-	680

Source: 3rd Scheme of approved mining plan

Table 2.9 Resources, Reserves-P2

Description	ROM in m ³	Granite recovery @35 % in m ³	Granite waste @65% recovery	Side Burden in m ³	Top Soil in m ³
Geological Resources	14,01,309	4,90,460	9,10,849	-	72,714
Mineable Reserves	4,79,579	1,67,853	3,11,726	-	33,544
Year wise Production for Five years	54,539	19,089	35,450	-	-

Source: First Scheme of approved mining plan

Table 2.10 Year wise Production plan-P1

Year	ROM in m ³	Granite Recovery @20% in m ³	Granite Waste @ 80% in m ³	Topsoil in m ³
2022-2023	14,615	2,923	11,692	680
2023-2024	15,015	3,003	12,012	-
2024-2025	14,580	2,916	11,664	-
2025-2026	14,945	2,989	11,956	-
2026-2027	14,555	2,911	11,644	-
Total	73,710	14,742	58,968	680

Source: 3rd Scheme of approved mining plan

Table 2.11 Year wise Production plan-P2

Year	ROM in m ³	Granite Recovery @35% in m ³	Granite Waste @ 65% in m ³	Topsoil in m ³
2022-2023	10,728	3755	6973	-
2023-2024	10,690	3742	6948	-
2024-2025	10,871	3804	7067	-
2025-2026	11000	3850	7150	-
2026-2027	11250	3938	7312	-
Total	54539	19089	35,450	-

Source: First Scheme of approved mining plan

Stacking of Granite Rejects and Disposal of Waste -P1

There is generation of topsoil around 680 m³ the same will be preserved all along the safety barrier and utilized for construction of bund, haul road and afforestation purpose. Total waste produced during this scheme will be around 58,968 m³. The quarried out waste will be proposed to dump over the existing waste and topsoil dump-I situated on the southern side with dimension of (area) 3033m² x (H)49m, and the existing waste dump-II situated on the southern side with dimensions of (area) 1269 m² x (H) 48.5m.

Stacking of Granite Rejects and Disposal of Waste -P2

There is no topsoil generated during this scheme period. Total waste produced during this scheme period will be around 35,450 m³. The quarried out waste will be proposed to dump over the existing waste dump situated on the

Northwest side with maximum dimension of (L) 60m x (W)60m x (H) 19.74m, which will be act as temporary waste dump.

Conceptual Mining Plan/ Final Mine Closure Plan

Conceptual mining plan is prepared with an object of long-term systematic development of benches, lay outs, selection of permanent ultimate pit limit, depth of quarrying and ultimate pit, selection of sites for construction of infrastructure etc. The ultimate pit size is designed based on certain practical parameters such as economical depth of quarrying, safety zones, permissible area etc.,

Table 2.12 Ultimate Pit Dimension -P1

Length In m	Width in m	Depth in m
215	142	33

Source: 3rd Scheme of approved mining plan

Table 2.13 Ultimate Pit Dimension -P2

Length In m	Width in m	Depth in m
185	189	44

Source: First Scheme of approved mining plan

2.5 Method of Mining

- The method of mining is Opencast mechanized method
- Eco-friendly dimensional wire saw cutting for liberation and splitting up of blocks from parent sheet rocks
- Splitting of rock body of considerable volume from the parent rock formation by carefully avoiding visibly seen defects such as patches veins, etc., is done by adopting the method of “Diamond wire cutting” along the horizontal as well as two vertical sides on the front face of the formation.
- Jackhammer drilling with 32mm dia, this huge portion is further split into several blocks of required dimensions, only slurry explosives are used for secondary fragmentation and handling of waste.
- Hydraulic Excavator coupled with tippers is deployed for the formation of benches and loading
- There is no mineral processing or ore beneficiation proposed
- Proposed bench height is 5m and 5m width with 60⁰slope
- The waste material generated during quarrying activity includes rock fragments of different sizes, and waste chips during dressing of the blocks. The waste materials are taken in tippers and proposed to be dumped in the respective approved places ear-marked for the purpose and the same will be utilized for backfilling in the northern side of the lease area during conceptual stage.

2.5.1 Drilling

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

Spacing - 1m, Burden - 0.8m, Depth of hole - 1.5m

2.5.2 Blasting

Blasting will be done as per details below: -

- (i) Controlled blasting parameter: -
- Spacing – 1m
 - Burden – 0.8 m
 - Depth of hole – 1.5 m
 - Charge per hole – 125 gms
 - Powder factor – 7.0 tonnes/kg
 - Dia of hole – 32 mm

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

2.5.3 Extent of Mechanization

Table 2.14: Machinery Details Proposed -P1

Drilling Equipment's					
Type	No of Unit	Dia of Hole mm	Size capacity	Make	Motive Power
Jack Hammer	6	32	1.2m to 6m	Atlas Copco	Compressed air
Compressor	2	-	140cfm/400psi	Atlas Copco	Diesel drive
Diamond Wire Saw	1	-	20m ³ /day	optima	Diesel Generator
Diesel Generator	1	-	125kva	Powerica	Diesel
Loading Equipment					
Type	No of Unit	Capacity	Make	Motive Power	
Crawler Crane	1	855	Tata P & H	Diesel Drive	
Excavator	1	300	Tata Hitachi	Diesel Drive	
Haulage within the Mine & Transport Equipment					
Type	No of Unit	Capacity	Make	Motive Power	
Tipper	1	20 tonnes	Tata	Diesel Drive	

Source: 3rd Scheme of approved mining plan

Table 2.15: Machinery Details Proposed -P2

Drilling Equipment's					
Type	No of Unit	Dia of Hole mm	Size capacity	Make	Motive Power
Jack Hammer	5	32	1.2m to 6m	Atlas Copco	Compressed air
Compressor	2	-	140cfm/400psi	Atlas Copco	Diesel drive
Diamond Wire Saw	1	-	20m ³ /day	optima	Diesel Generator
Double disc blade cutting	2	-	20m ³ /day	Shunian	Electricity
Diesel Generator	1	-	125kva	Powerica	Diesel
Loading Equipment					
Type	No of Unit	Capacity	Make	Motive Power	
Crawler Crane	1	855	Tata P & H	Diesel Drive	
Excavator	2	300	Tata Hitachi	Diesel Drive	
Haulage within the Mine & Transport Equipment					
Type	No of Unit	Capacity	Make	Motive Power	
Tipper	2	20 tonnes	Tata	Diesel Drive	

Source: First Scheme of 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, hence there is no requirement of stream or canals diversion.

2.6.3 Traffic Density

The traffic survey conducted based on the transportation route of material, the Grey granite will be transported mainly through the Orappam-Chendarapalli Panchayat Road located 3.0km North West side of the area and Bargur-Jagadevipalayam District Road 3.5km NE side.

Traffic density measurements were performed at Two locations

1. Orappam-Chendarapalli Panchayat Road located 3.0km North West
2. Bargur-Jagadevipalayam District Road 3.5km NE side.

Traffic density measurement were made continuously for 24 hours by visual observation and counting of vehicles under three categories, viz., Heavy motor vehicles, light motor vehicles and two/three wheelers. As traffic densities on the roads are high, two skilled persons were deployed simultaneously at each station during

each shift- one person on either direction for counting the traffic. At the end of each hour, fresh counting and recording was undertaken.

Figure. 2.17: Mineral Transportation Route Map



Table.2.16: Traffic Survey Locations

Station Code	Road Name	Distance and Direction	Type of Road
TS1	Orappam-Chendarapalli Panchayat Road	3.0km North West	Panchayat Road (Single Lane)
TS2	Bargur-Jagadevipalayam District Road	3.5 km NE	Major District Road (Two Lane)

Source: On-site monitoring by GEMS FAE & TM

Table 2.17: Existing Traffic Volume

Station Code	HMV		LMV		2/3 Wheelers		Total PCU
	Number	PCU	Number	PCU	Number	PCU	
TS1	100	300	100	100	150	60	460
TS2	225	675	175	175	250	125	975

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 2.18: Granite Hourly Transportation Requirement

Transportation of Granite per day			
Capacity of Trucks	No of trips per day	Volume in PCU	PCU considering 8 Hours
20Ts	3	9	9

Source: Data analysed from Approved Mining plan

Table 2.19: Summary of Traffic Volume

Route	Existing Traffic Volume in PCU	Incremental Traffic Due to the project in PCU	Total Traffic Volume in PCU	Hourly Capacity in PCU as per IRC - 1960
Orappam-Chendarapalli Panchayat Road	460	9	469	1200
Bargur-Jagadevipalayam District Road	975	9	984	1500

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

Due to this project 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 this project

2.7 Project Requirement

2.7.1 Water Source & Requirement

Detail of water requirements in KLD as given below:

Table 2.20 Water Requirement for the Project-P1

Purpose	Quantity	Source
Dust Suppression	0.5 KLD	From Existing, bore wells and drinking water will be sourced from Approved Water vendors.
Green Belt development	1.0 KLD	From Existing bore wells from nearby area
*Drinking and Domestic purpose	0.5 KLD	From Existing bore wells from nearby area
Total	2.0 KLD	

Source: Prefeasibility report

Table 2.21 Water Requirement for the Project-P2

Purpose	Quantity	Source
Dust Suppression	0.8KLD	From Existing, bore wells and drinking water will be sourced from Approved Water vendors.
Green Belt development	1.0KLD	From Existing bore wells from nearby area
*Drinking and Domestic purpose	0.7KLD	From Existing bore wells from nearby area
Total	2.5 KLD	

Source: Prefeasibility report

* Drinking water will be sourced from Approved Water Vendors

2.7.2 Power and Other Infrastructure Requirement

The project does not require power supply for the mining operations. 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.

The temporary infrastructures such as Mine Office, First Aid Room, Rest Shelter etc., will be constructed within the project area before commencing the quarry operation. No workshops are proposed inside the project

area hence there will not be any process effluent generation from the proposed lease 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 -P1

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

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

One Hydraulic Excavator will excavate and loading into the tippers about 20m³/Hour

Hydraulic Excavator will consume about 16 Ltrs per hour

Per hour Excavator will consume = 16 liters / hour

Per hour Excavator will excavate = 10m³

For 73,710m³ (for the entire life period) = 73,710/10

Diesel consume 7,371 working hours = 7,371 hours x 16 liters

= 1,17,936 liters of HSD for entire project life

The HSD (High Speed Diesel) will be obtained from nearby fuel station near the vicinity of the project site and will be transported in Fuel Barrel specified for transport of HSD (High Speed Diesel)

Source: 3rd Scheme of approved mining plan

2.7.4 Fuel Requirement -P2

Per hour Excavator will consume = 16 liters / hour

Per hour Excavator will excavate = 10m³

For 54,539m³ (for this Scheme period) = 54,539/10

Diesel consume 5,454 working hours = 5,454 hours x 16 liters

= 87,264 liters of HSD for scheme
period of five years.

Source: First Scheme of approved mining plan

2.8 Employment Requirement:

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

Table 2.22: Employment Potential -P1

S.No	Description	Numbers
Skilled Labour		
1	Mines Manager	1
2	Mines Foreman	1
3	Machinery Operators	2
Ordinary Employees		
4	Skilled labour	5
5	Semi-skilled	15
6	Unskilled	8
Total		32

Source: 3rd Scheme of approved mining plan

Table 2.23: Employment Potential -P2

S.No	Description	Numbers
Skilled Labour		
1	Mines Manager	1
2	Mines Foreman	1
3	Machinery Operators	5
Ordinary Employees		
4	Skilled labour	5
5	Semi-skilled	15
6	Unskilled	8
Total		35

Source: First Scheme of approved mining plan

2.9 Project Implementation Schedule

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

Table 2.24 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						Production Start Period
Time line may vary; subjected to rules and regulations /& other unforeseen circumstances							

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

Table 2.25 Capital Cost Estimation -P1

S.No	Description	Cost
1	Project Cost	Rs. 1,22,89,000/-
2	EMP Cost	Rs. 3,80,000/-
	Total	Rs. 1,26,69,000/-

Source: 3rd Scheme of approved mining plan

Table 2.26 Capital Cost Estimation -P2

S.No	Description	Cost
1	Project Cost	Rs. 2,12,24,000/-
2	EMP Cost	Rs. 3,80,000/-
	Total	Rs. 2,16,04,000/-

Source: 3rd Scheme of approved mining plan.

3. DESCRIPTION OF ENVIRONMENT

3.0 General

This chapter presents a regional background to the baseline data at the very onset, which will help in better appreciation of micro-level field data, generated on several environmental and ecological attributes of the study area. The baseline 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 2022-May2022 with CPCB guidelines. Environmental data has been collected with reference to cluster quarries by **KGS ENVIRO LABORATORY PRIVATE LIMITED** – An accredited by ISO/IEC 17025:2017 (NABL) Laboratory, for the below attributes-
for the below attributes –

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

Study Area

An area of 10 km radius (aerial distance) from the periphery of the cluster is considered for EIA study. The data collection has been used to understand the existing environment scenario around the cluster against which the potential impacts of the project can be assessed. The study area has been divided into two zones viz core zone and buffer zone where core zone is considered as cluster quarries area and buffer zone taken as 10km radius from the periphery of the Cluster quarries. 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 2022-May2022.

Study Methodology

- 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, exchangeable Cations, nutrients & micro nutrients etc., in order to assess the impact due to mining activities and to recommend saplings for Greenbelt development.
- Ground water samples were collected during the study period from the existing bore wells, while surface water was collected from ponds in the buffer zone. The samples were analysed for parameters necessary to determine water quality (based on IS: 10500:2012 criteria) and those which are relevant from the point of view of environmental impact of the proposed mines.
- An onsite meteorological station was setup in project area, to collect data about wind speed, wind direction, temperature, relative humidity, rainfall and general weather conditions were recorded throughout the study period.
- In order to assess the Ambient Air Quality (AAQ), samples of ambient air were collected by installation of Respiratory Dust Samplers (RDS) for Fugitive dust, PM₁₀ and SO₂, NO_x with gaseous attachments & Fine Dust Samplers (FDS) for PM_{2.5} and other parameters as per NAAQ norms and analysed for primary air pollutants to work out the existing status of air quality.
- The Noise level measurements were also made at various locations in different intervals of time with the help of sound level meter to establish the baseline noise levels in the impact zone.
- Baseline biological studies were carried out to assess the ecology of the study area to study the existing flora and fauna pattern of the area.
- Socio-Economic survey was conducted at village and household level in the study area to understand the present socio-economic conditions and assess the extent of impact due to the proposed mining project.

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

Table 3.1: Monitoring Attributes and Frequency of Monitoring

Attribute	Parameters	Frequency of Monitoring	No. of Locations	Protocol
Land-use Land cover	Land-use Pattern within 10 km radius of the study area	Data from census handbook 2011 and from the satellite imagery	Study Area	Satellite Imagery Primary Survey
*Soil	Physio - Chemical Characteristics	Once during the study period	6 (2 core & 4buffer 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/Automatic 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 –May 2022)	8 (2 core & 6 buffer)	IS 5182 Part 1-23 National Ambient Air Quality Standards, CPCB
*Noise Levels	Ambient Noise	Hourly observation for 24 Hours per location	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 Quadrante & 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 KGS Enviro Laboratory Private Limited, in association with GEMS

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

3.1 Land Environment

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

3.1.1 LAND USE/LAND COVER

To study the land use pattern of the core as well as a buffer zone, land use/land cover details have been identified/ maps have been prepared in accordance with the **Standard ToR point no. 4 & 10 Stating:** Point No. 4 All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).

Point No. 10. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted.

Current vintage data of Indian Remote Sensing Satellite ResourceSat1 LISSIII (False Color Composite) has been used for Land Use / Land Cover study. Satellite image has been procured from National Remote Sensing Centre, Hyderabad.

3.1.2 OBJECTIVE

The objectives of the LULC study are as follow:

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

Technical specification of Satellite imagery Data Used:

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

Satellite Image - Resourcesat1-LISSIII, 23.5m Resolution

Satellite Data Source - NRSC, Hyderabad

Satellite Vintage - 14st July 2020, Swath 141km wide.

SOI Toposheet No - 57 L/ 07

Software Used - ArcGIS 10.8

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

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

TABLE 3.2: Resourcesat1-LISSIII SENSOR characteristics

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

Source: NRSC, Hyderabad

3.1.3 METHODOLOGY

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

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

The land use/Land cover Map of the buffer zone is given in 3.4(b).

Land Use Pattern of the Buffer Zone (Study area)

Details of the same are given in Table - 3.3 and the map is shown in Figure - 3.2

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

S.No	CLASSIFICATION	AREA_HA	AREA_%
BUILTUP			
1	URBAN	385.93	1.14
2	RURAL	472.63	1.39
3	MINING	274.29	0.81
AGRICULTURAL LAND			
4	CROP LAND	19531.86	57.48
5	PLANTATION	1303.13	3.84
6	FALLOW LAND	3865.64	11.38
FOREST			
7	FOREST	2840.67	8.36
BARREN/WASTE LANDS			
8	SCRUB LAND	3840.04	11.30
9	BARREN ROCKY	647.88	1.91
WETLANDS/ WATER BODIES			
10	WATER BODIES/LAKE	817.74	2.41

TOTAL	33979.81	100.00
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Source: Bhuvan, NRSC.

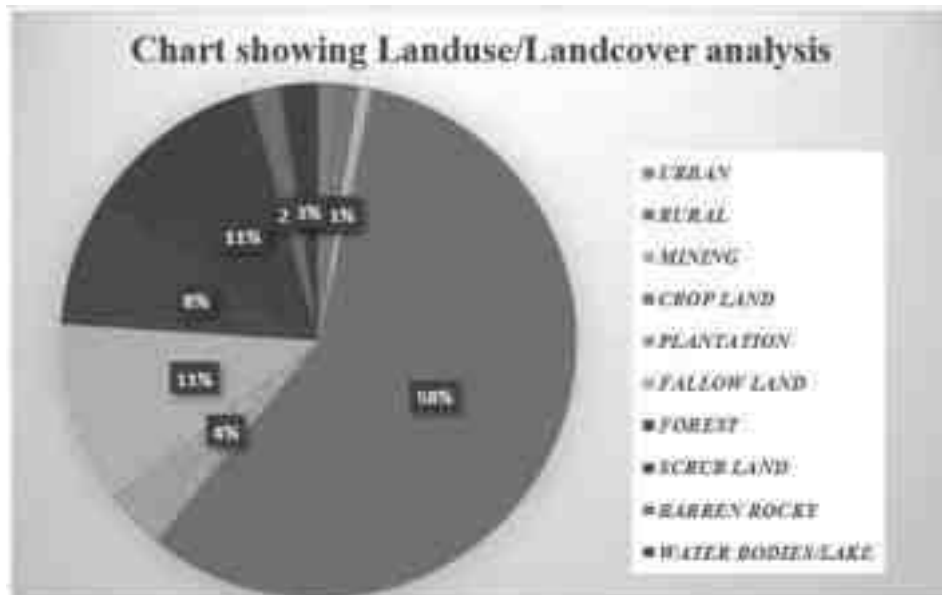


FIGURE 3.1: CHART SHOWING LANDUSE/LANDCOVER ANALYSIS USING LISS III Data

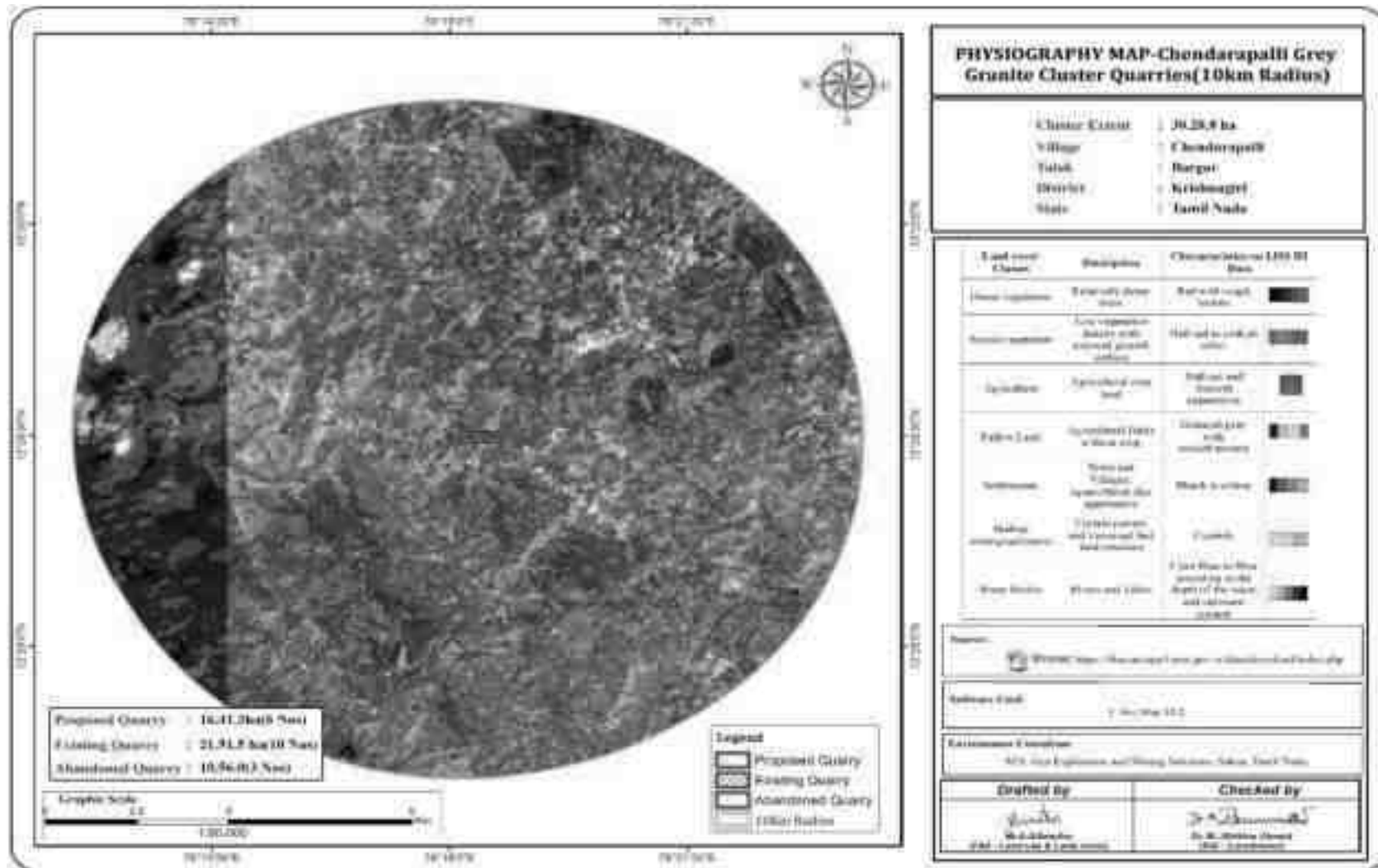


FIGURE 3.2: MAP SHOWING FALSE COLOR COMPOSITE (3,2,1) SATELLITE IMAGERY OF THE STUDY AREA

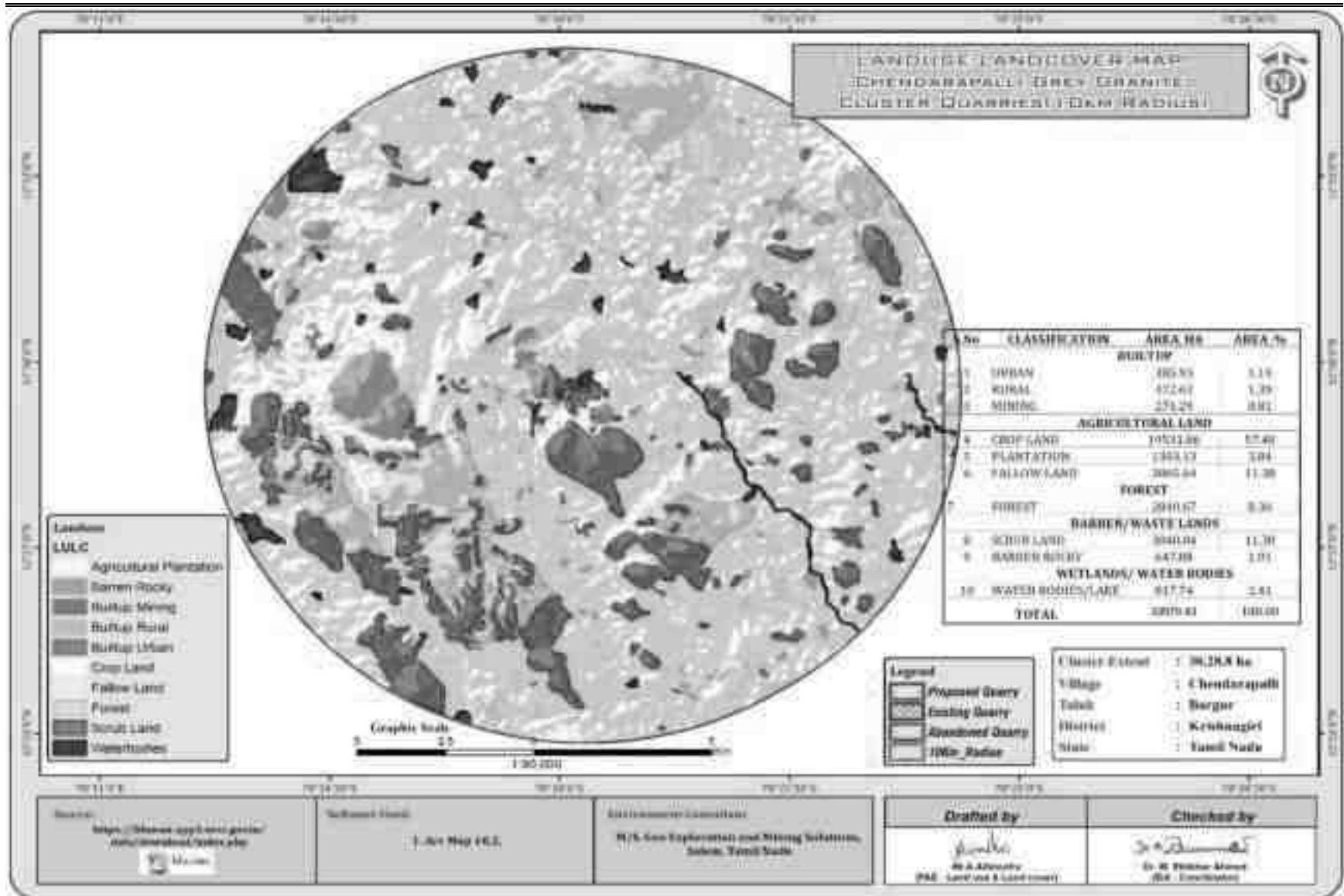


FIGURE 3.3: LAND USE LAND COVER MAP 10KM RADIUS

3.1.4 Interpretation

- ☞ The 10 km radius study area mainly comprises of crop land & Agriculture Plantation land accounting of 57.48% & 3.84% of the total study area. The study area also consists of fallow land of 11.38%.
- ☞ Water Bodies such as ponds/ lakes comprises of 2.41% of the core and buffer area. such as Odai, Kulam comprises at 200m and 190m in E direction, Tank 300m- NE and Tank at 1km in SW direction of the total study area.
- ☞ The Scrub land accounts of 11.30%. As per the primary survey, it was observed the scrub land is mainly occupied by the stony waste and left-over domestic waste generated by the nearby areas.
- ☞ 0.81% of the total study area is occupied by the mine area. The area occupied by Mainly grey granite of the total buffer area. As also observed within the primary survey, the 10 km buffer area is also occupied by the medium scaled granite and marble and small Brick kiln industries also located in the study area.
- ☞ 2.53% of the area is covered under the human Settlement. The nearest village within the 3 km radius from the project site boundary is observed to be villages like Lanchur, Chendarapalli, Jagadevi and Orappam etc.,

3.1.4.1 Cropping Pattern of the Buffer Zone

The productivity of Agriculture in the Southern and Northern part of the Tamil Nadu is comparatively like the Krishnagiri district has more favourable conditions for the agriculture. As observed, within the study area agriculture is the dominant occupation. Krishnagiri district is one of the potential districts for cultivation of horticultural crops. Total area under cultivation is 182888 ha. In that, Horticultural crops have been cultivated in about 80499 ha and the prominent crops under cultivation are Mango, Banana, Tomato, Beans, Cabbage, Cauliflower, Brinjal, Coriander, Potato, Carrot, Beetroot, Knol Khol, Turmeric, Rose, Gerbera, Carnation, Jasmine and Chrysanthemum. Mango is the major crop grown in this district.

3.1.4.2 Interpretation and Conclusion

- ☞ Chendarapalli Village Grey granite quarry has proposed and Existing Project.
- ☞ Out of the total project area i.e., 33979.81 ha, 3.84% (i.e., 1303.13 ha) will be developed under greenbelt development/ plantation.
- ☞ As Existing and Proposed mine is coming in the area, percentage of human settlement will be increased in surrounding of project site and Infrastructure facilities also will be developed on the basis of requirement.
- ☞ The 10 km study area mostly covers of crop land 57.48%. As per current study 11.30% of the area is occupied by scrub land, 1.91% Barren rocky land in 10 km radius from the study area into quarries purpose land for this proposed and Existing project.
- ☞ The project site falls under the Grey granite quarry region. Therefore, the area is appropriate for developing Road development and building etc., it shows that the region has good prospects in the future. Due to proposed grey granite quarry in this region, economic condition of locals is expected to be improved directly & indirectly. Hence project will prove to be the best economic proposal for the coming times.

3.1.5 TOPOGRAPHY

The lease applied area exhibits flat terrain. The area has gentle sloping towards North side from Krishnagiri district. The altitude of the area is 486 m Amsl. Proposed /Existing quarry area.

3.1.5.1 Drainage Pattern of the Area

There are developed surface drainage channels in the study area. The drainage pattern of the area is dendritic it is inferred the rock-hard rock terrain.

The area is studded with few tanks that serve as the source of drinking water and also their surplus feeds adjoining tanks. The area is mostly dry in all seasons except rainy seasons.

During rainy season the surface runoff flows in NE to SW direction. The drainage pattern of the study area is given in Fig. 3.5. The quarrying activity will not hinder the natural flow of rainwater.

3.1.5.2 Seismic Sensitivity

The proposed project site falls in the seismic Zone II (Least active), 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.

3.1.5.3 Environmental Features in the Study Area

Cauvery North Wildlife Sanctuary is situated 37Km South west. There are no other Wildlife Sanctuaries, National Park and Archaeological monuments within cluster area. No Protected and Reserved Forest area is involved in the cluster area. Therefore, there will be no need to acquisition/diversion of forest land. The details related to the environment sensitivity around the cluster area i.e., 10km radius, are given in the below Table 3.3.

Table 3.3: Details of Environment Sensitivity around the Cluster

No	Sensitive Ecological Features	Name	Arial Distance in km from Cluster
1	National Park / Wild life Sanctuaries	Cauvery North wild life sanctuary	37 km SW
2	Reserve Forest	Thogarapalli R.F	3.3Km -SE
		Varatanapalli R.F	6.93Km-NE
		Bargur R.F	9.22km – NE
3	Lake Reservoir	Tank	380m NE
		Tank	1km SW
		Canal	1.5km SW
		Odai	2.4km NE
		Lake	9km SW
		Badatalav Eri	9km NW
4	Tiger Reserve/ Elephant Reserve/ Biosphere Reserve	None	Nil within 10KM Radius
5	Critically Polluted Areas	None	Nil within 10 km Radius
6	Mangroves	None	Nil within 10 km Radius
7	Mountains/Hills	None	Nil within 10 km Radius
8	Notified Archaeological Sites	None	Nil within 10 km Radius
9	Industries/ Thermal Power Plants	None	Nil within 10 km Radius
10	Defence Installation	None	Nil within 10 km Radius

Source: Survey of India Toposheet

3.1.6 Soil Environment

Soil quality of the study area is one of the important components of the land environment. The composite soil samples were collected from the study area and analysed for different parameters. The locations of the monitoring sites are detailed in Table 3.4 and Figure 3.3.

Table 3.4: Soil Sampling Locations

S. No	Location Code	Monitoring Locations	Distance (km) and Direction	Coordinates
1	S-1	Core Zone	Project Area	12°29'17.75"N 78°18'18.80"E
2	S-2	Near Existing Quarry	470m NW	12°29'32.28"N 78°18'4.27"E
3	S-3	Jagadevipalayam	1.3km SE	12°29'9.07"N 78°19'4.34"E
4	S-4	Marutepalli	4.2km NW	12°31'13.41"N 78°16'59.53"E
5	S-5	Nakkalpatti	3.5km Soth	12°27'31.10"N 78°17'52.17"E
6	S-6	Bagimanoor	5.5km East	12°28'59.44"N 78°21'26.91"E

Source: On-site monitoring/sampling by KGS Enviro Laboratory Private Limited in association with GEMS.

The objective of the soil sampling is -

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

Methodology –

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

Table 3.5: 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 KGS Enviro Laboratory 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”.

Figure 3.4: Soil Sampling Locations Around 10 Km Radius

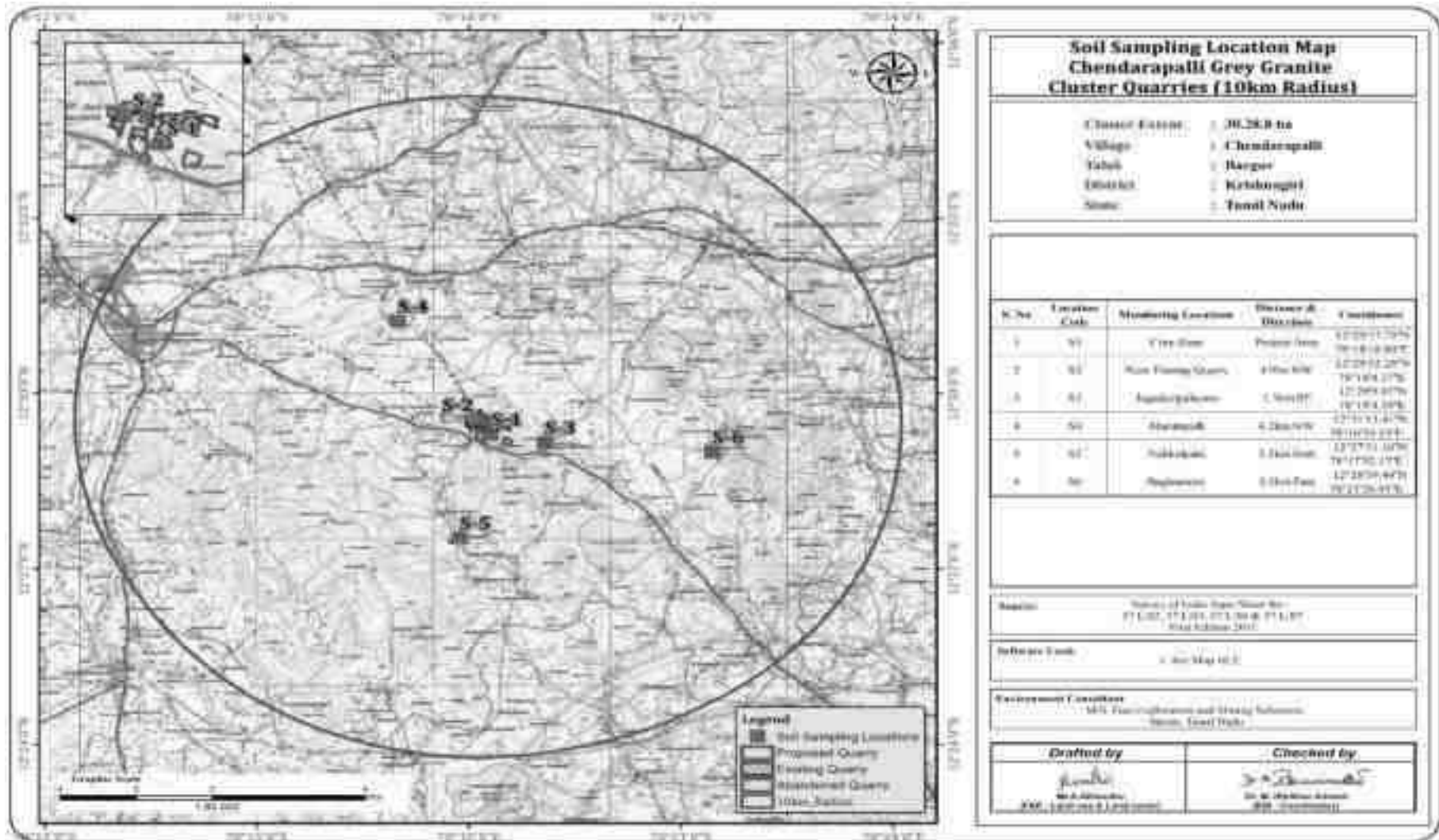


Figure 3.5: Soil Map

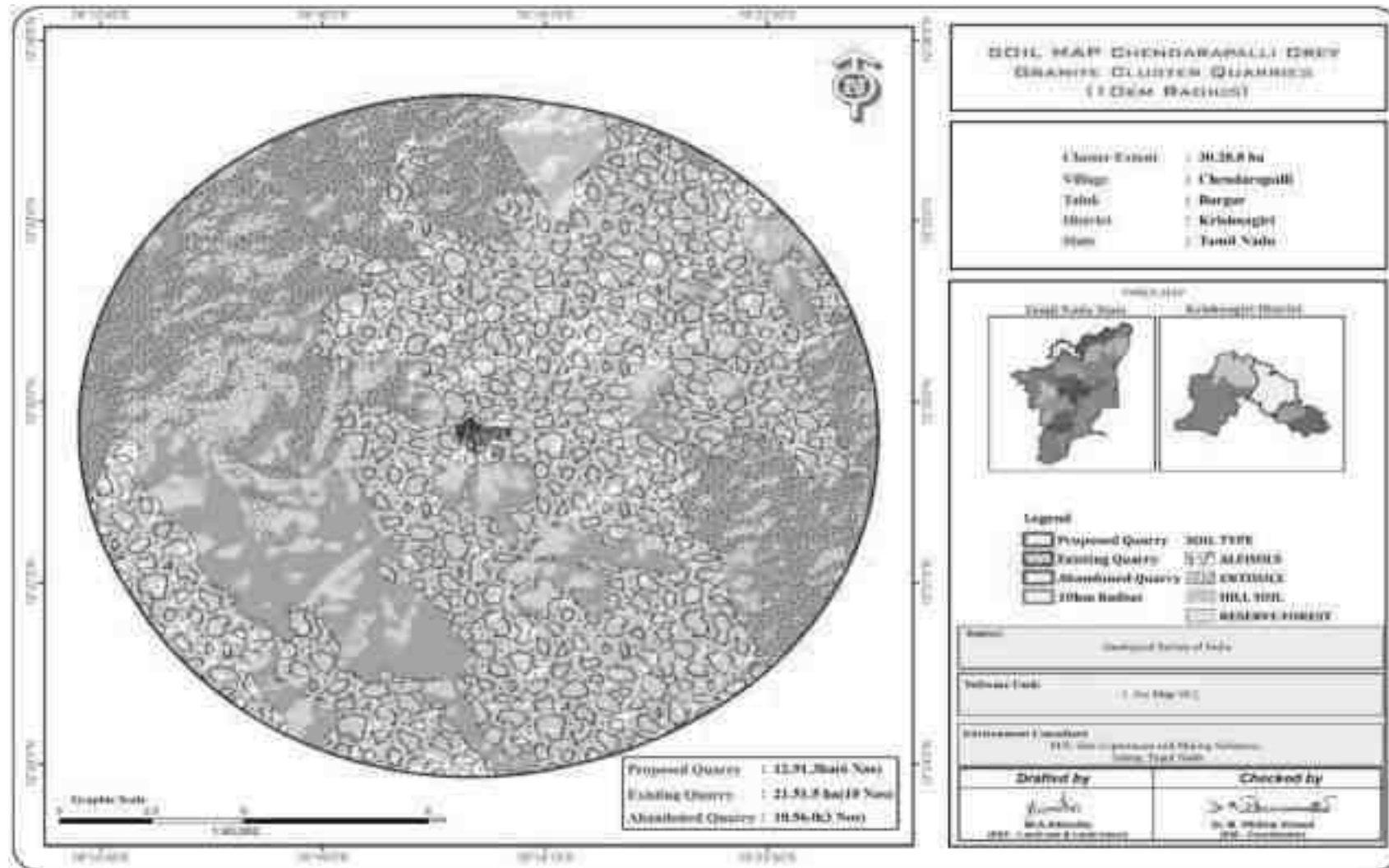


Table 3.6: Soil Quality of the Study Area

S.No	Test Parameters	Protocols	S1- Core Zone	S2- Near Existing Quarry	S3- Jagadevipalayam	S4- Marutepalli	S5- Nakkalpatti	S6- Bagimanoor
1	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.03	7.87	8.16	7.89	7.78	8.23
2	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	502 µmhos/cm	496 µmhos/cm	486 µmhos/cm	368 µmhos/cm	458 µmhos/cm	487 µmhos/cm
3	Water Holding Capacity	By Gravimetric Method	46.3 %	45.1 %	42.7 %	43.2 %	46.3 %	46.5 %
4	Bulk Density	By Cylindrical Method	1.16 g/cm ³	1.08 g/cm ³	1.16 g/cm ³	0.94 g/cm ³	1.09 g/cm ³	1.02 g/cm ³
5	Porosity	By Gravimetric Method	42.76 %	44.7 %	46.3 %	40.9 %	42.6 %	45.6 %
6	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	153mg/kg	145 mg/kg	97.6 mg/kg	164 mg/kg	131 mg/kg	127 mg/kg
7	Magnesium as Mg		63.4 mg/kg	51.9 mg/kg	36.2 mg/kg	65.4 mg/kg	63.7 mg/kg	59.7 mg/kg
8	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	129 mg/kg	129.5mg/kg	102.4mg/kg	118.5 mg/kg	133 mg/kg	127.5 mg/kg
9	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.020 %	0.0019 %	0.017 %	0.0016 %	0.0036 %	0.0015 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	1.32 mg/kg	1.56 mg/kg	2.31 mg/kg	1.81 mg/kg	2.64 mg/kg	1.16 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	349mg/kg	297mg/kg	356 mg/kg	396 mg/kg	364 mg/kg	368 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.79 %	1.87 %	2.27 %	2.56 %	2.32 %	2.13 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.04 %	1.09 %	1.32 %	1.49 %	1.35 %	1.24 %
14	Texture :							
	Clay	Gravimetric Method	32.9 %	34.9 %	33.2 %	34.1 %	34.4 %	33.6 %
	Sand		35.3 %	37.9 %	30.7 %	36.4 %	35.9 %	34.6 %
	Silt		31.8 %	27.2 %	30.7 %	29.5 %	29.7 %	31.8 %
15	Manganese as Mn	USEPA 3050 B – 1996 &	23.4 mg/kg	26.7 mg/kg	27.3 mg/kg	22.6 mg/kg	20.8 mg/kg	23.4 mg/kg
16	Zinc as Zn	USEPA 6010 C - 2000	1.08 mg/kg	2.14 mg/kg	2.19 mg/kg	1.13 mg/kg	1.73 mg/kg	1.46 mg/kg
17	Boron as B		0.98 mg/kg	1.21 mg/kg	1.83 mg/kg	1.63 mg/kg	1.23 mg/kg	1.37 mg/kg
18	Potassium as K		21.5 mg/kg	27.3 mg/kg	27.2 mg/kg	38.5 mg/kg	29.5 mg/kg	23.7 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)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)
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		0.92mg/kg	0.84 mg/kg	1.09 mg/kg	1.17 mg/kg	1.47 mg/kg	1.32 mg/kg
23	Iron as Fe		2.19 mg/kg	2.97 mg/kg	2.73 mg/kg	2.42 mg/kg	2.57 mg/kg	2.43 mg/kg
24	Cation Exchange Capacity	USEPA 9080 – 1986	33.4 meq/100g of soil	38.2 meq/100g of soil	38.4 meq/100g of soil	42.7 meq/100g of soil	38.5 meq/100g of soil	35.6 meq/100g of soil

Source: Sampling Results by KGS Labs Private Limited,

Interpretation & Conclusion

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 Loam Soil and Bulk Density of Soils in the study area varied between 0.94– 1.16 g/cc. The Water Holding Capacity and Porosity of the soil samples is found to be medium i.e., ranging from 42.7 – 46.5 % and 40.9 - 45.6%

- The nature of soil is slightly alkaline to strongly alkaline with pH range 7.78 to 8.16
- The available Nitrogen content range between 297 to 396 kg/ha
- The available Phosphorus content range between 1.16 to 2.64 kg/ha
- The available Potassium range between 21.5 to 38.5 mg/kg
- Whereas, the micronutrient as zinc (Zn) and iron (Fe) were found in the range of 1.08 to 2.19 mg/kg; 2.19 to 2.97 mg/kg.

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:

The study area is studded with few tanks that serve as the source of drinking water and also their surplus feeds adjoining tanks. 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 freshwater for couple of months after rainy season.

Table 3.7: Water Bodies in the Buffer Zone

Sl.No.	Water Bodies	Distance
1	Tank	380m NE
2	Tank	1km SW
3	Canal	1.5km SW
4	O dai	2.4km NE
5	Lake	9km SW
6	Badatalav Eri	9km NW

Source: Survey of India Toposheet

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 3.6.

Table 3.8: Water Sampling Locations

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	SW1	Narayanapuram Eri	650m NE	12°29'36.83"N 78°18'36.65"E

2	SW2	Eri Near Nakkalpatti	3.5km South	12°27'25.98"N 78°17'59.79"E
3	WW-1	Near Project Area	400m SW	12°29'8.82"N 78°18'8.48"E
4	WW-2	Bagimanoor	5.5km East	12°29'6.44"N 78°21'27.75"E
5	BW-1	Near Project Area	400m South	12°29'2.55"N 78°18'23.66"E
6	BW-2	Marutepalli	4.2km NW	12°31'14.15"N 78°17'0.92"E

Source: On-site monitoring/sampling by KGS Enviro Laboratory Private Limited in association with GEMS

Figure 3.6: Water Sampling Locations Around 10 Km Radius

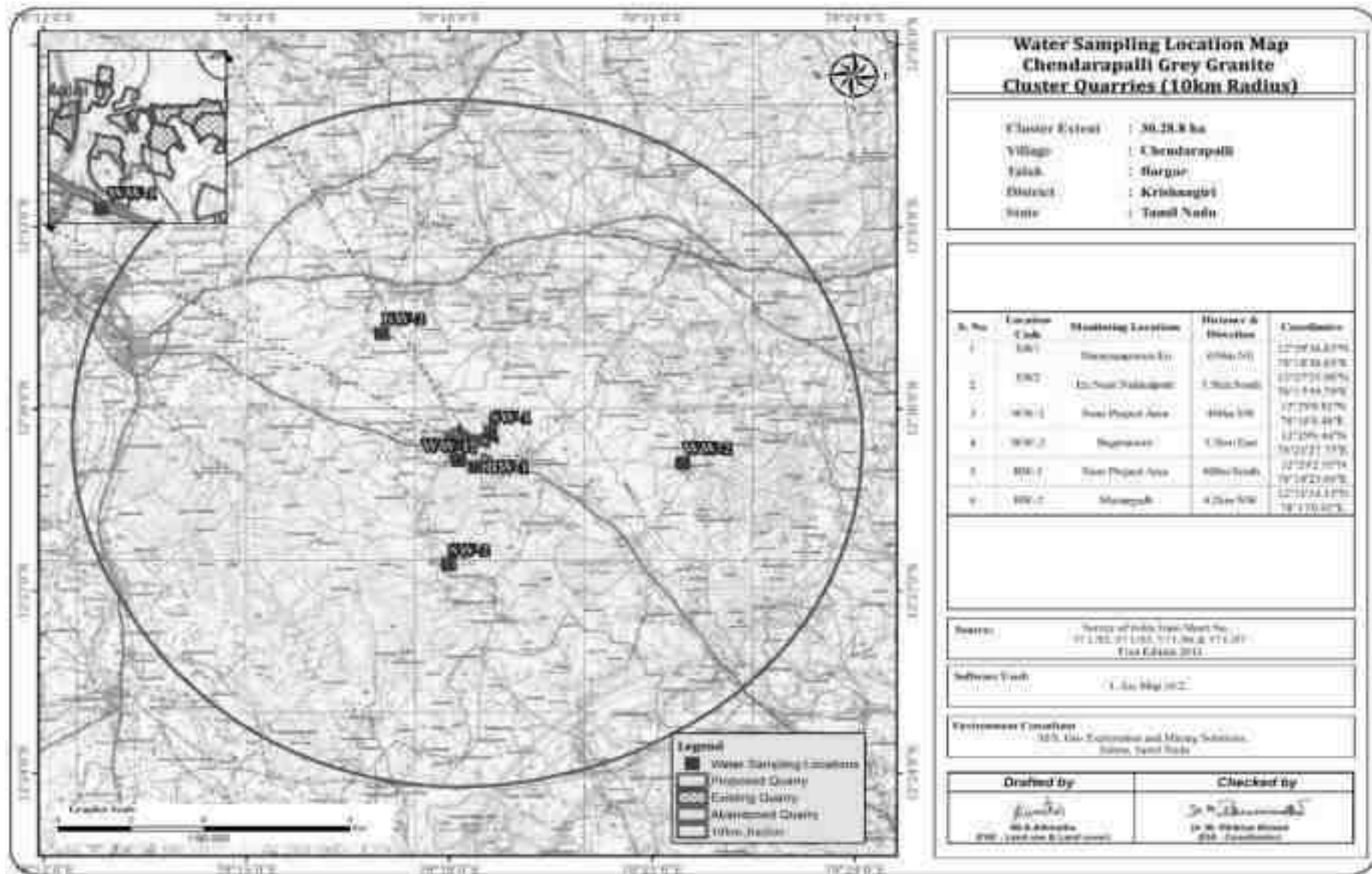


Table 3.9: Ground Water Sampling Results

S.NO	Parameter	Unit	WW1 Near Project Area	WW2 Bagimanoor	BW1 Near Project Area	BW2 Marutepalli
1	Color	Hazen	5	5	5	5
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable
3	pH@ 25°C	-	7.21	7.73	7.31	7.68
4	Electrical Conductivity	µs/cm	904 µmhos/cm	788 µmhos/cm	934 µmhos/cm	960 µmhos/cm
5	Turbidity	NTU	1.6 NTU	2.2 NTU	1.6 NTU	1.6 NTU
6	Total Dissolved Solids	mg/l	542 mg/l	465 mg/l	563 mg/l	576 mg/l
7	Total Hardness as CaCO ₃	mg/l	218.3mg/l	201.8 mg/l	210.1 mg/l	206 mg/l
8	Calcium as Ca	mg/l	42.9 mg/l	49.5 mg/l	51.1 mg/l	47.8 mg/l
9	Magnesium as Mg	mg/l	27.1 mg/l	19.0 mg/l	20.1 mg/l	21.0 mg/l
10	Total Alkalinity	mg/l	186.5 mg/l	194mg/l	184.5 mg/l	183 mg/l
11	Chloride as Cl ⁻	mg/l	143.8mg/l	112.5 mg/l	137 mg/l	157 mg/l
12	Sulphate as SO ₄ ⁻	mg/l	53.7 mg/l	46.7 mg/l	54.5 mg/l	56.4 mg/l
13	Iron as Fe	mg/l	0.29 mg/l	0.28 mg/l	0.16 mg/l	0.24 mg/l
14	Free Residual Chlorine	mg/l	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	mg/l	0.18 mg/l	0.21 mg/l	0.11 mg/l	0.16 mg/l
16	Nitrates as NO ₃	mg/l	5.8 mg/l	7.3 mg/l	7.4 mg/l	4.7 mg/l
17	Copper as Cu	mg/l	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	mg/l	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	mg/l	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	mg/l	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	mg/l	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	mg/l	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	mg/l	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	mg/l	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	mg/l	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	mg/l	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	mg/l	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 Compunds	mg/l	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	mg/l	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	Cynaide as CN	mg/l	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	Total Coliform	Per 100ml	132 MPN/100ml	163 MPN/100ml	178 MPN/100ml	195 MPN/100ml
32	E-Coli	Per 100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml
33	Barium as Ba	mg/l	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)
34	Ammonia (as Total	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
35	Sulphide as H ₂ S	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
36	Molybdenum as Mo	mg/l	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
37	Total Arsenic as	mg/l	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
38	Total Suspended Solids	mg/l	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)

Source: Sampling Results by KGS Enviro Laboratory Private Limited,

Table 3.10: Surface Water Sampling Results

S.NO	Parameter	UNIT	SW1 -Narayanapuram Eri	SW2 - Eri Near Nakkalpatti
1	Color	Hazen	7 Hazen	6 Hazen
2	Odour	-	Agreeable	Agreeable
3	pH@ 25°C	-	7.32	7.97
4	Electrical Conductivity @ 25°C	µs/cm	1110 mhos/cm	1007 µmhos/cm
5	Turbidity	NTU	4.1 NTU	3.9 NTU
6	Total Dissolved Solids	mg/l	666 mg/l	604 mg/l
7	Total Hardness as CaCO ₃	mg/l	259.5mg/l	271.9mg/l
8	Calcium as Ca	mg/l	52.8 mg/l	56.1 mg/l
9	Magnesium as Mg	mg/l	31.0 mg/l	32.0 mg/l
10	Total Alkalinity as CaCO ₃	mg/l	237 mg/l	201 mg/l
11	Chloride as Cl ⁻	mg/l	143.9 mg/l	132.5 mg/l
12	Sulphate as SO ₄ ⁻	mg/l	63.2 mg/l	58.7 mg/l
13	Iron as Fe	mg/l	0.15 mg/l	0.36 mg/l
14	Free Residual Chlorine	mg/l	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)
15	Fluoride as F	mg/l	0.26 mg/l	0.23mg/l
16	Nitrates as NO ₃	mg/l	12.4 mg/l	12.7 mg/l
17	Copper as Cu	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	mg/l	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	mg/l	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	mg/l	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)
21	Selenium as Se	mg/l	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	mg/l	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
23	Lead as Pb	mg/l	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	mg/l	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
25	Total Chromium	mg/l	BDL(DL : 0.02 mg/l)	BDL(DL : 0.02 mg/l)
26	Boron as B	mg/l	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	mg/l	BDL(DL : 0.01 mg/l)	BDL(DL : 0.01 mg/l)
28	Phenolic Compunds as	mg/l	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents as	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
30	Cynaide as CN	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
31	Biological Oxygen	mg/l	13.2 mg/l	10.1 mg/l
32	Chemical Oxygen	mg/l	44 mg/l	33.9 mg/l
33	Dissolved Oxygen	mg/l	6.5 mg/l	6.9 mg/l
34	Total Coliform	Per 100ml	989 MPN/100ml	865 MPN/100ml
35	E-Coli	Per 100ml	149 MPN/100ml	187 MPN/100ml
36	Barium as Ba	mg/l	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)
37	Ammonia-n (as Total	mg/l	2.8 mg/l	3.7 mg/l
38	Sulphide as H ₂ S	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
39	Molybdenum as Mo	mg/l	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
40	Total Arsenic as As	mg/l	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
41	Total Suspended Solids	mg/l	17.2 mg/l	18.4 mg/l

3.2.4 Interpretation & Conclusion

Surface Water

Ph:

The pH varied from 7.32 to 7.97 while turbidity found within the standards (Optimal pH range for sustainable aquatic life is 6.5 to 8.5 pH).

Total Dissolved Solids:

Total Dissolved Solids varied from 604 to 666mg/l, the TDS mainly composed of carbonates, bicarbonates, Chlorides, phosphates and nitrates of calcium, magnesium, sodium and other organic matter.

Other parameters:

Chloride varied between 132.5 mg/l and 143.9 mg/l. Nitrates varied from 12.4 to 12.7 mg/l, while sulphates varied from 58.7 to 63.2 mg/l.

Ground Water

The pH of the water samples collected ranged from 7.21 to 7.73 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 465-576 mg/l in all samples. Total hardness varied between 201.8–218.3 mg/l. On Microbiological parameters, the water samples from all the locations meet the requirement. The parameters thus analysed were compared with IS 10500:2012 and are well within the prescribed limits.

3.2.5 Hydrology and Hydrogeological studies

The district is underlain by hard rock formation fissured and fractured crystalline rocks constitute the important aquifer systems in the district. Geophysical prospecting was carried out in that area by SSRMP-80 Instrument by qualified Geo physicist with the help of IGIS software and it was inferred that the low resistance encountered at the depth between 62- 57m. The maximum depth proposed out of proposed projects is 30m BGL for the entire period. Hence there is no possibilities of water table intersection during the entire mine life period besides it is also inferred topographically that there are no major water bodies intersecting the project area. There is no necessity of stream, channel diversion due to these proposed projects.

During the rainy season there is a possibility of collection of seepage water from the subsurface levels this is due to the high intensity of fracture and weathered portion up to a depth of 33m thus the collected seepage water will be stored in the mine sump pits and will be used for dust suppression and greenbelt development and during the end of the life of the mine this collected water will act as a temporary reservoir.

Figure 3.7: Water Sample Collections Photographs



3.2.6 Ground Water Resources:

Krishnagiri district is underlain entirely by Archaean Crystalline formations with Recent alluvial deposits occurring along the river and streams courses and colluvium of valley-fills. The important aquifer systems in the district are constituted by weathered, fissured and fractured crystalline rocks and the recent alluvial deposits. Ground water occurs under phreatic conditions. The maximum saturated thickness of these aquifers is up to 5 m depending upon the topographic conditions. The study area falls in the Krishnagiri which is categorized as Safe (< 70%) as per G.O (MS) No 113 dated 09.06.2016.

There are Seven open wells within the radius of 1km Most of the wells are almost in dry conditions: - The details of the well and depth in monsoon and non-monsoon is described below:

Table 3.11: Details of Borewell & Water Level In 1km Radius

S.No	Name	LONGITUDE	LATITUDE	Mar-22	Apr-22	May-22
1	BW1	78° 18' 23.79"E	12° 29' 02.60"N	62.4	63	63.6
2	BW2	78° 17' 59.53"E	12° 29' 02.03"N	62	62.6	63.2
3	BW3	78° 17' 50.25"E	12° 28' 57.45"N	62.8	63.4	64
4	BW4	78° 17' 37.25"E	12° 29' 21.58"N	63	63.6	64.2
5	BW5	78° 17' 28.73"E	12° 29' 32.85"N	62.5	63.1	63.7
6	BW6	78° 18' 21.72"E	12° 29' 58.39"N	63.2	63.8	64.4
7	BW7	78° 18' 35.47"E	12° 30' 06.36"N	62.6	63.2	63.8
8	BW8	78° 19' 05.22"E	12° 29' 13.06"N	62.5	63.1	63.7

Source: Data obtained by the FAE & Team Members

Table 3.12: Details of Open well & Water Level in 1km Radius

S.No	Name	LONGITUDE	LATITUDE	Mar-22	Apr-22	May-22
1	OW1	78° 18' 08.56"E	12° 29' 08.92"N	13.5	14.1	14.7
2	OW2	78° 18' 00.53"E	12° 28' 58.37"N	13	13.6	14.2
3	OW3	78° 17' 48.69"E	12° 28' 57.31"N	13.6	14.2	14.8
4	OW4	78° 17' 24.78"E	12° 29' 21.56"N	12.8	13.4	14
5	OW5	78° 18' 14.08"E	12° 29' 48.59"N	13.4	14	14.6
6	OW6	78° 18' 11.76"E	12° 30' 04.08"N	12.7	13.3	13.9
7	OW7	78° 19' 01.77"E	12° 29' 45.98"N	13	13.6	14.2
8	OW8	78° 19' 00.35"E	12° 29' 09.63"N	13.8	14.4	15
9	OW9	78° 18' 15.82"E	12° 28' 48.93"N	12.9	13.5	14.1

Figure 3.8: Pre Monsoon Water Level of Open Well 1 Km Radius

MARCH- 2022



APRIL -2022



MAY - 2022



Figure 3.9: Pre Monsoon Water Level of Bore Well 1 Km Radius

MARCH- 2022



APRIL- 2022



MAY- 2022



Figure 3.10: Drainage Map Around 10 Km Radius from Project Site

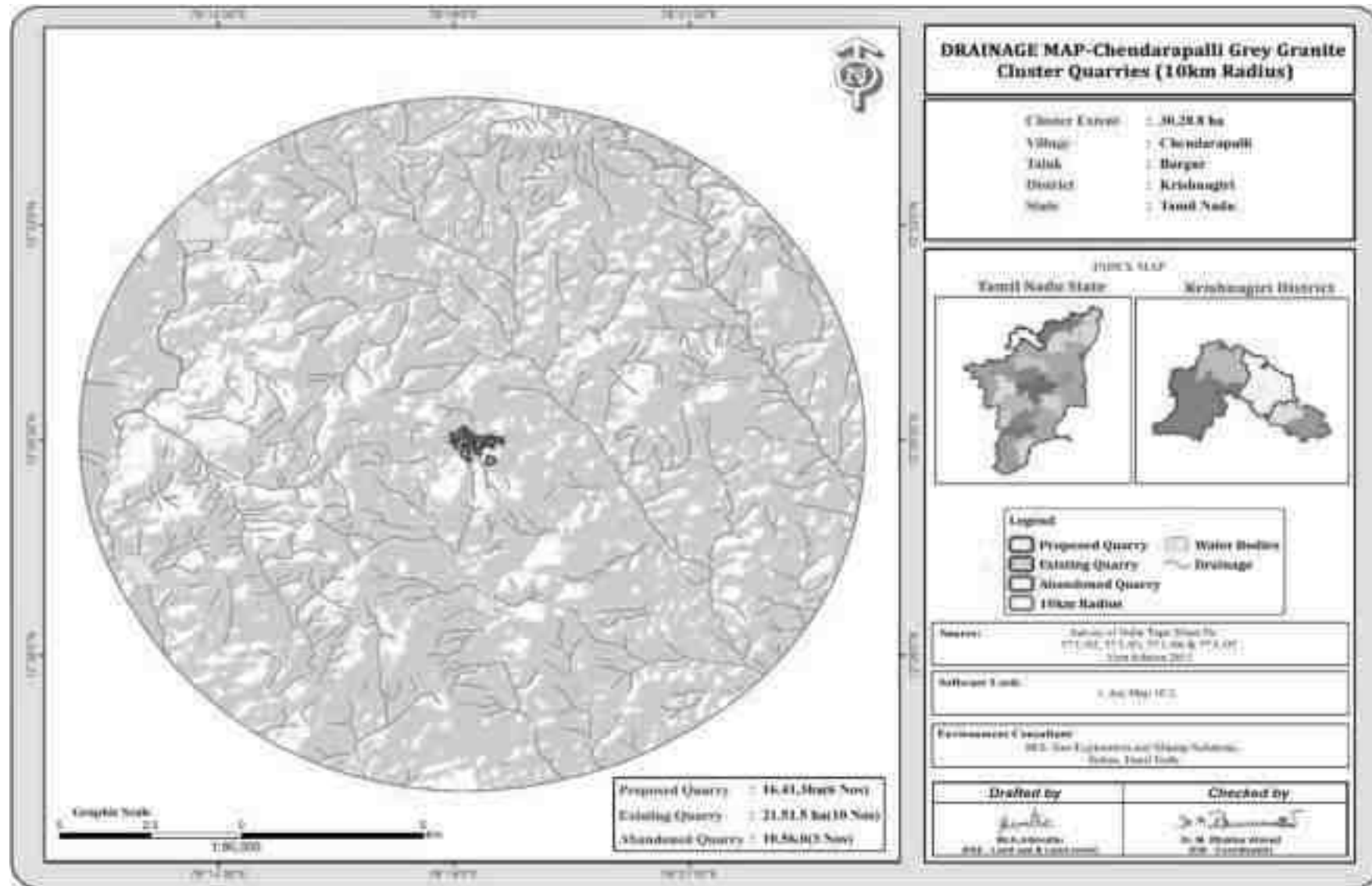
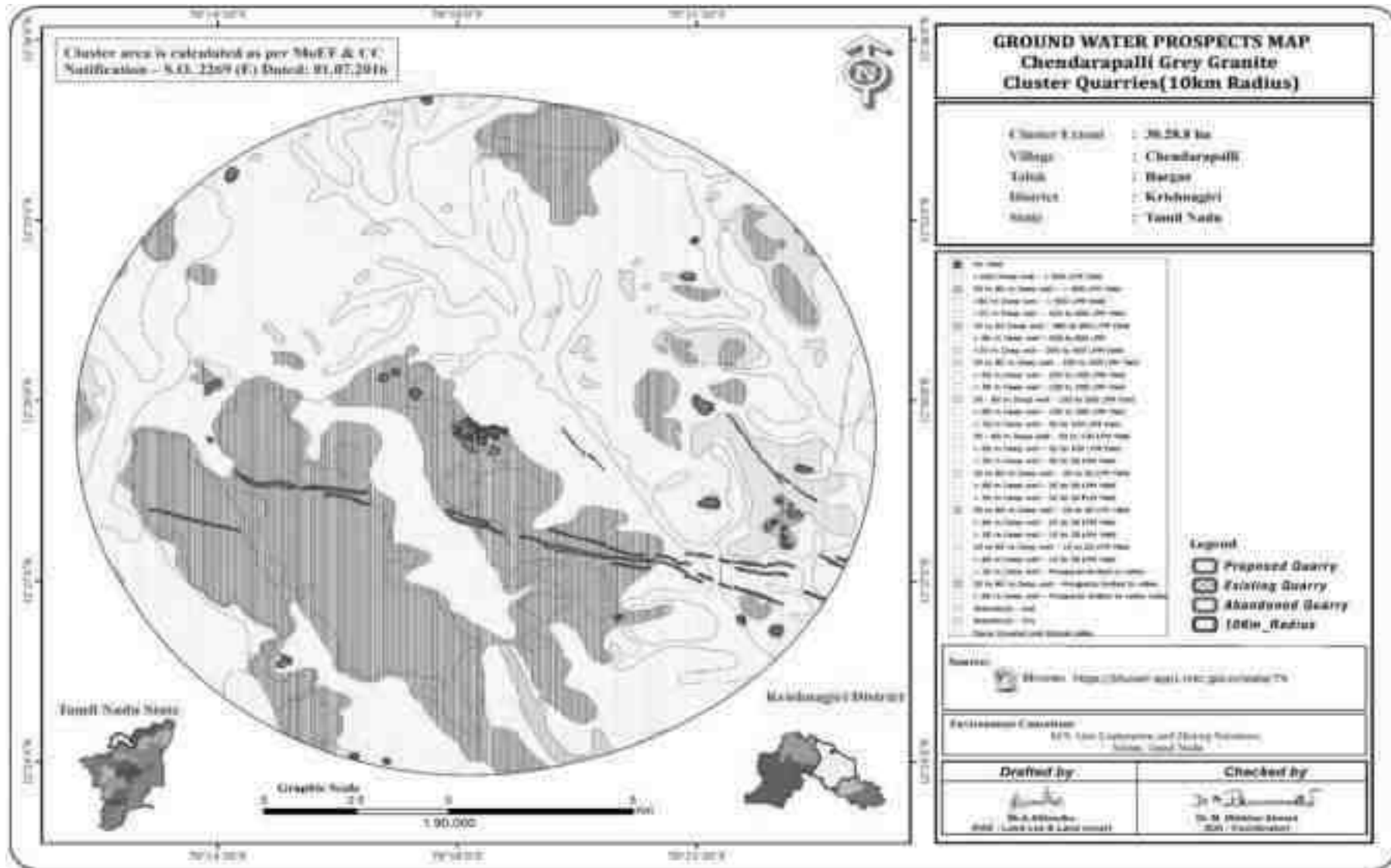


Figure 3.11: Ground Water Prospect Map



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 sources of air pollution in the region are mostly due to vehicular traffic, dust arising from unpaved village road and domestic & agricultural activities. 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.

This section describes the identification of sampling locations, methodology adopted during the monitoring period and sampling frequency.

3.3.1 Meteorology & Climate

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

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

Climate –

- The climate is tropical in Krishnagiri. The summers are much rainier than the winters in Krishnagiri. This climate is considered to be Aw according to the Köppen-Geiger climate classification. The temperature here averages 25.5 °C | 77.9 °F.
- Precipitation here is about 773 mm | 30.4 inch per year.
- Because Krishnagiri is located near the equator, the summers are not easy to define.
- The most opportune time to visit are January, February, March, April, May, June, July, August, September, October, November.
- The driest month is February. There is 6 mm | 0.2 inch of precipitation in February. The greatest amount of precipitation occurs in October, with an average of 144 mm | 5.7 inch. With an average of 29.0 °C | 84.2 °F, April is the warmest month.
- The lowest average temperatures in the year occur in December, when it is around 21.9 °C | 71.4 °F.

<https://en.climate-data.org/asia/india/tamil-nadu/krishnagiri-34157/>

Rainfall

Table 3.13: Rainfall Data

Actual Rainfall in mm					Normal Rainfall in mm
2017	2018	2019	2020	2021	
1145.6	510.4	730.0	798.6	985.4	985

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

Table 3.14: Meteorological Data Recorded at Site

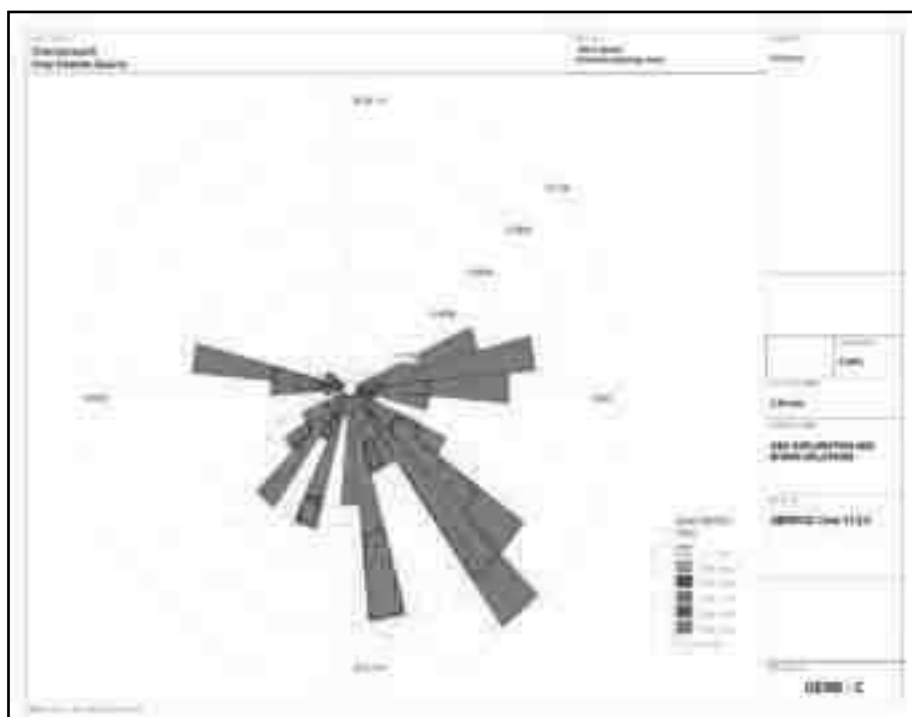
S.No	Parameters		Mar-2022	Apr-2022	May-2022
1	Temperature (°C)	Max	28.74	31.73	28.85
		Min	22.89	26.73	23.62
		Avg	25.815	29.23	26.235
2	Relative Humidity (%)	Avg	56.72	51.185	78.09
3	Wind Speed (m/s)	Max	4.88	4.19	5.19

		Min	1.62	1.9	1.59
		Avg	3.25	3.045	3.39
4	Cloud Cover (OKTAS)		0-8	0-8	0-8
5	Wind Direction		ENE,E	SE,E	W,SW

Correlation between Secondary and Primary Data

The meteorological data collected at the site is almost similar to that of secondary data collected from IMD station. A comparison of site data generated during the three months with that of IMD, Wind rose diagram of the study site is depicted in Figure. 3.12. Predominant downwind direction of the area during study season is North - East to South West.

Figure 3.12: Windrose Diagram



Source: Wind Rose plot view, Lake Environmental Software

In the abstract of collected data wind rose were drawn on presented in figure No.3.8 during the monitoring period in the study area

- Predominant winds were from ENE, E, SE, E, W, SW
- Wind velocity readings were recorded between 0.50 to 11.10 m/s
- Temperature readings ranging from 22.89 to 31.73 °C
- Relative humidity ranging from 51 to 78 %

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

Parameter	Method	Instrument
PM _{2.5}	Gravimetric Method Beta attenuation Method	Fine Particulate Sampler Make – Thermo Environmental Instruments – TEI 121
PM ₁₀	Gravimetric Method Beta attenuation Method	Respirable Dust Sampler Make –Thermo Environmental Instruments – TEI 108
SO ₂	IS-5182 Part II (Improved West & Gaeke method)	Respirable Dust Sampler with gaseous attachment
NO _x	IS-5182 Part II (Jacob & Hochheiser modified method)	Respirable Dust Sampler with gaseous attachment
Free Silica	NIOSH – 7601	Visible Spectrophotometry

Source: Sampling Methodology followed by KGS Enviro Laboratory Private Limited & CPCB Notification

Table 3.15: National Ambient Air Quality Standards

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

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

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

** 24 hourly / 8 hourly or 1 hourly monitored 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 October to December, 2020. 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.

It was ensured that 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

Eight (8) monitoring stations were set up in the study area as depicted in Figure 3.6.1 for assessment of the existing ambient air quality. Details of the sampling locations are as per given below.

Table 3.16: Ambient Air Quality (AAQ) Monitoring Locations

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	AAQ-1	Core Zone	Project Area	12°29'22.38"N 78°18'19.29"E
2	AAQ-2	Near Existing Quarry	350m NE	12°29'33.08"N 78°18'25.76"E
3	AAQ-3	Jagadevipalayam	1.3km SE	12°29'9.63"N 78°19'5.76"E

4	AAQ-4	Marutepalli	4.2km NW	12°31'13.88"N 78°16'59.76"E
5	AAQ-5	Nakkalpatti	3.5km Soth	12°27'27.87"N 78°17'49.41"E
6	AAQ-6	Achamangalam	4km NE	12°31'24.93"N 78°19'8.44"E
7	AAQ-7	Bagimanoor	5.5km East	12°29'0.16"N 78°21'27.89"E
8	AAQ-8	Chinnapanamudlu	2.8km West	12°29'43.48"N 78°16'45.76"E

Source: On-site monitoring/sampling by KGS Enviro Laboratory Private Limited in association with GEMS

Figure 3.13: Site Photographs of Ambient Air Quality Monitoring



Source: Field Photos

Figure 3.14: Ambient Air Quality Locations Around 10 Km Radius

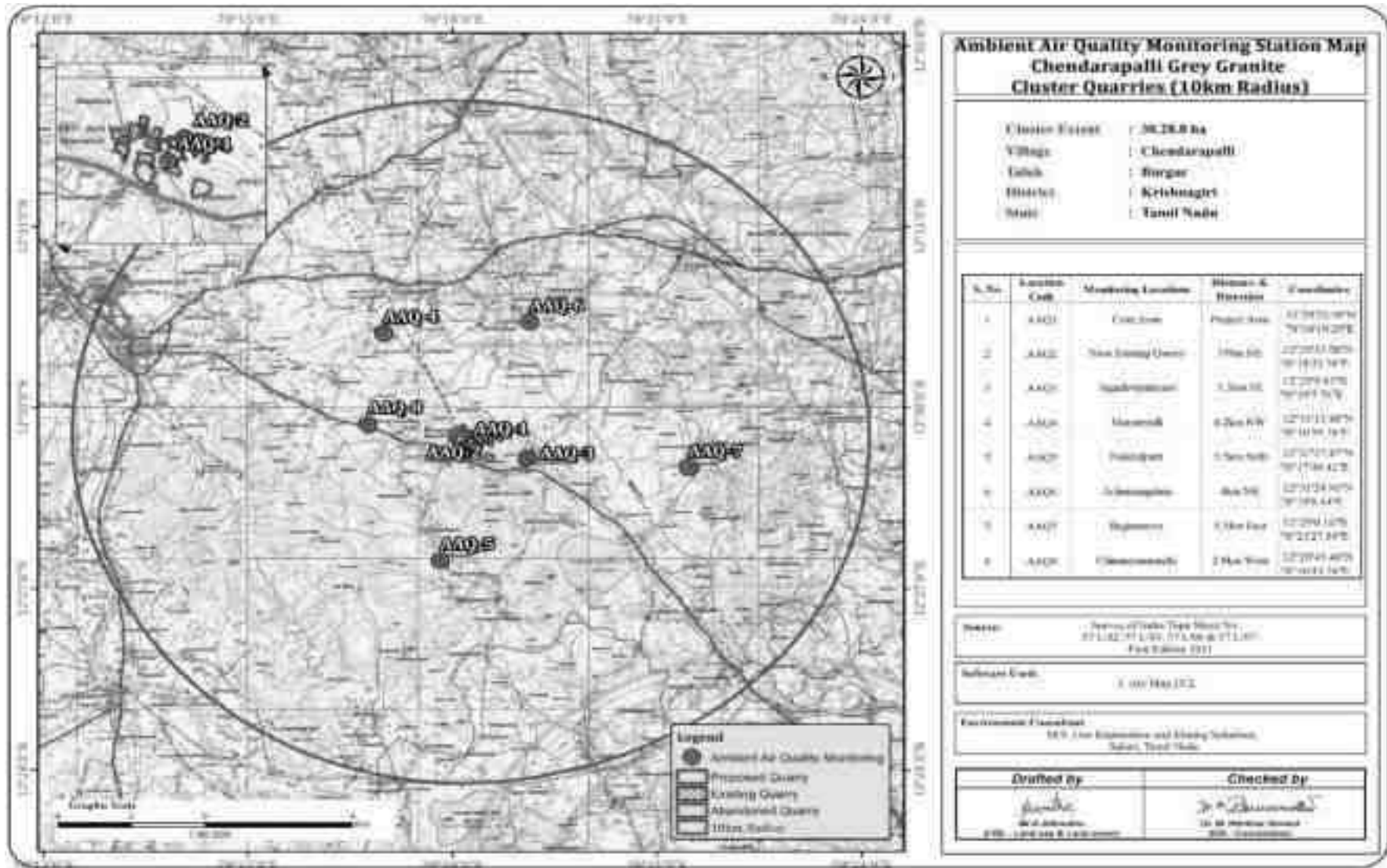


Table 3.17: AAQ1 – Core zone

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase), $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SPM	PM _{2.5}	PM ₁₀	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, ng/m^3	Ni, ng/m^3	C ₆ H ₆ , ng/m^3	BaP, ng/m^3
NAAQ Norms*		(24 hrs.)	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
03.03.2022	7:00-7:00	56.3	21.2	43.5	5.6	23.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
04.03.2022	7:15-7:15	57.2	23.1	42.1	6.2	24.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
10.03.2022	7:00-7:00	55.2	22.5	44.5	7.3	25.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
11.03.2022	7:15-7:15	58.3	20.3	45.6	8.0	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
17.03.2022	7:00-7:00	59.2	21.4	47.3	7.4	25.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
18.03.2022	7:15-7:15	60.1	22.3	46.2	6.3	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
24.03.2022	7:00-7:00	58.2	23.5	45.0	5.3	24.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
25.03.2022	7:15-7:15	56.2	20.3	44.2	6.2	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
31.03.2022	7:00-7:00	57.4	21.2	47.3	7.3	25.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
01.04.2022	7:15-7:15	55.0	23.5	46.0	5.0	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
07.04.2022	7:00-7:00	58.3	22.2	43.0	6.3	23.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
08.04.2022	7:15-7:15	56.0	21.0	42.5	7.1	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
14.04.2022	7:00-7:00	57.2	23.5	43.7	8.4	24.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
15.04.2022	7:15-7:15	58.4	22.0	46.5	6.5	25.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
21.04.2022	7:00-7:00	59.0	23.5	47.2	8.2	24.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
22.04.2022	7:15-7:15	58.7	21.8	45.3	7.3	25.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
28.04.2022	7:00-7:00	60.2	23.0	44.2	8.0	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
29.04.2022	7:15-7:15	57.2	22.2	43.6	6.3	25.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
05.05.2022	7:00-7:00	58.3	20.6	44.5	7.2	23.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
06.05.2022	7:15-7:15	59.4	21.4	45.2	6.0	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
12.05.2022	7:00-7:00	60.2	22.8	46.1	7.3	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
13.05.2022	7:15-7:15	58.3	23.5	47.2	8.0	24.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
19.05.2022	7:00-7:00	55.8	21.3	43.2	5.4	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
20.05.2022	7:15-7:15	57.6	23.5	42.5	6.3	23.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
26.05.2022	7:00-7:00	59.0	22.4	44.0	7.4	23.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
27.05.2022	7:15-7:15	60.3	21.0	45.2	8.2	24.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5

Table 3.18: AAQ2 – Near Existing Quarry

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase), $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SPM	PM _{2.5}	PM ₁₀	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, ng/m^3	Ni, ng/m^3	C ₆ H ₆ , ng/m^3	BaP, ng/m^3
NAAQ Norms*		(24 hrs.)	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
03.03.2022	7:00-7:00	62.6	21.3	45.5	6.2	23.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
04.03.2022	7:15-7:15	63.0	22.4	46.3	5.3	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
10.03.2022	7:00-7:00	64.1	23.6	47.2	7.1	25.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
11.03.2022	7:15-7:15	65.5	20.2	49.2	8.3	24.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
17.03.2022	7:00-7:00	60.2	21.3	48.0	6.0	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
18.03.2022	7:15-7:15	63.5	22.4	46.3	7.3	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
24.03.2022	7:00-7:00	64.2	23.5	47.2	5.2	25.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
25.03.2022	7:15-7:15	63.2	22.3	49.5	8.4	23.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
31.03.2022	7:00-7:00	65.0	23.0	48.2	6.2	25.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
01.04.2022	7:15-7:15	64.2	20.1	45.6	7.3	23.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
07.04.2022	7:00-7:00	65.3	21.5	46.3	8.2	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
08.04.2022	7:15-7:15	62.0	22.4	47.2	7.0	25.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
14.04.2022	7:00-7:00	64.1	23.5	49.1	8.3	24.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
15.04.2022	7:15-7:15	63.3	20.3	48.2	6.1	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
21.04.2022	7:00-7:00	64.2	21.5	46.2	7.3	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
22.04.2022	7:15-7:15	65.0	22.6	47.3	6.5	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
28.04.2022	7:00-7:00	61.2	23.4	49.0	7.2	24.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
29.04.2022	7:15-7:15	63.2	22.0	47.2	6.3	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
05.05.2022	7:00-7:00	64.5	23.4	48.2	8.0	23.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
06.05.2022	7:15-7:15	63.0	21.0	46.3	7.2	24.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
12.05.2022	7:00-7:00	65.2	22.3	47.0	6.4	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
13.05.2022	7:15-7:15	64.3	23.4	48.2	8.3	23.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
19.05.2022	7:00-7:00	61.2	20.3	49.3	6.5	24.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
20.05.2022	7:15-7:15	62.3	21.3	46.2	7.2	25.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
26.05.2022	7:00-7:00	61.2	22.4	47.2	6.0	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
27.05.2022	7:15-7:15	60.5	23.5	48.5	7.4	24.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5

Table 3.19: AAQ3 – Jagadevipalayam

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase), $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SPM	PM _{2.5}	PM ₁₀	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, ng/m^3	Ni, ng/m^3	C ₆ H ₆ , ng/m^3	BaP, ng/m^3
NAAQ Norms*		(24 hrs.)	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
03.03.2022	7:00-7:00	62.3	21.2	44.5	5.2	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
04.03.2022	7:15-7:15	61.0	22.3	43.2	6.3	23.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
10.03.2022	7:00-7:00	63.4	23.5	45.0	7.0	24.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
11.03.2022	7:15-7:15	64.2	21.0	46.3	5.4	25.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
17.03.2022	7:00-7:00	63.0	22.3	47.1	6.3	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
18.03.2022	7:15-7:15	61.2	23.4	48.2	7.0	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
24.03.2022	7:00-7:00	62.5	22.5	46.0	5.2	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
25.03.2022	7:15-7:15	63.4	23.1	47.2	6.3	23.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
31.03.2022	7:00-7:00	64.2	21.4	48.3	7.1	24.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
01.04.2022	7:15-7:15	62.0	22.4	48.0	6.2	21.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
07.04.2022	7:00-7:00	63.5	23.5	45.2	7.1	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
08.04.2022	7:15-7:15	64.1	20.3	46.1	5.2	22.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
14.04.2022	7:00-7:00	63.5	21.4	47.2	6.3	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
15.04.2022	7:15-7:15	62.4	23.5	48.3	7.4	24.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
21.04.2022	7:00-7:00	61.0	21.3	46.2	5.2	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
22.04.2022	7:15-7:15	64.3	22.5	47.3	6.0	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
28.04.2022	7:00-7:00	62.3	23.4	48.0	7.2	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
29.04.2022	7:15-7:15	61.0	20.1	45.2	5.4	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
05.05.2022	7:00-7:00	62.3	22.3	46.3	7.0	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
06.05.2022	7:15-7:15	63.5	23.5	47.1	6.3	25.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
12.05.2022	7:00-7:00	64.2	20.3	48.2	7.2	23.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
13.05.2022	7:15-7:15	62.3	21.4	46.2	6.5	24.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
19.05.2022	7:00-7:00	61.0	23.5	45.2	5.5	23.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
20.05.2022	7:15-7:15	63.4	22.1	44.3	6.3	24.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
26.05.2022	7:00-7:00	64.2	20.5	47.2	7.4	25.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
27.05.2022	7:15-7:15	62.0	23.0	48.3	6.3	24.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5

Table 3.20: AAQ4 – Marutepalli

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase), $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SPM	PM _{2.5}	PM ₁₀	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, ng/m^3	Ni, ng/m^3	C ₆ H ₆ , ng/m^3	BaP, ng/m^3
NAAQ Norms*		(24 hrs.)	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
03.03.2022	7:00-7:00	64.0	20.1	43.7	5.5	23.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
04.03.2022	7:15-7:15	65.2	22.3	44.1	6.4	23.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
10.03.2022	7:00-7:00	66.3	23.2	45.0	5.3	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
11.03.2022	7:15-7:15	67.1	20.0	46.2	6.2	25.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
17.03.2022	7:00-7:00	66.0	22.0	44.1	5.0	26.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
18.03.2022	7:15-7:15	64.3	23.4	45.2	6.2	27.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
24.03.2022	7:00-7:00	63.0	21.5	46.3	5.3	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
25.03.2022	7:15-7:15	62.1	23.5	44.2	6.4	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
31.03.2022	7:00-7:00	61.0	22.5	42.1	5.8	26.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
01.04.2022	7:15-7:15	62.8	21.6	43.5	6.2	27.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
07.04.2022	7:00-7:00	63.4	23.5	45.1	5.4	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
08.04.2022	7:15-7:15	64.5	21.4	46.0	6.3	24.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
14.04.2022	7:00-7:00	61.0	23.0	43.1	5.5	25.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
15.04.2022	7:15-7:15	62.3	22.0	44.5	5.0	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
21.04.2022	7:00-7:00	63.8	23.5	42.0	6.2	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
22.04.2022	7:15-7:15	64.5	22.1	43.6	6.8	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
28.04.2022	7:00-7:00	62.5	23.4	44.5	5.3	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
29.04.2022	7:15-7:15	61.0	21.0	45.2	6.4	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
05.05.2022	7:00-7:00	62.3	22.0	46.3	6.0	25.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
06.05.2022	7:15-7:15	64.1	23.5	44.0	5.6	26.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
12.05.2022	7:00-7:00	63.5	21.6	45.6	6.3	27.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
13.05.2022	7:15-7:15	61.2	23.4	46.2	5.8	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
19.05.2022	7:00-7:00	63.4	22.0	43.1	6.3	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
20.05.2022	7:15-7:15	62.2	21.0	42.1	5.2	25.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
26.05.2022	7:00-7:00	64.2	22.5	45.0	6.1	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
27.05.2022	7:15-7:15	62.0	23.0	44.3	6.3	27.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5

Table 3.21: AAQ5 – Nakkalpatti

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase), $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SPM	PM _{2.5}	PM ₁₀	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, ng/m^3	Ni, ng/m^3	C ₆ H ₆ , ng/m^3	BaP, ng/m^3
NAAQ Norms*		(24 hrs.)	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
03.03.2022	7:00-7:00	63.5	20.3	44.2	7.2	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
04.03.2022	7:15-7:15	64.2	21.2	45.3	6.3	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
10.03.2022	7:00-7:00	65.3	22.5	46.1	8.2	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
11.03.2022	7:15-7:15	66.1	23.1	47.2	6.2	25.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
17.03.2022	7:00-7:00	65.0	22.1	45.0	8.3	24.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
18.03.2022	7:15-7:15	66.3	20.3	46.2	6.3	22.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
24.03.2022	7:00-7:00	64.0	22.4	45.5	8.4	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
25.03.2022	7:15-7:15	65.3	21.0	47.0	7.3	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
31.03.2022	7:00-7:00	66.1	23.5	43.2	6.2	24.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
01.04.2022	7:15-7:15	64.2	20.3	44.1	8.4	25.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
07.04.2022	7:00-7:00	63.3	21.2	45.0	7.2	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
08.04.2022	7:15-7:15	65.2	22.3	46.2	8.1	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
14.04.2022	7:00-7:00	66.2	23.4	47.1	6.6	25.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
15.04.2022	7:15-7:15	61.0	22.1	45.0	8.3	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
21.04.2022	7:00-7:00	62.3	23.4	46.3	7.1	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
22.04.2022	7:15-7:15	63.3	21.5	47.1	6.5	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
28.04.2022	7:00-7:00	64.2	23.5	45.0	8.0	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
29.04.2022	7:15-7:15	65.3	22.6	44.0	7.3	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
05.05.2022	7:00-7:00	66.4	23.7	45.2	6.2	25.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
06.05.2022	7:15-7:15	63.3	21.6	46.3	8.4	22.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
12.05.2022	7:00-7:00	64.1	23.4	47.0	6.0	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
13.05.2022	7:15-7:15	65.2	22.4	43.0	7.3	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
19.05.2022	7:00-7:00	66.0	23.5	42.1	8.4	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
20.05.2022	7:15-7:15	64.3	22.4	41.1	6.3	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
26.05.2022	7:00-7:00	65.2	21.3	43.5	7.2	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
27.05.2022	7:15-7:15	66.3	23.5	42.1	8.2	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5

Table 3.22: AAQ6 – Achamangalam

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase), $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SPM	PM _{2.5}	PM ₁₀	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, ng/m^3	Ni, ng/m^3	C ₆ H ₆ , ng/m^3	BaP, ng/m^3
NAAQ Norms*		(24 hrs.)	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
03.03.2022	7:00-7:00	60.2	21.0	45.2	6.2	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
04.03.2022	7:15-7:15	61.3	22.3	46.3	7.3	24.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
10.03.2022	7:00-7:00	62.5	23.4	47.2	6.4	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
11.03.2022	7:15-7:15	63.3	22.0	44.2	7.5	24.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
17.03.2022	7:00-7:00	64.1	21.3	43.2	7.3	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
18.03.2022	7:15-7:15	65.5	22.3	45.0	6.2	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
24.03.2022	7:00-7:00	63.2	23.1	46.2	7.4	25.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
25.03.2022	7:15-7:15	64.2	23.0	47.1	6.5	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
31.03.2022	7:00-7:00	65.2	22.1	45.0	7.1	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
01.04.2022	7:15-7:15	64.3	21.4	46.3	7.3	24.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
07.04.2022	7:00-7:00	65.2	23.5	47.1	6.8	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
08.04.2022	7:15-7:15	63.3	22.5	44.5	7.2	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
14.04.2022	7:00-7:00	64.1	23.4	45.3	6.0	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
15.04.2022	7:15-7:15	65.5	22.5	46.2	7.3	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
21.04.2022	7:00-7:00	62.3	21.0	47.1	7.4	25.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
22.04.2022	7:15-7:15	63.3	22.3	45.0	6.2	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
28.04.2022	7:00-7:00	64.2	23.5	46.2	7.3	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
29.04.2022	7:15-7:15	65.5	22.0	47.3	6.4	24.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
05.05.2022	7:00-7:00	61.2	23.5	44.0	7.2	25.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
06.05.2022	7:15-7:15	63.0	21.0	43.2	6.0	23.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
12.05.2022	7:00-7:00	64.0	22.6	44.2	7.3	24.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
13.05.2022	7:15-7:15	65.5	23.5	45.3	6.0	25.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
19.05.2022	7:00-7:00	66.2	20.2	46.1	7.0	24.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
20.05.2022	7:15-7:15	65.0	22.4	47.1	6.5	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
26.05.2022	7:00-7:00	66.3	23.5	45.0	7.3	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
27.05.2022	7:15-7:15	63.1	24.1	46.3	6.5	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5

Table 3.23: AAQ7 – Bagimanoor

Monitoring		SPM (24 hrs.)	Particulates, $\mu\text{g}/\text{m}^3$		Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase), $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.		PM _{2.5}	PM ₁₀	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, ng/m^3	Ni, ng/m^3	C ₆ H ₆ , ng/m^3	BaP, ng/m^3
NAAQ Norms*			60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
03.03.2022	7:00-7:00	63.0	21.3	44.2	6.6	23.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
04.03.2022	7:15-7:15	64.2	22.0	43.1	6.3	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
10.03.2022	7:00-7:00	65.3	23.4	45.5	7.2	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
11.03.2022	7:15-7:15	65.0	22.5	46.3	6.1	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
17.03.2022	7:00-7:00	66.1	21.3	47.1	7.5	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
18.03.2022	7:15-7:15	67.2	23.2	45.0	6.4	25.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
24.03.2022	7:00-7:00	66.0	22.4	46.2	7.3	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
25.03.2022	7:15-7:15	64.3	23.5	47.3	6.4	21.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
31.03.2022	7:00-7:00	62.3	22.4	45.0	6.0	23.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
01.04.2022	7:15-7:15	63.3	21.8	46.2	7.2	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
07.04.2022	7:00-7:00	64.4	23.6	47.1	6.4	23.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
08.04.2022	7:15-7:15	65.5	20.5	45.2	7.3	24.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
14.04.2022	7:00-7:00	66.0	21.6	46.3	6.4	25.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
15.04.2022	7:15-7:15	64.0	23.4	44.2	7.2	23.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
21.04.2022	7:00-7:00	62.3	22.8	43.2	6.3	24.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
22.04.2022	7:15-7:15	65.3	23.6	44.5	7.0	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
28.04.2022	7:00-7:00	63.0	20.4	45.1	6.2	24.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
29.04.2022	7:15-7:15	66.2	21.2	46.3	7.4	25.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
05.05.2022	7:00-7:00	67.0	22.3	47.1	6.5	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
06.05.2022	7:15-7:15	65.2	23.5	45.0	7.6	24.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
12.05.2022	7:00-7:00	64.2	22.6	46.2	6.1	25.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
13.05.2022	7:15-7:15	67.2	21.5	44.2	7.2	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
19.05.2022	7:00-7:00	65.8	22.3	45.3	6.4	25.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
20.05.2022	7:15-7:15	63.5	23.6	46.1	7.0	24.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
26.05.2022	7:00-7:00	67.8	21.4	42.0	6.3	25.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
27.05.2022	7:15-7:15	65.5	25.5	43.5	7.4	23.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5

Table 3.24: AAQ8 - Chinnapanamudlu

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase), $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SPM	PM _{2.5}	PM ₁₀	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, ng/m^3	Ni, ng/m^3	C ₆ H ₆ , ng/m^3	BaP, ng/m^3
NAAQ Norms*		(24 hrs.)	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
03.03.2022	7:00-7:00	65.3	21.0	43.2	6.2	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
04.03.2022	7:15-7:15	64.2	22.3	43.5	7.3	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
10.03.2022	7:00-7:00	66.0	23.1	42.1	8.1	25.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
11.03.2022	7:15-7:15	67.2	20.2	44.0	6.0	24.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
17.03.2022	7:00-7:00	68.0	21.3	45.3	8.1	23.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
18.03.2022	7:15-7:15	64.3	22.4	45.0	6.3	24.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
24.03.2022	7:00-7:00	65.1	23.5	43.1	7.4	23.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
25.03.2022	7:15-7:15	66.2	22.0	46.0	8.1	24.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
31.03.2022	7:00-7:00	67.3	23.6	45.1	7.0	25.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
01.04.2022	7:15-7:15	68.0	20.5	47.2	8.4	24.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
07.04.2022	7:00-7:00	66.5	21.6	46.2	6.3	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
08.04.2022	7:15-7:15	67.2	21.0	45.2	8.3	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
14.04.2022	7:00-7:00	64.3	22.5	42.3	6.7	24.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
15.04.2022	7:15-7:15	65.3	23.8	43.3	5.2	25.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
21.04.2022	7:00-7:00	66.1	21.6	41.1	7.3	23.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
22.04.2022	7:15-7:15	67.0	22.9	44.5	7.2	25.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
28.04.2022	7:00-7:00	68.3	23.5	45.6	6.3	23.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
29.04.2022	7:15-7:15	66.5	22.1	46.2	7.5	25.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
05.05.2022	7:00-7:00	64.2	23.6	43.2	8.2	24.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
06.05.2022	7:15-7:15	65.3	22.0	41.1	7.0	23.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
12.05.2022	7:00-7:00	66.8	23.0	44.2	8.2	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
13.05.2022	7:15-7:15	67.2	22.1	45.3	7.3	25.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
19.05.2022	7:00-7:00	66.5	23.5	46.2	6.4	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
20.05.2022	7:15-7:15	68.3	21.0	45.0	8.2	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
26.05.2022	7:00-7:00	66.0	22.6	44.1	7.3	25.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5
27.05.2022	7:15-7:15	67.3	23.4	45.3	6.5	23.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<0.5

Table 3.25: Abstract of Ambient Air Quality Data

1	Parameter	PM2.5	PM10	SO ₂	NO ₂
2	No. of Observations	260	260	260	260
3	10 th Percentile Value	20.6	43.2	5.5	23.0
4	20 th Percentile Value	21.3	44.0	6.2	23.1
5	30 th Percentile Value	21.5	44.5	6.3	23.7
6	40 th Percentile Value	22.1	45.1	6.4	24.1
7	50 th Percentile Value	22.3	45.3	6.5	24.3
8	60 th Percentile Value	22.5	46.2	7.1	24.6
9	70 th Percentile Value	23.1	46.3	7.3	25.1
10	80 th Percentile Value	23.5	47.1	7.4	25.3
11	90 th Percentile Value	23.5	47.3	8.2	25.6
12	95 th Percentile Value	23.6	48.3	8.3	26.1
13	98 th Percentile Value	23.8	49.2	8.4	27.0
14	Arithmetic Mean	22.5	46.0	7.1	24.7
15	Geometric Mean	22.5	46.0	7.0	24.7
16	Standard Deviation	1.1	1.8	1.0	1.2
17	Minimum	20.6	43.2	5.5	23.0
18	Maximum	23.8	49.2	8.4	27.0
19	NAAQ Norms*	100.0	60.0	80.0	80.0
	% Values exceeding Norms*	0.0	0.0	0.0	0.0

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

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

Table 3.25: Summary of Ambient Air Quality Data (AAQ1-AAQ8)

PM2.5	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	22.1	22.1	22.1	22.3	22.3	22.3	22.4	22.3
Minimum	20.3	20.1	20.1	20.0	20.3	20.2	20.4	20.2
Maximum	23.5	23.6	23.5	23.5	23.7	24.1	25.5	23.8
NAAQ Norms	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0

PM10	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	44.8	47.5	46.5	44.4	22.3	22.4	45.3	44.4
Minimum	42.1	45.5	43.2	42.0	41.1	43.2	42.0	41.1
Maximum	47.3	49.5	48.3	46.3	47.2	47.3	47.3	47.2
NAAQ Norms	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

SO ₂	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	6.9	7.0	6.3	5.9	7.3	6.8	6.8	7.2
Minimum	5.0	5.2	5.2	5.0	6.0	6.0	6.0	5.2
Maximum	8.4	8.4	7.4	6.8	8.4	7.5	7.6	8.4

NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
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NO₂	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	24.3	24.4	24.1	25.0	24.1	24.4	24.0	24.2
Minimum	23.0	23.0	21.0	22.0	22.1	23.0	21.0	23.0
Maximum	25.6	25.6	25.5	27.2	25.3	25.6	25.6	25.8
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0

FIGURE 3.15: BAR DIAGRAM OF SUMMARY OF AIR QUALITY MODEL(AAQ1-AAQ8)

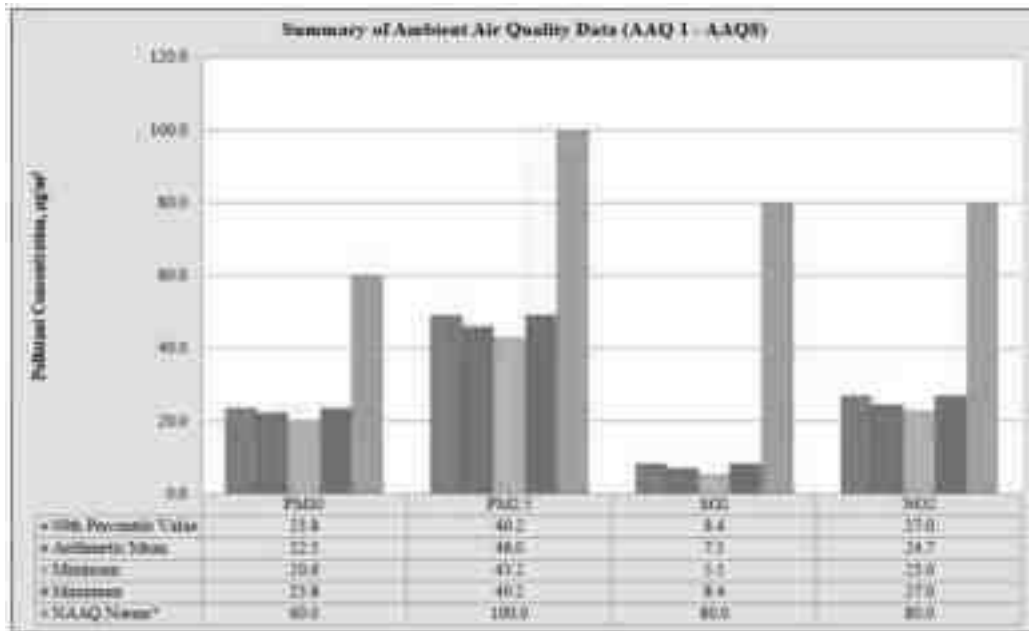


FIGURE 3.16-A : BAR DIAGRAM OF PARTICULATE MATTER (PM2.5)

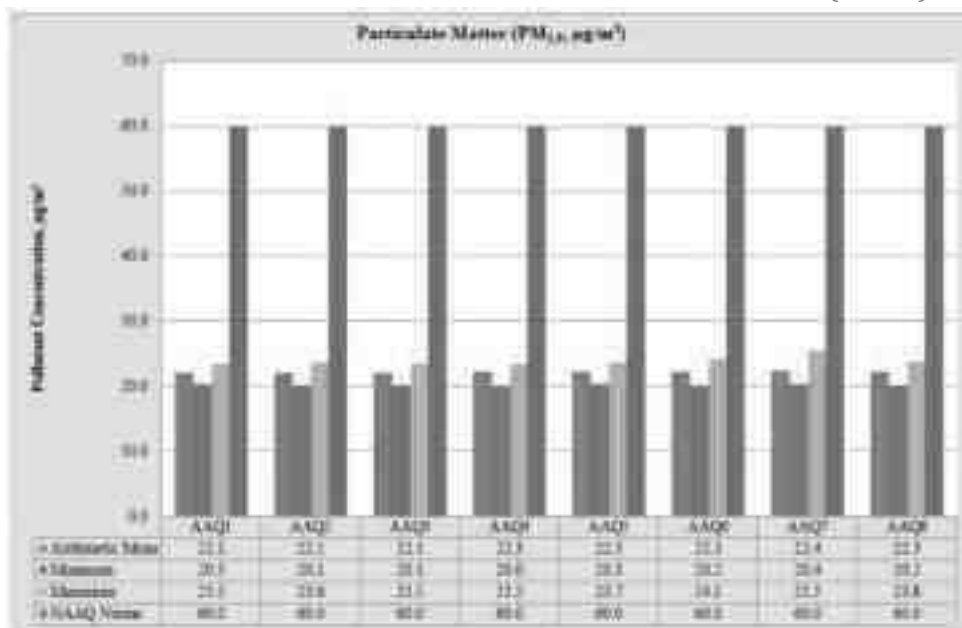


FIGURE 3.16-B: BAR DIAGRAM OF PARTICULATE MATTER (PM₁₀)

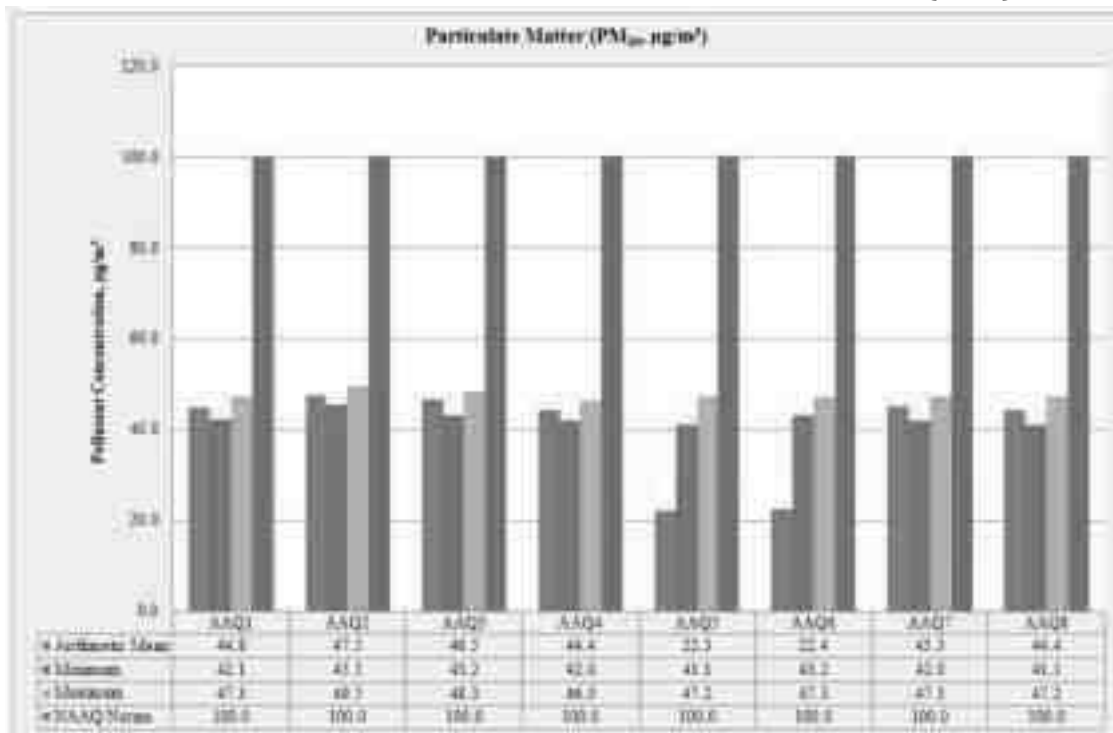


FIGURE 3.17-A: BAR DIAGRAM OF PARTICULATE MATTER (SO₂)

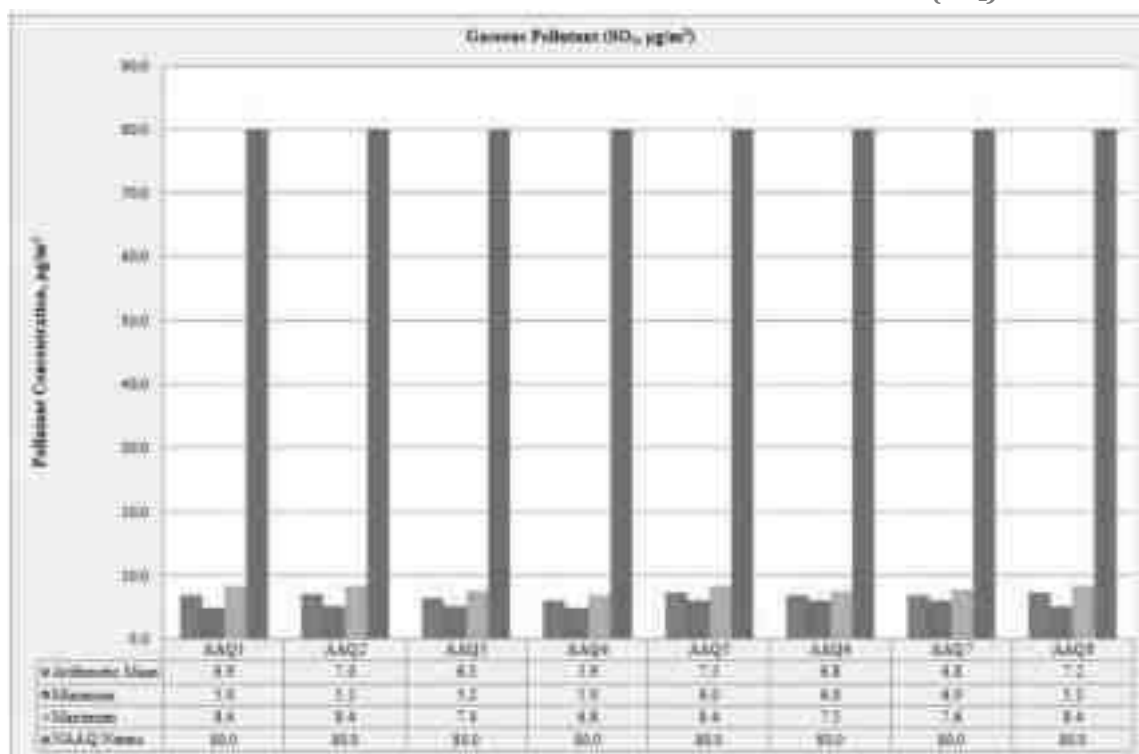
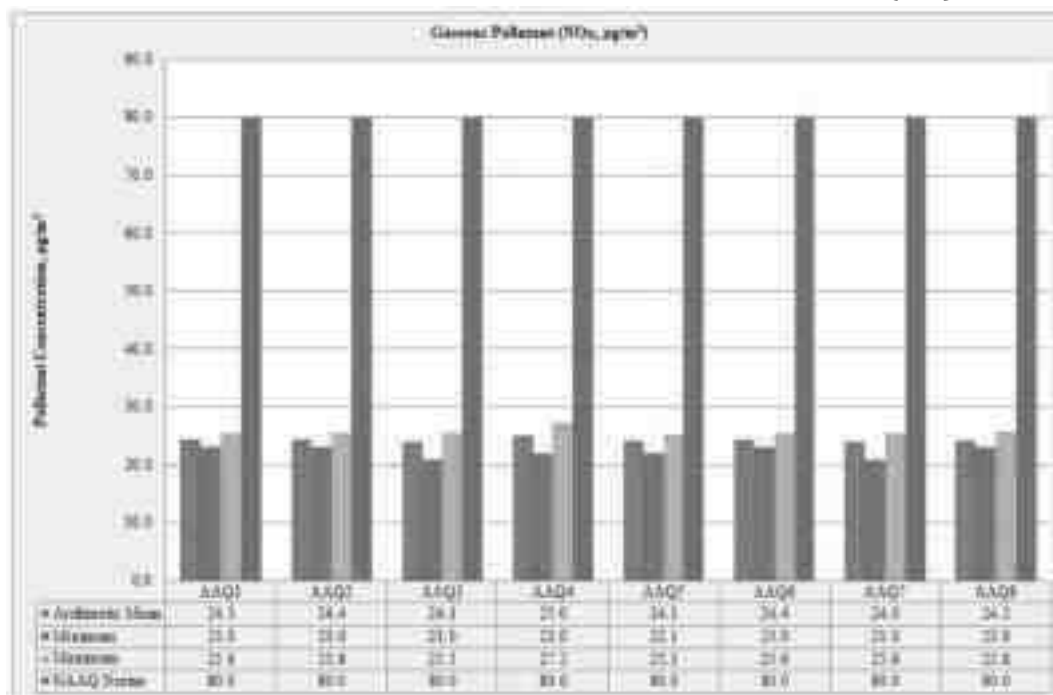


FIGURE 3.17-B: BAR DIAGRAM OF PARTICULATE MATTER (SO₂)



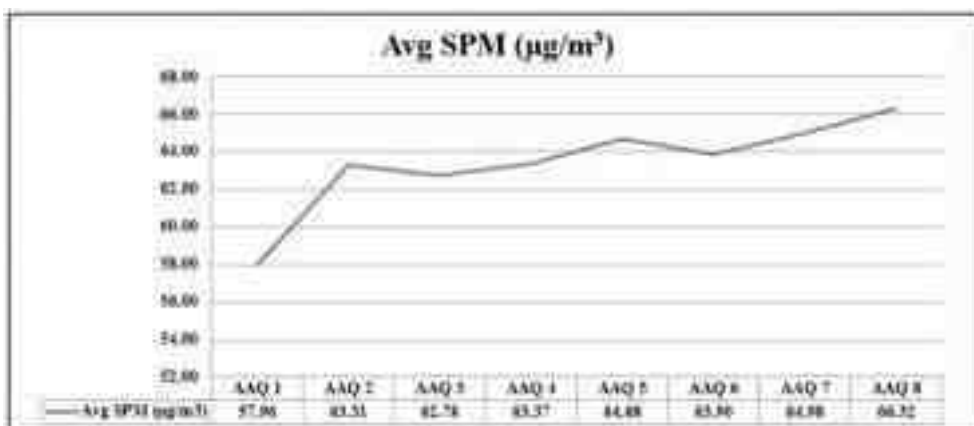
3.3.7 FUGITIVE DUST EMISSION –

Fugitive dust was recorded at 8 AAQ monitoring stations for 30 days average during the study period.

Table 3.26: Average Fugitive Dust Sample Values In mg/m³

AAQ Locations	Avg SPM (µg/m ³)
AAQ 1	57.96
AAQ 2	63.31
AAQ 3	62.78
AAQ 4	63.37
AAQ 5	64.68
AAQ 6	63.90
AAQ 7	64.98
AAQ 8	66.32

Source: Onsite monitoring/ sampling by KGS Labs Private Limited

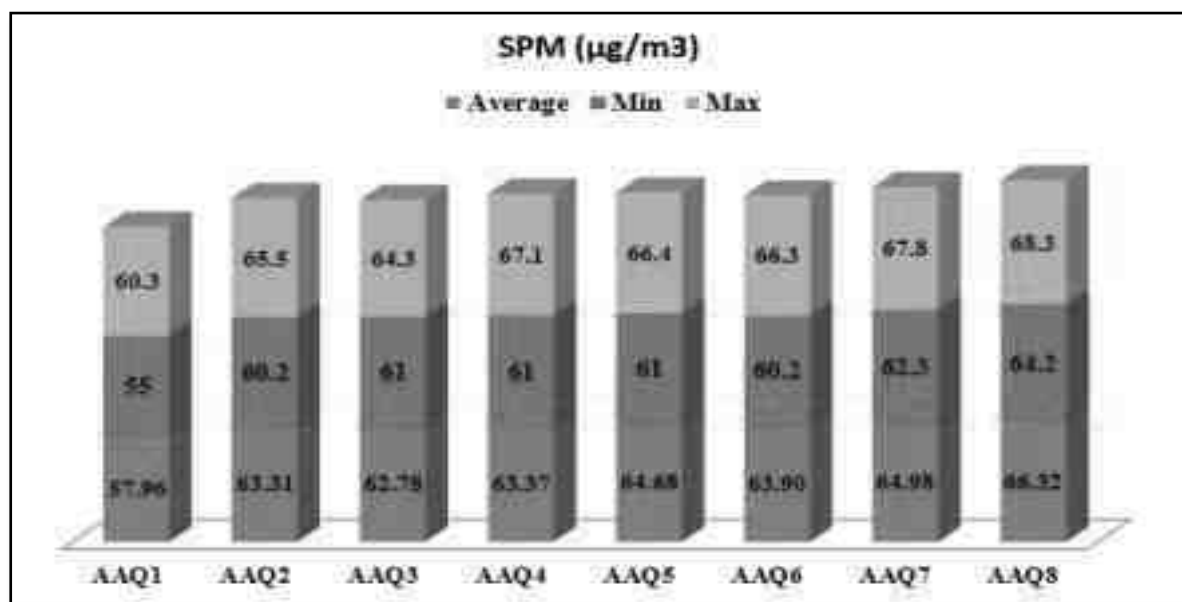


Source: Line Diagram of Table 3.25

Table 3.27 : Fugitive Dust sample values in $\mu\text{g}/\text{m}^3$ -

SPM ($\mu\text{g}/\text{m}^3$)	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Average	57.96	63.31	62.78	63.37	64.68	63.90	64.98	66.32
Min	55	60.2	61	61	61	60.2	62.3	64.2
Max	60.3	65.5	64.3	67.1	66.4	66.3	67.8	68.3

Source: Field Data's



Source: Bar Diagram of table 3.26

3.3.6 Interpretations & Conclusion

From the above datas, the concentration of main criteria pollutants has been observed that maximum concentration of PM₁₀ is $49.5 \mu\text{g}/\text{m}^3$ recorded at Near Project area and minimum is $41.1 \mu\text{g}/\text{m}^3$ recorded at Nakkalpatti Village. The concentration of PM_{2.5} varies from $20.1 - 25.5 \mu\text{g}/\text{m}^3$ Minimum concentration was recorded at Near Project area and Maximum concentration of PM_{2.5} recorded at Bagimanoor Village. SO₂ concentration level ranged from $5.0 - 8.4 \mu\text{g}/\text{m}^3$ and NO₂ concentration ranged from $21.0 - 25.8 \mu\text{g}/\text{m}^3$ in the study area. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

Toxic Metals (Lead, Nickel & Arsenic): Representative samples from all sampling stations were collected and analysed for Toxic Metals i.e. Lead, Arsenic & Nickel. The concentrations of Toxic Metals were below detectable limit at all sampling stations.

Overall Ambient Air Quality of proposed project area and its buffer zone is good during monitoring period and there are no any abnormal values recorded. The maximum concentration in the core zone is due to the quarrying activity of the cluster of quarries situated within 500m radius. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

The ambient air quality of different locations has been compared with the respective NAAQS. The air quality has been categorized into four broad categories based on an Exceedance Factor (the ratio of average concentration of a pollutant with that of a respective standard).

The four air quality categories are:

- i. Critical pollution (C): when EF is > 1.5
- ii. High pollution (H): when the EF is between $1.0 < 1.5$
- iii. Moderate pollution (M): when the EF between $0.5 < 1.0$
- iv. Low pollution (L): when the EF is < 0.5

The Exceedance Factor (EF) is calculated for major pollutants as follows:

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 Eight (8) locations. The noise level monitoring locations were carried out by covering commercial, residential, rural areas within the radius of 10 km. A noise monitoring methodology was chosen such that it best suited the purpose and objectives of the study.

Table 3.28: Details of Noise Monitoring Locations

S. No	Location code	Monitoring Locations	Distance & Direction	Coordinates
1	N-1	Core Zone	Project Area	12°29'22.49"N 78°18'20.10"E
2	N-2	Near Existing Quarry	350m NE	12°29'32.82"N 78°18'25.69"E
3	N-3	Jagadevipalayam	1.3km SE	12°29'9.31"N 78°19'5.60"E
4	N-4	Marutepalli	4.2km NW	12°31'13.55"N 78°16'59.82"E
5	N-5	Nakkalpatti	3.5km South	12°27'27.53"N 78°17'49.35"E
6	N-6	Achamangalam	4km NE	12°31'24.69"N 78°19'8.38"E
7	N-7	Bagimanoor	5.5km East	12°29'0.10"N 78°21'28.01"E
8	N-8	Chinnapanamudlu	2.8km West	12°29'43.28"N 78°16'45.82"E

Source: On-site monitoring/sampling by KGS Enviro Laboratory 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.

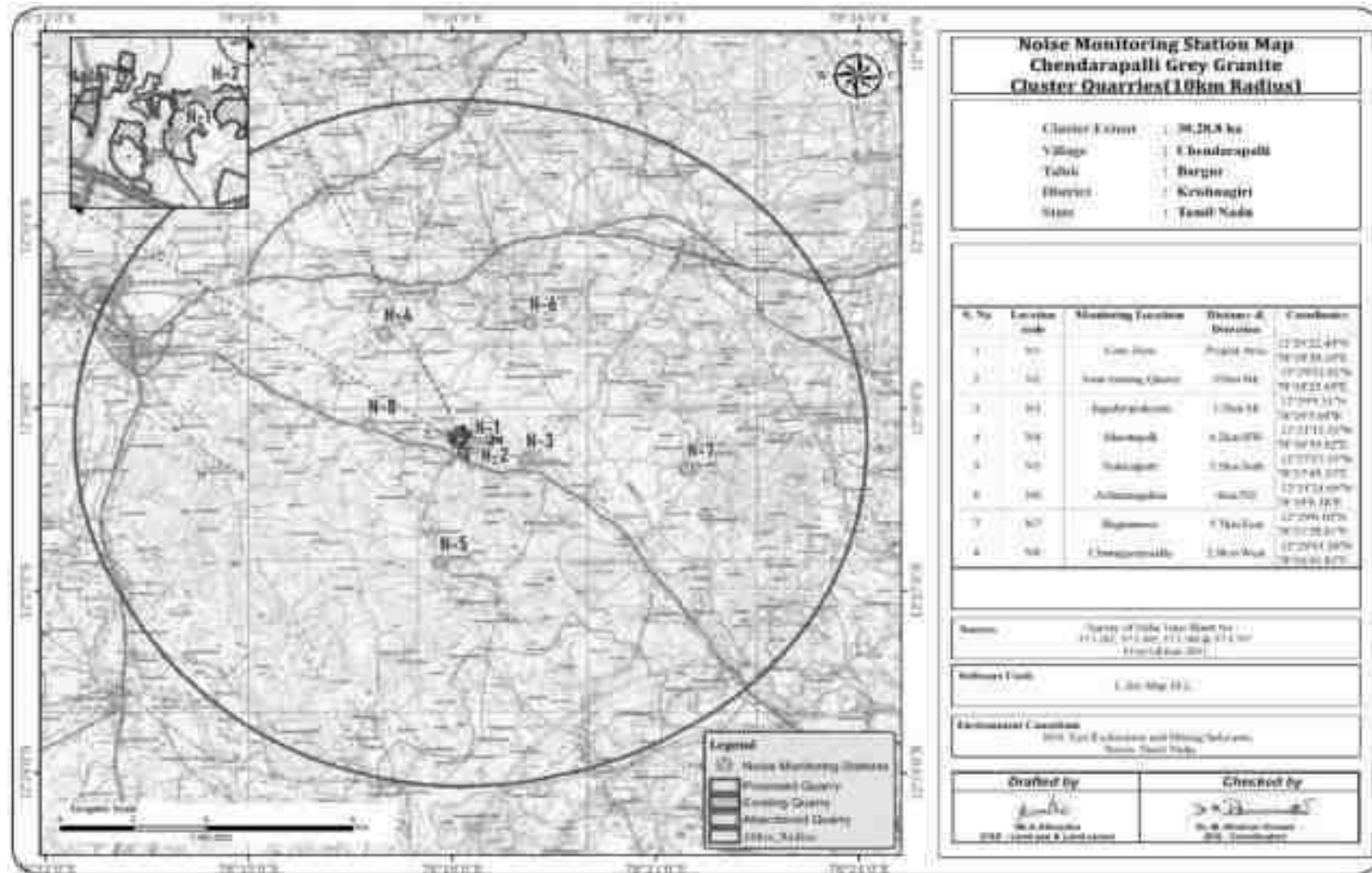
Measured noise levels, displayed as a function of time, is useful for describing the acoustical climate of the community. Noise levels recorded at each station with a time interval of about 60 minutes are computed for equivalent noise levels. Equivalent noise level is a single number descriptor for describing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

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

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

T = Time interval of observation

Figure 3.18: Noise Monitoring Stations Around 10 Km Radius



3.4.3 Analysis of Ambient Noise Level in the Study Area

The Digital Sound pressure level have 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 3.28

Day time: 6:00 hours to 22.00 hours.

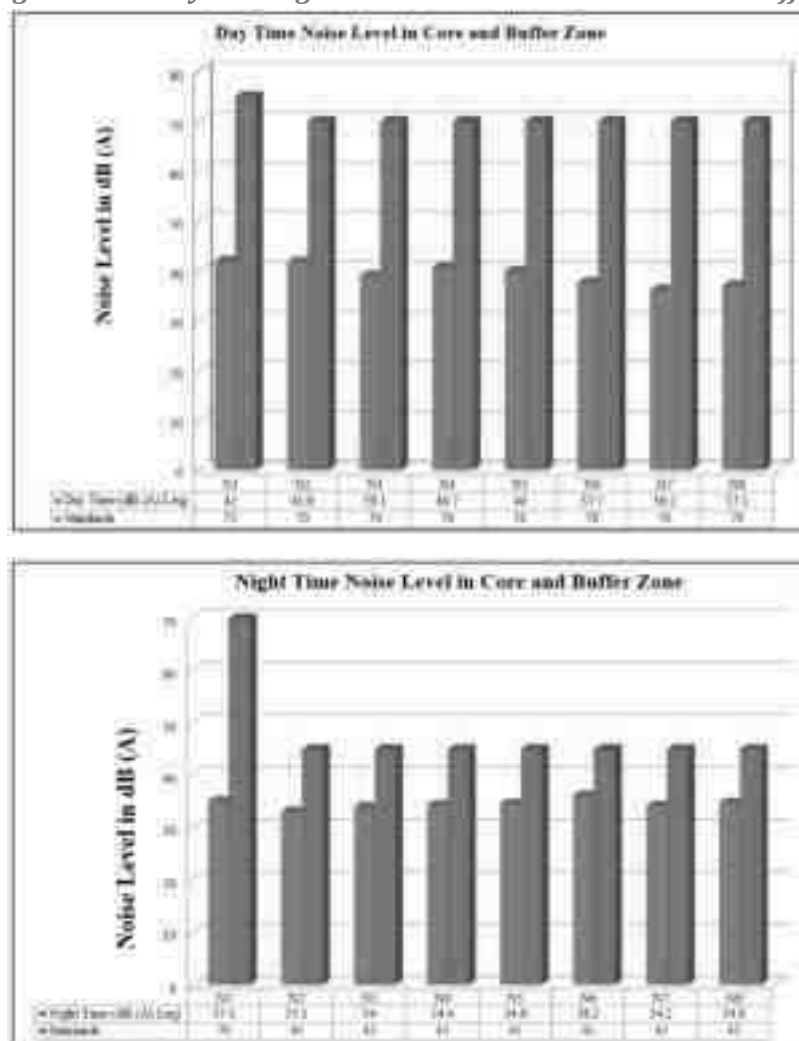
Night time: 22:00 hours to 6.00 hours.

Table 3.29: Ambient Noise Quality Result

S. No	Locations	Noise level (dB (A) Leq)		Ambient Noise Standards
		Day Time	Night Time	
1	Core Zone	42.0	35.1	Industrial Day Time- 75 dB (A) Night Time- 70 dB (A)
2	Near Existing Quarry	41.8	33.1	
3	Jagadevipalayam	39.1	34.0	
4	Marutepalli	40.7	34.4	Residential Day Time- 55 dB (A) Night Time- 45 dB (A)
5	Nakkalpatti	40.0	34.6	
6	Achamangalam	37.7	36.2	
7	Bagimanoor	36.2	34.2	
8	Chinnapanamudlu	37.1	34.8	

Source: On-site monitoring/sampling by KGS Enviro Laboratory Private Limited in association with GEMS

Figure 3.19: Day and Night Time Noise Levels In Core And Buffer



3.4.4 Interpretation & Conclusion:

Ambient noise levels were measured at 8 (Eight) locations around the proposed and existing project area. Noise levels recorded in core zone during day time were from 41.8 – 42 dB (A) Leq and during night time were from 33.1 – 35.1 dB (A) Leq. Noise levels recorded in buffer zone during day time were from 36.2– 40.7 dB (A) Leq and during night time were from 34.0 – 36.2 dB (A) Leq.

The values of noise observed in some of the areas are primarily owing to quarrying activities due to cluster of quarries within 500m radius, movement of vehicles and other anthropogenic activities. Noise monitoring results reveal that the maximum & minimum noise levels at day time were recorded in the range of 46.9 dB(A) Leq in core zone and 36.4 dB(A) Leq in minimum core zone area and 30.2 dB(A) in Near quarry area & 39.2 dB(A) in Achamangalam Village at Maximum night time. Thus, the noise level for Industrial and Residential area meets the requirements of CPCB.

3.5 Ecological Environment**3.5.1 Methodology Adopted & Objective**

To achieve the above objective, a detailed study of the area was undertaken in 10 km radius from the proposed project area. The different methods adopted were as follows:

- Primary field surveys to establish primary baseline of the study area; and
- Compilation of information available in published literatures and as obtained from Forest survey of India, Environmental Information Centre, Botanical Survey of India and Zoological Survey of India.
- The present report gives the review of published secondary data and the results of field sampling conducted during Summer Season i.e., March to May 2022 and there are no forest blocks in study area. The detailed ecological assessment of the study area has been carried out with the following objectives:
 - Identification of flora and fauna within the study area;
 - Preparation of checklist of species which also include endangered, endemic and protected (both floral and faunal categories); and
 - Evaluation of impact of proposed expansion on flora and fauna of the area.

3.5.2. Study area Ecology

In this project, the total area of the Cluster with in 10km radius from the periphery of this quarry is reported. In such Cluster situation, a common Ecology and Biodiversity study for the entire cluster of quarries is enough to capture all the possible externalities. The common EIA/EMP data can be used for all quarries fall under this cluster but the present work was carried out on detailed study of the impacts of Chendarapalli Grey Granite quarry on the ecology and biodiversity of the core lease area with the proper mitigation and sustainable management plan. The proposed area exhibits almost flat terrain. The following methods were applied during the baseline study of flora, fauna and diversity assessment.

3.5.3. Objectives of Biological Studies

1. Undertake an intensive field survey to assess the status of floral & fauna component in different habitats in the core and buffer areas of the project site.
2. Identification and listing of flora and fauna which are important as per the Wildlife (Protection) Act 1972.
3. 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.
4. To identify the impacts of mining on agricultural lands and how it affects.
5. Proper collection of information about wildlife Sanctuaries/ national parks/ biosphere reserves of the project area.
6. Devise management & conservation measures for biodiversity.

3.5.4 Methodology of Sampling

Identification of vegetation in relation to the natural flora and crops was conducted through reconnaissance field surveys and onsite observations in the 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 patterns in relation to agriculture crop varieties were identified through physical verification of land and interaction with local villagers.

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

Plot method is used in the floral documentation in the core and buffer zone. For trees (10x10-m), shrubs (5x5-m) and herbs (1x1-m) plots were taken. Birds and butterflies were mainly focused during faunal assessment, transect method was employed for birds and butterflies. Transect is a path along which one counts and records the occurrence of an individual for study. A straight-line walk covering desired distance, within a time span of one hour to 30 minutes was carried out in the proposed region. Bird species were recorded during the hours of peak activity. 0700 to 1100 Hrs and 1430 to 1730 Hrs (Bibby et al. 2000).

Direct observations and bird calls were used for bird documentation. Same transects were used for counting butterflies. Opportunistic observations were made for Amphibians, reptiles and ordinates. 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).

3.5.4.1 Sampling

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

3.5.4.2 Sampling Size

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

3.5.4.3 Timing of Study

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

3.5.4.4 Observations from Sampling

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

3.5.4.5 Equipment/ References

- Canon Mark III Camera with 50-500mm lens– Snap shots taken
- Leica Binoculars (8x 20) to spot/identify species
- IUCN Red Data Book – <https://www.iucnredlist.org/species>

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

3.5.5 Part I Field Sampling Techniques

3.5.5.1 Transect walk – Birds

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

3.5.5.2 Modified Pollard Walk – for Butterflies

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

3.5.5.3 Visual Encounter Survey (VES) - reptiles and amphibians

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

3.5.5.4 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.

3.5.5.5 Multiple Stage Quadrat – Vegetation

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

3.5.5.6 Flora

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

3.5.5.7 Flora Composition in the Core Zone

Taxonomically a total of 29 species belonging to 18 families have been recorded from the core zone mining lease area. The area is situated in an undulated terrain. The gradient is 1 in 3 towards the Northwest side. Based on the habitat classification of the enumerated plants the majority of species were Herbs 10, followed by Trees 9, Shrubs 5, Grass 3, Creeper 1, and Cactus 1. Details of flora with the scientific name were mentioned in Table No. 3.29 The result of the core zone of flora studies shows that Fabaceae and Poaceae, Euphorbiaceae are the main dominating species in the study area mentioned in Table No.3.29 No species were found as threatened category (Table No. 3.29).

Table No: 3.30. Flora in the Core zone of Chendarapalli Village, Grey Granite quarry

SI. No	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	Mesquite	Mullu maram	<i>Prosopis juliflora</i>	Fabaceae
2.	Neem	Vembu	<i>Azadirachta indica</i>	Meliaceae

3.	Millettia pinnata	Pongam oiltree	<i>Pongamia pinnata</i>	Fabaceae
4.	Pala indigo	Pala maram	<i>Wrightia tinctoria</i>	Apocynaceae
5.	Bitter Albizia	Arappu Tree	<i>Albizia amara</i>	Fabaceae
6.	Monkey pod tree	Thungumoonchi	<i>Samanea saman</i>	Fabaceae
Shrubs				
1.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae
2.	Lantana	Unni chedi	<i>Lantana camara</i>	Verbenaceae
3.	Hopbush	Virali chedi	<i>Dodonaea viscosa</i>	Sapindaceae
4.	Tanner's cassia	Avaram	<i>Senna auriculata</i>	Fabaceae
5.	Carray Cheddle	Kaarai	<i>Canthium parviflorum</i>	Rubiaceae
6.	Night shade plan	Sundaika	<i>Solanum torvum</i>	Solanaceae
7.	Puriging nut	Kattamanakku	<i>Jatropha curcas</i>	Euphorbiaceae
Herbs				
1.	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae
2.	Asthma-plant	Amman pacharisi	<i>Euphorbia hirta</i>	Euphorbiaceae
3.	Indian doab	Arugampul	<i>Cynodon dactylon</i>	Poaceae
4.	Carrot grass	Partiniyam	<i>Parthenium hysterophorus</i>	Asteraceae
5.	Coat buttons	Thatha poo	<i>Tridax procumbens</i>	Asteraceae
6.	Bindii	Nerunji mullu	<i>Tribulus terrestris</i>	Zygophyllaceae
7.	Prickly chaff flower	Nayuruv	<i>Achyranthes aspera</i>	Amaranthaceae
Creeper /Climbers				
1.	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	Vitaceae
2.	Wild water lemon	Sirupunaikkali	<i>Passiflora foetida</i>	Passifloraceae
3.	Wild Bitter gourd	Pavakkai	<i>Momordica charantia</i>	Cucurbitaceae
Grass				
1.	Eragrostis	Pullu	<i>Eragrostis ferruginea</i>	Poaceae
2.	Great brome	Thodappam	<i>Bromus diandrus</i>	Poaceae
3.	Sedges	Korai Pul	<i>Carex solandri</i>	Cyperaceae
4.	Nut grass	Korai	<i>Cyperus rotandus</i>	Poaceae
Cactus				
1.	Triangular spruge	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae
2.	Prickly pear	Nagathali	<i>Opuntia dillenii</i>	Cactaceae

(Sources: Species observation in the field study)



a.Lantana camara



b.Calotropis gigantea



c.Senna auriculata



d. Carex solandri



e. *Jatropha curcas*



f. *Dodonaea viscosa*



g. *Euphorbia antiquorum*



h. *Albizia amara*



i. *Wrightia tinctoria*

j. *Azadirachta indica*



k.Eragrostis ferruginea



l.Samanea saman

Figure No: 3.20 Flora species observation in the Core zone area

Table No: 3.31 Flora in Buffer Zone of Chendarapalli Village, Grey Granite quarry

S.No.	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	White Bark Acacia	Vela maram	<i>Vachellia leucophloea</i>	Fabaceae
2.	Bitter Albizia	Arappu Tree	<i>Albizia amara</i>	Fabaceae
3.	Wild Date Palm	Icham	<i>Phoenix sylvestris</i>	Arecaceae
4.	Madras thorn	Kudukapuli	<i>Pithecellobium dulce</i>	Fabaceae
5.	Indian ash tree	Odiya maram	<i>Lannea coromandelica</i>	Anacardiaceae
6.	Neem	Vembu	<i>Azadirachta indica</i>	Meliaceae
7.	Tamarind	Puliyamaram	<i>Tamarindus indica</i>	Legumes
8.	Jackfruit	Palamaram	<i>Artocarpus heterophyllus</i>	Moraceae
9.	Mesquite	Mullu maram	<i>Prosopis juliflora</i>	Fabaceae
10.	Coral Tree	Kalyana murungai	<i>Erythrina variegata</i>	Papilionoide
11.	Asian Palmyra palm	Panai maram	<i>Borassus flabellifer</i>	Arecaceae
12.	Rusty Acacia	Parambai	<i>Acacia ferruginea</i>	Mimosaceae
13.	Indian almond	Padam maram	<i>Terminalia catappa</i>	Combretaceae
14.	Banana tree	Vazhaimaram	<i>Musa acuminata</i>	Musaceae
15.	Indian ash tree	Odiya maram	<i>Lannea coromandelica</i>	Anacardiaceae
16.	Curry leaves	Karuveppali	<i>Murraya koenigii</i>	Rutaceae
17.	Lemon	Ezhumuchaipalam	<i>Citrus lemon</i>	Rutaceae
18.	Bidi leaf tree	Thiruvathi Plant	<i>Bauhinia racemosa</i>	Fabaceae
19.	Blue gum	Thayala maram	<i>Eucalyptus</i>	Myrtaceae
20.	Mango	Manga	<i>Mangifera indica</i>	Anacardiaceae
21.	Peepal	Arasanmaram	<i>Ficus religiosa</i>	Moraceae

22.	Yellow flame tree	Perunkondrai	<i>Peltophorum pterocarpum</i>	Fabaceae
23.	Custard apple	Seethapazham	<i>Annona reticulata</i>	Annonaceae
24.	Flamboyant	Cemmayir-konrai	<i>Delonix regia</i>	Fabaceae
25.	Chinaberry	Malai vembu	<i>Melia azedarach L.</i>	Meliaceae
26.	Monkey pod tree	Thungumoonchi	<i>Samanea saman</i>	Fabaceae
27.	Yellow Flame	Iyalvagai	<i>Peltophorumpterocarpum</i>	Fabaceae
28.	Bamboo	Moonghil	<i>Bambusa bambo</i>	Poaceae
29.	Indian gooseberry	Nelli	<i>Emblica officinalis</i>	Phyllanthaceae
30.	Henna	Marudaani	<i>Lawsonia inermis</i>	Lythraceae
31.	Black Siris	Karuvagai	<i>Albizia odoratissima</i>	Mimosaceae
32.	Sacred Tree	Porasu	<i>Butea monosperma</i>	Fabaceae
33.	-	Karukaya	<i>Ziziphus trinervia R</i>	Rhamnaceae
34.	Malayan Cherry	Ten Pazham	<i>Muntingia calabura</i>	Muntingiaceae
35.	Pomegranate	Mathulai	<i>Punica granatum</i>	Lythraceae
36.	Notched Leaf Soapnut	Poovankottai	<i>Sapindus emarginata</i>	Sapindaceae
37.	Banyan tree	Alamaram	<i>Ficus benghalensis</i>	Moraceae
38.	Chinese chaste tree	Nochi	<i>Vitex negundo</i>	Verbenaceae
39.	Ceylon satinwood	Porasu	<i>Chloroxylon swietenia</i>	Rutaceae
40.	Indian Jujube	Ilanthai	<i>Ziziphus jujuba</i>	Rhamnaceae
41.	Millettia pinnata	Pongam oiltree	<i>Pongamia pinnata</i>	Fabaceae
42.	Guava	Koyya	<i>Psidium guajava</i>	Myrtaceae
43.	Teak	Thekku	<i>Tectona grandis</i>	Verbenaceae
44.	Pala indigo	Pala maram	<i>Wrightia tinctoria</i>	Apocynaceae
45.	River tamarind	Savundal maram	<i>leucaena leucocephala</i>	Fabaceae
46.	Portia tree	Poovarasam	<i>Thespesia populnea</i>	Malvaceae
47.	Drumstick tree	Murunga maram	<i>Moringa oleifera</i>	Moringaceae
48.	Jamun Fruit Plant	Naval maram	<i>Syzygium cumini</i>	Myrtaceae
49.	Mesquite	Mullu maram	<i>Prosopis juliflora</i>	Fabaceae
50.	Papaya	Pappali maram	<i>Carica papaya L</i>	Caricaceae
51.	Coconut	Thennai maram	<i>Cocos nucifera</i>	Arecaceae

Shrubs

1.	Lantana	Unni chedi	<i>Lantana camara</i>	Verbenaceae
2.	Tanner's cassia	Avaram	<i>Senna auriculata</i>	Fabaceae
3.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae
4.	Puriging nut	Kattamanakku	<i>Jatropha curcas</i>	Euphorbiaceae
5.	Triangular spruge	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae
6.	Night shade plan	Sundaika	<i>Solanum torvum</i>	Solanaceae
7.	-	Odankodi	<i>Hippocratea indica</i>	Odankodi
8.	Broom creeper	Kattukodi	<i>Cocculus hirsutus</i>	Menispermaceae
9.	Solanum pubescens	Malaisundai	<i>Solanum pubescens Willd</i>	Solanaceae
10.	Indian Oleander	Arali	<i>Nerium indicum</i>	Apocynaceae

11.	Shoe flower	Chemparuthi	<i>Hibiscu rosa-sinensis</i>	Malvaceae
12.	Flame of the Woods	Idlipoo	<i>Xoracoc cineia</i>	Rubiaceae
13.	Jackal jujube	Suraimullu	<i>Ziziphus oenoplia</i>	Rhamnaceae
14.	Touch-me-not	Thottalchinungi	<i>Mimosa pudica</i>	Mimosaceae
15.	Chinese chastetree	Nalla nochi	<i>Vitex negundo L</i>	Verbinaceae
16.	Thorn apple	Oomathai	<i>Datura stramonium</i>	Solanaceae
17.	Indian mallow	Thuthi	<i>Abutilon indicum</i>	Meliaceae
18.	Bush Morning Glory	Neiveli Kattamani	<i>Ipomoea carnea</i>	Convolvulaceae
19.	Carray Cheddle	Kaarai	<i>Canthiumparviflorum</i>	Rubiaceae
20.	Castor oil plant	Amanakku	<i>Ricinus communis</i>	Euphorbiaceae
21.	Malabar catmint	Pei veratti	<i>Anisomeles malabarica</i>	Lamiaceae
Herbs				
1.	Cleome viscosa	Nai kadugu	<i>Celome viscosa</i>	Capparidaceae
2.	Eggplant	Kathrikkai	<i>Solanum melongena</i>	Solanaceae
3.	Aloe barbadensis	Katrazhai	<i>Aloe vera</i>	Asphodelaceae
4.	Bara Gokhru	Yanainerunjil	<i>Petalium murex</i>	Pedaliaceae
5.	Commelina benghalensis	Kanavazha	<i>Commelina benghalensis</i>	Commelinaceae
6.	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae
7.	Indian doab	Arugampul	<i>Cynodon dactylon</i>	Poaceae
8.	Chilli	Milakai	<i>Capsicum annum</i>	Solanaceae
9.	Asthma-plant	Amman pacharisi	<i>Euphorbia hirta</i>	Euphorbiaceae
10.	Tomato	Thakkali	<i>Solanum lycopersicum</i>	Solanaceae
11.	White dammar	Mookutipoondu	<i>Vicoa indica</i>	Asteraceae
12.	Coat buttons	Thatha poo	<i>Tridax procumbens</i>	Asteraceae
13.	Bindii	Nerunji mullu	<i>Tribulus terrestris</i>	Zygophyllaceae
14.	Prickly chaff flower	Nayuruv	<i>Achyranthes aspera</i>	Amaranthaceae
15.	Field beans	Avarai	<i>Hyacinth Beans</i>	Fabaceae
16.	Indian Copperleaf	Kuppaimeni	<i>Acalypha indica</i>	Euphorbiaceae
17.	Spiny amaranth	Mullu keerai	<i>Amaranthus spinosus</i>	Amaranthaceae
18.	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae
19.	Ban Tulsi	Melakai poondu	<i>Croton bonplandianus</i>	Euphorbiaceae
20.	Europeanblack nightshade	Manathakkali	<i>Solanumnigrum</i>	Solanaceae
21.	Ladies' fingers	Vendakkai	<i>Abelmoschus esculentus</i>	Malvaceae
22.	Majjigeberru gida	Purpannai	<i>Aerva monsoniae</i>	Amaranthaceae
23.	Vigna mungo	Ulunthu	<i>Vigna mungo</i>	Fabaceae
24.	chicken weed	Sirupasalai	<i>Portulaca quadrifida L</i>	Portulacaceae
25.	Bright eyes	Nithiyakalyani	<i>Catharanthus roseus</i>	Apocynaceae
26.	Carrot grass	Partiniyam	<i>Parthenium hysterophorus</i>	Asteraceae
27.	Indian mint	Karpura valli	<i>Coleus amboinicus</i>	Lamiaceae
Climber/ Creeper				
1.	Rosary Pea	Gundumani	<i>Abrus precatorius</i>	Fabaceae

2.	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	Vitaceae
3.	Balloon plant	Mudakrttan	<i>Cardiospermum halicacabum</i>	Sapindaceae
4.	Bitter apple	Peikkumatti	<i>Citrullus colocynthis</i>	Cucurbitaceae
5.	Butterfly pea	Sangu poo	<i>Clitoria ternatea</i>	Fabaceae
6.	Ivy gourd	Kovai	<i>Coccinia grandis</i>	Cucurbitaceae
7.	Betel	Vettilai	<i>Piper betle</i>	Piperaceae
8.	Pointed gourd	Kovakkai	<i>Trichosanthes dioica</i>	Cucurbitaceae
9.	Wild bitter	Pavarkai	<i>Momordica charantia</i>	Cucurbitaceae
10.	Bottle Guard	Sorakkai	<i>Lagenaria siceraria</i>	Cucurbitaceae
11.	White pumpkin	Poosanaikkaai	<i>Cucurbitaceae</i>	Cucurbitaceae
12.	Wild jasmine	Malli	<i>Jasminum augustifolium</i>	Oleaceae
13.	Cucumis maderaspatanus	Musumusukkai	<i>Mukia maderaspatana</i>	Cucurbitaceae
Grass				
1.	Eragrostis	Pullu	<i>Eragrostis ferruginea</i>	Poaceae
2.	Windmill grass	Chevvarakupul	<i>Chloris barbata</i>	Amaranthaceae
3.	Nut grass	Korai	<i>Cyperus rotandus</i>	Poaceae
4.	Great brome	Thodappam	<i>Bromus diandrus</i>	Poaceae
Cactus				
1.	Prickly pear	Nagathali	<i>Opuntia dillenii</i>	Cactaceae
2.	Triangular spruge	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae

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

(Sources: Species observation in the field study)

3.5.5.8 Phyto-sociological Survey method

A total of 10 quadrats were laid down randomly within core area and 40 quadrats were laid down within four quartiles randomly (10/quartile) in buffer area. In core area 10 quadrats were laid randomly to enumerated trees, shrubs, and herbs as per the Following formulae used for calculating the frequency (%), abundance and density of the floral species encountered in the 10 quadrats studied.

3.5.5.9 Quadrats method

Quadrats of 25 × 25-m were laid down randomly within core and 5-km buffer area; each quadrat was laid to assess the trees (>5 cm GBH) and one, 10 × 10-m sub-quadrat nested within the quadrat for shrubs. The quadrats were laid randomly to cover the area to maximize the sampling efforts and minimize the species homogeneity, such as small stream area, trees in agricultural bunds, tank bunds, farm forestry plantations, wildlife areas, natural forest area, avenue plantations, house backyards, etc. In each quadrat individuals belonging to tree (25 × 25-m) and shrub (10 × 10-m) were recorded separately and have been identified on the field. quadrates sampling methods is given in Fig no.3.13.

3.6 Study of Flora

3.6.1 Flora in Core Zone

Taxonomically a total of 37 species belonging to 20 families have been recorded from the core mining lease area. Based on habitat classification of the enumerated plants the majority of species were tree 14 (38%) followed by shrubs 12 (32.43%), herbs 8 (21.62%) and Climber 3 (8.10%). Details of flora with the scientific name were mentioned in Table No. 3.30 The result of core zone of flora studies shows that Fabaceae and Areaceae, Lamiaceae, are the main dominating species in the study area it mentioned in Table No.3.29 and the details of diversity of flora family's pattern are given in Fig No.3.14. No species found as threatened category (Table No. 3.29).

3.6.2 Flora in Buffer Zone

Similar habitats may be found in the buffer area as well, although there is a wider variety of plants there than in the core zone area. The buffer zone has some forests located away from the proposed project site and there are 118 species in the buffer zone study area in total, based on records. The floral (118) varieties among them Trees 51, herbs 27, shrubs 21, Climbers/Creepers 13, Grasses 4, and Cactus 2 were identified. The result of the buffer zone of flora studies shows that Fabaceae and Cucurbitaceous, Euphorbiaceae is the main dominating species in the study area mentioned in Table No.3.2. There are no impacts due to this mining activity. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. Apart from the proposed project area, there is agricultural land. Horticulture and agricultural land are untouched. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. A list of floral species has been prepared based on a primary survey (site observations) and discussion with local people. The total number of different plant life forms under trees, shrubs, herbs, and climbers is shown in Table 3.3 and their % distribution is shown in Figure 3.2.

Table 3.32: Number of floral life forms in the Study Area

S. No	Plant Life Form	Number of Species
1	Trees	51
2	Shrubs	21
3	Herbs	27
4	Climber/ Creepers	13
5	Grass	4
6	Cactus	2
Total No. of Species		118

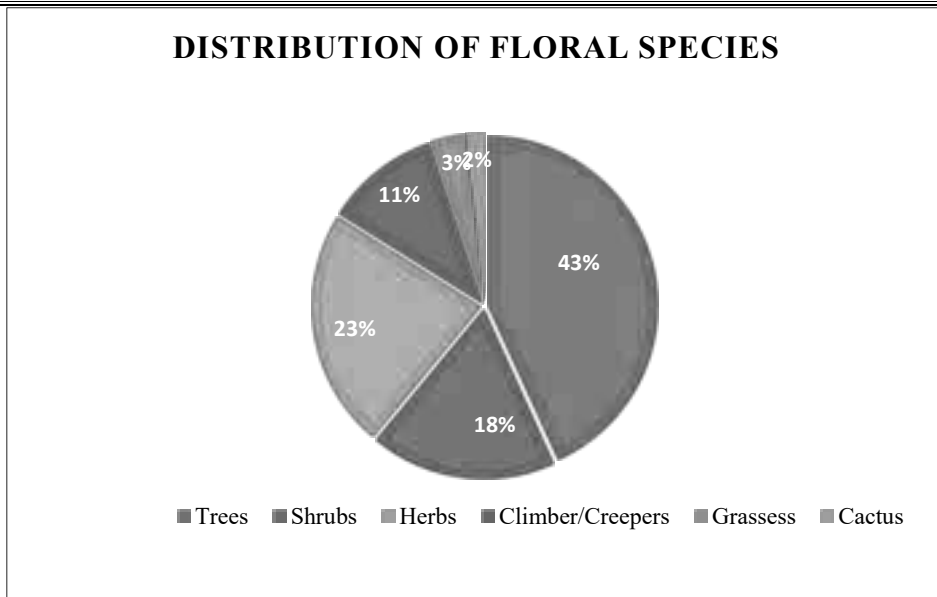


Fig No. 3.21 Pie diagram showing % distribution of floral life forms

Table 3.33: List of medicinal plants recorded from the nearby forest area

S.No	Botanical Name	Family	Local name(s)	Habit	Part(s) used	Uses
1.	<i>Abrus precatorius</i> L.	Fabaceae	Kundumani	CL	Leaves, Seeds	Skin diseases, Eye disease and tooth ache.
2.	<i>Abutilon indicum</i> (L.) Swee	Malvaceae	Thuthi	S	Seed, Root, Barks and Leaves	Urinary troubles, Nervous disorders, Leprosy and Leucorrhoea
3.	<i>Acacia catechu</i> (L.f.) Willd	Mimosaceae	Karungaali	T	Wood	Skin diseases, mouth ulcer, dysentery and Leprosy.
4.	<i>Acalypha indica</i> L	Euphorbiaceae	Kuppaimeni	H	Whole plant	Eczema, skin diseases, cough and bronchitis, Wounds and ulcer
5.	<i>Erythrina variegata</i>	Papilionoide	Kalyana murungai	T	Whole plant	Laxative, diuretic, anthelmintic, galactagogue and emmenagogue, venereal buboes.
6.	<i>Achyranthes aspera</i> L	Amaranthaceae	Nayurivi	H	Whole plant	Diuretic, astringent, skin diseases and piles
7.	<i>Albizia lebbeck</i> (L.) Willd	Mimosaceae	Vaagai	T	Seeds, Leaves, Bark, Flowers and Pod	Eczema, Ulcer, rheumatism, leprosy
8.	<i>Aloe vera</i> (L.) Burm.f.	Asphodelaceae	Chotthukathazhai	H	Leaf juice	Dysentery, leucorrhoea, amenorrhoea, menstrual problems, intestinal worms and skin tonics
9.	<i>Azadirachta indica</i> A. Juss	Meliaceae	Vembu	T	Bark, Leaves, Flower, Seeds and Oil	Antiviral, anthelmintic, insecticide, antiseptic, skin diseases, small pox and clean teeth.
10.	<i>Calotropis gigantea</i> (L.) R.Br	Asclepiadaceae	Erukku	S	Whole plant	Anthelmintic, skin diseases, leprosy, snake bite, ulcers, piles, cough and asthma
11.	<i>Cissus quadrangularis</i> L.	Vitaceae	Pirandai	CL	Stem	Rheumatoid arthritis, appetizer, bone fracture and nervine tonic.
12.	<i>Ormocarpum cochinchinense</i> (Lour.) Merr.	Fabaceae	Elumbotti	S	Bark	Fever, rheumatism and bone setting.
13.	<i>Phyllanthus urinaria</i> L	Euphorbiaceae	Malai Kizhanelli	H	Whole plant	Jaundice, gonorrhoea, urinary diseases, indigestion, bleeding piles and menstrual problems.

**Note: Mark '+' indicates the presence of species and '-' absence of specie*

3.7. Study of Fauna

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

3.7.1. Fauna Composition in the Core Zone

A total of 23 varieties of species were observed in the Core zone of Chendarapalli Village, Grey Granite quarry (Table No.3.5) among them numbers of Insects 6, Reptiles 4, Mammals 2, and Avian 11. A total of 23 species have been recorded from the core mining lease area. None of these species are threatened or endemic in the study area and surroundings. There is no Schedule I species and 13 species are under Schedule IV according to the Indian Wildlife Act 1972. A total of 11 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 the core zone with the scientific name were mentioned in Table No. 3.33

Table No: 3.34 Fauna in the Core zone of Chendarapalli Village, Grey Granite quarry

SI. No	Common name/English Name	Family Name	Scientific Name	Schedule list wildlife Protection act 1972	IUCN Red List data
Insects					
1.	Striped tiger	Nymphalidae	<i>Danaus plexippus</i>	Schedule IV	LC
2.	Grey pansy	Nymphalidae	<i>Junonia atlites</i>	Schedule IV	LC
3.	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	Schedule IV	LC
4.	Grasshopper	Acrididae	<i>Hieroglyphus sp</i>	NL	LC
5.	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	NL	NL
6.	Red-veined darter	Libellulidae	<i>Sympetrum fonscolombii</i>	NL	LC
Reptiles					
1.	Garden lizard	Agamidae	<i>Calotes versicolor</i>	NL	LC
2.	Common skink	Scincidae	<i>Mabuya carinatus</i>	NL	LC
3.	Rat snake	Colubridae	<i>Ptyas mucosa</i>	Sch II (Part II)	LC
4.	Green vine snake	Colubridae	<i>Ahaetulla nasuta</i>	Schedule IV	NL
Mammals					
1.	Indian Field Mouse	Muridae	<i>Mus booduga</i>	Schedule IV	NL
2.	Common rat	Muridae	<i>Rattus rattus</i>	Schedule IV	LC
Aves					
1.	Rock pigeon	Columba livi	<i>Columbidae</i>	Schedule IV	LC
2.	Black drongo	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV	LC
3.	House crow	Corvidae	<i>Corvus splendens</i>	NL	LC
4.	Common myna	Sturnidae	<i>Acridotheres tristis</i>	NL	LC
5.	Shikra	Laniidae	<i>Laniusexcubitor</i>	Schedule IV	LC
6.	Rose-ringed parakeet	Psittaculidae	<i>Psittacula krameri</i>	NL	LC
7.	Common quail	Phasianidae	<i>Coturnix coturnix</i>	Schedule IV	LC

8.	Koel	Cuculidae	<i>Eudynamys</i>	Schedule IV	LC
9.	Cattle egret	Ardeidae	<i>Bubulcus ibis</i>	NE	LC
10.	Sunbird	Nectariniidae	<i>Cinnyrisasiaticus</i>	Schedule IV	LC
11.	Indian Robin	Turdinae	<i>Saxicoloides fulicata</i>	Schedule IV	LC

*NL- Not listed, LC- Least Concern

3.7.2. Fauna Composition in the Buffer Zone

Taxonomically a total of 64 species have been recorded from the buffer zone area is given in Table No.3.6. Based on habitat classification the majority of species were Birds 25 and the list of bird species recorded during the field survey and literature from the study area is given in Table 3.6, followed by Insects 21, Reptiles 9, and Mammals 5(*directly sighted animals & Secondary data), and amphibians 4. There are six Schedule II species and 41 species are under Schedule IV according to the Indian Wildlife Act 1972. A total of 25 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. 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.

Dominant species are mostly birds and insects, and four amphibian was observed during the extensive field visit as mentioned in Table 3.6. The result of core & Buffer zone of fauna studies shows that Nymphalidae, Colubridae, and Scincidae are the main dominating species in the study area; it is mentioned in Table No.3.6. There is no schedule I Species in the study area. There are no critically endangered, endangered, vulnerable, and endemic species were observed.

Table 3.35 Faunal Diversity in Buffer Zone of Chendarapalli Village, Grey Granite Quarry, Krishnagiri District

SI. No	Common Name/English Name	Family Name	Scientific Name	Schedule list wildlife Protection act 1972	IUCN Red List data
Insects					
1.	Plain Tiger	Nymphalidae	<i>Danaus chrysippus</i>	Schedule IV	LC
2.	Indian honey bee	Apidae	<i>Apis cerana</i>	Schedule IV	LC
3.	Grey pansy	Nymphalidae	<i>Junonia atlites</i>	Schedule IV	LC
4.	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	Schedule IV	LC
5.	Striped tiger	Nymphalidae	<i>Danaus plexippus</i>	Schedule IV	LC
6.	Common Pierrot	Lycaenidae	<i>Castalius rosimon</i>	NL	LC
7.	Lemon pansy	Nymphalidae	<i>Junonia lemonias</i>	Schedule IV	LC
8.	Milkweed butterfly	Nymphalidae	<i>Danainae</i>	NL	LC
9.	Termite	Blattodea	<i>Hamitermes silvestri</i>	NE	LC
10.	Chocolate pansy	Nymphalidae	<i>Junonia iphita</i>	NL	LC
11.	Common emigrant	Pieridae	<i>Catopsilia pomona</i>	Schedule IV	LC
12.	Common grass yellow	Pieridae	<i>Eurema hecabe</i>	Schedule IV	LC
13.	Grasshopper	Acrididae	<i>Hieroglyphus sp</i>	NL	LC

14.	Red-veined darter	Libellulidae	<i>Sympetrum fonscolombii</i>	NL	LC
15.	Ant	Formicidae	<i>Camponotus Vicinus</i>	NL	NL
16.	Common Leopard	Nymphalidae	<i>Phalanta phalantha</i>	Schedule IV	LC
17.	Dragonfly	Gomphidae	<i>Ceratogomphus pictus</i>	Schedule IV	LC
18.	Common Indian crow	Nymphalidae	<i>Euploea core</i>	Schedule IV	LC
19.	Grass yellow	Pieridae	<i>Eurema hecabe</i>	NL	LC
20.	Lesser grass blue	Lycaenidae	<i>Zizina Otis indica</i>	Schedule IV	LC
21.	Tawny coster	Nymphalidae	<i>Danaus chrysippus</i>	Schedule IV	LC
Reptiles					
1.	Garden lizard	Agamidae	<i>Calotes versicolor</i>	NL	LC
2.	Chameleon	Chamaelenidae	<i>Chameleon zeylanicus</i>	Sch II (Part II)	LC
3.	Fan-Throated Lizard	Agamidae	<i>Sitanaponticeriana</i>	NL	LC
4.	Indian cobra	Elapid snakes	<i>Naja naja</i>	Sch II (Part II)	LC
5.	Indian wall lizard	Gekkonidae	<i>Hemidactylus flaviviridis</i>	Schedule IV	NL
6.	Green vine snake	Colubridae	<i>Ahaetulla nasuta</i>	Schedule IV	NL
7.	Rat snake	Colubridae	<i>Ptyas mucosa</i>	Sch II (Part II)	LC
8.	Common krait	Elapid snakes	<i>Bungarus caeruleus</i>	Schedule IV	NL
9.	Russell's viper	Viperidae	<i>Vipera russseli</i>	Sch II (Part II)	LC
Mammals					
1	Indian palm squirrel	Sciuridae	<i>Funambulus palmarum</i>	Schedule IV	LC
2	Asian Small Mongoose	Herpestidae	<i>Herpestes javanicus</i>	Schedule (Part II)	LC
3	Indian Field Mouse	Muridae	<i>Mus booduga</i>	Schedule IV	LC
4	Brown rat	Muridae	<i>Rattus norwegicus</i>	Schedule IV	LC
5	Indian hare	Leporidae	<i>Lepus nigricollis</i>	Schedule (Part II)	LC
Aves					
1.	House crow	Corvidae	<i>Corvus splendens</i>	NL	LC
2.	Koel	Cucalidae	<i>Eudynamis</i>	Schedule IV	LC
3.	Black-headed Munia	Estrildidae	<i>Lonchuramalacca</i>	Schedule IV	LC
4.	Cattle egret	Ardeidae	<i>Bubulcus ibis</i>	NL	LC
5.	White Breasted king fisher	Alcedinidae	<i>Halcyon smyrnensis</i>	Schedule IV	LC
6.	Rock pigeon	Columba livi	<i>Columbidae</i>	Schedule IV	LC
7.	Indian Robin	Turdinae	<i>Saxicoloides fulicata</i>	Schedule IV	LC
8.	Pond-Heron	Ardeidae	<i>Ardeo labacchus</i>	Schedule IV	LC
9.	Common myna	Sturnidae	<i>Acridotheres tristis</i>	NL	LC

10.	Small blue Kingfisher	Alcedinidae	<i>Alcedo atthis</i>	Schedule IV	LC
11.	Cattle Egret	Ardeidae	<i>Bubulcus ibis</i>	-	-
12.	Sunbird	Nectariniidae	<i>Nectariniidae</i>	NL	LC
13.	Indian blue robin	Larvivorabrunnea	<i>Muscicapidae</i>	Schedule IV	LC
14.	Asian green bee-eater	Meropidae	<i>Meropsorientalis</i>	NL	LC
15.	Hoopoe	Upupidae	<i>Upupaepops</i>	Schedule IV	LC
16.	Indian Roller	Coraciidae	<i>Coracias benghalensis</i>	Schedule IV	LC
17.	Rose-ringed parakeet	Psittaculidae	<i>Psittacula krameri</i>	NL	LC
18.	Two-tailed Sparrow	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV	LC
19.	Red-vented Bulbul	Pycnonotidae	<i>Pycnonotus cafer</i>	Schedule IV	LC
20.	Common quail	Phasianidae	<i>Coturnix coturnix</i>	Schedule IV	LC
21.	Cuckoo	Cuculidae	<i>Cuculuscanorus</i>	Schedule IV	LC
22.	Black drongo	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV	LC
23.	Woodpecker bird	Picidae	<i>Picidae</i>	Schedule IV	LC
24.	Grey Francolin	Phasianidae	<i>Francolinus pondicerianus</i>	Schedule IV	LC
25.	House Sparrow	Passerinae	<i>Passer domesticus</i>	Schedule IV	LC
Amphibians					
1.	Indian Skipper Frog	Dicroglossidae	<i>Euphlyctis cyanophlyctis</i>	Schedule IV	LC
2.	Indian Burrowing frog	Dicroglossidae	<i>Sphaerotheca breviceps</i>	Schedule IV	LC
3.	Indian Toad	Dicroglossidae	<i>Bufo melanostictus</i>	Schedule IV	LC
4.	Indian Pond Frog	Dicroglossidae	<i>Euphlyctis hexadactylus</i>	Schedule IV	LC

3.7.3. Aquatic Ecology

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

3.7.4 Objectives of Aquatic Studies

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

3.7.5 Macrophytes

The macrophytes observed within the study area are tabulated in Table 3.38

Table No.3.36 Description of Macrophytes

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

3.7.6 Aquatic Faunal Diversity

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

Table no. 3.37 Amphibians Observed/Recorded from the Study Area

SI. No	Common Name	Zoological Name	WLPA, 1972	IUCN Red List data
1.	Indian Skipper Frog	<i>Euphlyctis cyanophlyctis</i>	Schedule IV	LC
2.	Indian Pond Frog	<i>Euphlyctis hexadactylus</i>	Schedule IV	LC
3.	Indian Toad	<i>Bufo melanostictus</i>	Schedule IV	LC

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

3.7.7 Findings/Results

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

Records of threatened species in the area

No threatened species were observed

Endangered Species as per Wildlife (Protection) Act

No Endangered fauna was recorded in the project area.

Endemic Species of the Project areas

No endemic species were observed in the project area.

Migratory species of the Project areas

No migratory fauna observed in the project area.

Migratory corridors and Flight paths

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

Breeding and spawning grounds

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

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

There are no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar sites, Tiger/Elephant Reserves (existing as well as proposed) within 10 km of the mine lease area. The following Reserved Forest is situated within 10 km radius. Noganoor R.F. 2.2 km west, Aiyur Extn R.F. 2 km east, and Denkanikottai R.F. 3.6 km on the North side. There are no protected forests within the project area. Hence

submission of clearance from the National Board of Wildlife does not arise. There are no endangered, endemic, and RET Species. There is no Schedule I species in the 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.

3.7.8 Conclusion

The observations and assessment of the overall ecological scenario involve details such as classification of Biogeographic zone, eco-region, habitat types, 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, wildlife species, etc., and consulted and discussed with local people, from the villages, herders, and farmers who inhabit close to the proposed and existing project area.

3.8 Socio Economic Environment

There is no habitation/ village within the radius of 10km from the project area. Socio-economic study is an essential part of environmental study. It includes demographic structure of the area, provision of basic amenities viz., housing, education, health and medical services, occupation, water supply, sanitation, communication, transportation, prevailing diseases pattern as well as feature like temples, historical monuments etc., at the baseline level. This will help in visualizing and predicting the possible impact depending upon the nature and magnitude of the project.

It is expected that the Socio-Economic Status of the area will substantially improve because of this proposed project. As the proposed project will provide direct and indirect employment and improve the infrastructural facilities in that area and, thus, improve their standard of living.

3.8.1 Objectives of the Study

The objectives of the socio-economic study are as follows:

- To study the socio-economic status of the people living in the study area of the proposed mining project
- To assess the impact of the project on Quality of life of the people in the study area
- To recommend Community Development measures needs to be taken up in the study Area.

3.8.2 Scope of Work

- To study the Socio-economic Environment of the area from the secondary sources;
- Data Collection & Analysis
- Prediction of project impact
- Mitigation Measures

3.8.3 Administrative Setup of Krishnagiri District

Krishnagiri district includes 2 Revenue Divisions, 8 Taluks, 7 Town Panchayats. There are 874 Revenue Villages, 352 Village panchayats in this district.

In 2011, Krishnagiri district had population of 18,79,809 with a sex-ratio of 963 females for every 1,000 males.

3.8.4 Study area

Chendarapalli is a large village located in Krishnagiri Taluka of Krishnagiri district, Tamil Nadu with total 1507 families residing. The Chendarapalli village has population of 6467 of which 3266 are males while 3201 are females as per Population Census 2011.

∞ Child Sex Ratio

In Chendarapalli village population of children with age 0-6 is 783 which makes up 12.11 % of total population of village. Average Sex Ratio of Chendarapalli village is 980 which is lower than Tamil Nadu state average of 996. Child Sex Ratio for the Chendarapalli as per census is 982, higher than Tamil Nadu average of 943.

∞ Literacy rate

Chendarapalli village has lower literacy rate compared to Tamil Nadu. In 2011, literacy rate of Chendarapalli village was 67.15 % compared to 80.09 % of Tamil Nadu. In Chendarapalli Male literacy stands at 76.21 % while female literacy rate was 57.91 %.

☞ Caste Factor

Schedule Caste (SC) constitutes 18.71 % while Schedule Tribe (ST) were 0.28 % of total population in Chendarapalli village.

☞ Work Profile

In Chendarapalli village out of total population, 3084 were engaged in work activities. 89.27 % of workers describe their work as Main Work (Employment or Earning more than 6 Months) while 10.73 % were involved in Marginal activity providing livelihood for less than 6 months. Of 3084 workers engaged in Main Work, 820 were cultivators (owner or co-owner) while 879 were Agricultural labourer.

Table 3.38: Population Characteristics -Chendarapalli Village, Bargur Taluk, Krishnagiri District

Particulars	Total	Male	Female
Total No. of Houses	1,507	-	-
Population	6,467	3,266	3,201
Child (0-6)	783	395	388
Schedule Caste	1,210	609	601
Schedule Tribe	18	9	9
Literacy	67.15 %	76.21 %	57.91 %
Total Workers	3,084	1,969	1,115
Main Worker	2,753	-	-
Marginal Worker	331	191	140

Source: <https://www.census2011.co.in/data/village/643959-Chendarapalli-tamil-nadu.html>

Table 3.39: Population Characteristics Around 10km Radius

Total No of Villages	No. of Households	Total Population	Population Male	Population female	SC Population Male	SC Population female	Total Literates Male	Total Literates Female	Total Illiterates Male	Total Illiterates Female
22	31,928	1,35,137	68,481	66,656	10242	10088	20,681	14,597	48,989	38,911

Table 3.40: Occupational Characteristics Around 10km Radius

Total Worker Population Male	Total Worker Population Female	Main Working Population Male	Main Working Population Female	Main Cultivator Population Male	Main Cultivator Population Female	Main Agricultural Labourers Population Male	Main Agricultural Labourers Population Female	Non-Working Population Male	Non-Working Population Female
38,548	21,769	32,127	15,961	6,659	3,905	8,309	7,313	29,933	44,887

Source: census 2011, Krishnagiri District

3.8.5 Krishnagiri Population 2001 – 2030

The last census of Krishnagiri was done in 2011 and next census of 2021 has been postponed or cancelled. But we can do projection of future Krishnagiri 2022 Population on the basis likely Population Growth Rate.

Year	Projected Population (Estimation)
2001	1561118
2011	1879809
2021	2198500
2025	2325976
2030	2485322

Source: <https://www.census2011.co.in>

Table 3.41: Demographic Characteristics Around 10km Radius

Sno	Name	No.of Households	Total population	Total Male	Total Female	Population below 6	Male below 6	Female below 6	SC population	ST population	Literate population	Male Literate	Female Literate
1	Chinmnamtтарapalli.	1242	5138	2583	2555	497	266	231	467	218	3355	1852	1503
2	Varatanapalli	1693	7102	3586	3516	777	394	383	365	97	4622	2560	2062
3	Palepalle	1847	7631	3698	3933	687	372	315	1092	43	5448	2832	2616
4	Mallapadi	1840	7707	3902	3805	806	402	404	724	46	5084	2846	2238
5	Sigaralapalli	1799	7765	3975	3790	791	417	374	1643	3	5347	2998	2349
6	Kondappanayakempalli	846	3653	1903	1750	393	203	190	95	7	2312	1331	981
7	Achamangalam	974	4179	2150	2029	452	222	230	611	0	2821	1634	1187
8	Balinayanapalli	1132	4761	2470	2291	521	281	240	495	0	3121	1767	1354
9	Orappam	1549	6796	3378	3418	737	390	347	779	0	4338	2385	1953
10	Agasipalli	2811	12915	6548	6367	1743	932	811	2275	12	8199	4578	3621
11	Soolamalai	477	1966	1027	939	238	124	114	344	0	1174	704	470
12	Chendarapalli	1507	6467	3266	3201	783	395	388	1210	18	3817	2188	1629
13	Jagadevipalayam	1607	6747	3398	3349	787	397	390	1602	447	4474	2464	2010
14	Pasinayanapalli	631	2441	1224	1217	272	144	128	444	32	1394	743	651
15	Batlapalli	1199	5036	2625	2411	500	273	227	2077	0	3156	1797	1359
16	Guttur	1175	4996	2562	2434	517	278	239	2267	0	3269	1808	1461
17	Puligunta	2033	8365	4212	4153	894	466	428	1312	31	5342	2978	2364
18	Ikondamkothapalli.	977	3964	1982	1982	420	236	184	358	111	2484	1376	1108
19	Majethgollahalli	395	1592	776	816	169	87	82	32	0	1004	551	453
20	Modikuppam	662	2525	1277	1248	236	115	121	213	23	1625	951	674
21	Balekuli	1772	7025	3623	3402	693	362	331	194	0	3916	2311	1605
22	Bargur (TP)	3760	16366	8316	8050	1810	961	849	1731	208	11598	6335	5263
	Total	31928	135137	68481	66656	14723	7717	7006	20330	1296	87900	48989	38911

Source: Census 2011, Krishnagiri District

Table 3.42: Occupational characteristics Around 10km Radius

Sno	Name	Total population	Total Male	Total Female	Total workers	Total M. workers	Total F. workers	Main workers	Main cultivators	Agric.Labo	Non workers	Non Male workers	Non-Female workers
1	Chinnnamttarapalli.	5138	2583	2555	2282	1409	873	1472	527	556	2856	1174	1682
2	Varatanapalli	7102	3586	3516	3404	2052	1352	3107	722	1306	3698	1534	2164
3	Palepalle	7631	3698	3933	3597	2084	1513	2400	487	776	4034	1614	2420
4	Mallapadi	7707	3902	3805	3208	2226	982	3015	423	936	4499	1676	2823
5	Sigaralapalli	7765	3975	3790	3862	2348	1514	3455	732	1037	3903	1627	2276
6	Kondappanayakempalli	3653	1903	1750	1666	1121	545	1445	222	701	1987	782	1205
7	Achamangalam	4179	2150	2029	2157	1310	847	1688	403	637	2022	840	1182
8	Balinayanapalli	4761	2470	2291	2013	1273	740	699	229	114	2748	1197	1551
9	Orappam	6796	3378	3418	2719	1707	1012	2269	414	1027	4077	1671	2406
10	Agasipalli	12915	6548	6367	4959	3325	1634	4053	568	894	7956	3223	4733
11	Soolamalai	1966	1027	939	965	618	347	869	175	293	1001	409	592
12	Chendarapalli	6467	3266	3201	3084	1969	1115	2753	820	879	3383	1297	2086
13	Jagadevipalayam	6747	3398	3349	2720	1911	809	2093	253	755	4027	1487	2540
14	Pasinayanapalli	2441	1224	1217	1183	679	504	614	81	324	1258	545	713
15	Batlapalli	5036	2625	2411	2311	1487	824	1893	219	836	2725	1138	1587
16	Guttur	4996	2562	2434	2566	1531	1035	2011	245	1366	2430	1031	1399
17	Puligunta	8365	4212	4153	3664	2445	1219	2859	594	827	4701	1767	2934
18	Ikondamkothapalli.	3964	1982	1982	1985	1179	806	1670	283	879	1979	803	1176
19	Majethgollahalli	1592	776	816	732	421	311	510	133	231	860	355	505
20	Modikuppam	2525	1277	1248	1212	734	478	979	191	290	1313	543	770
21	Balekuli	7025	3623	3402	3624	2025	1599	3263	2368	513	3401	1598	1803
22	Bargur (TP)	16366	8316	8050	6404	4694	1710	4971	475	445	9962	3622	6340
	Total	135137	68481	66656	60317	38548	21769	48088	10564	15622	74820	29933	44887

Source: Census 2011, Krishnagiri District

3.8.6 Basic Amenities

A better network of physical infrastructure facilities (well-built roads, rail links, irrigation, power and telecommunication, information technology, market-network and social infrastructure support, viz. health and education, water and sanitation, veterinary services and co-operative) is essential for development of the rural economy.

A review of infrastructure facilities available in the area has been given on the basis of field survey. In this study the villages which fall within 10 km radius around the site has been covered. Infrastructure facilities available in the area are presented below.

All basic amenities Education (higher education, colleges, universities, medical college, transport facilities, railway station, bus station area available in the district headquarters Krishnagiri at a distance of 10km –West)

3.8.7 Interpretation

Based on the data, following inferences could be drawn:

- Total literacy rate in the study area is 67%.
- The study area had average educational facilities. The overall status depicts that the education is limited to primary and middle level.
- Schedule Tribe (ST) were 0.28 % of total population in Chendarapalli village and Scheduled Caste forms 19% of the total population of study area.
- The Other Population forms 81% of the total population of study area.
- The study area is well connected by NH/SH/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.

3.8.8 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 centre 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.

3.8.9 Conclusion

To evaluate the impacts of proposed Existing Grey granite 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 **Chendarapalli Grey Granite Quarry** (Total Cluster 17.73.5 Ha) will adopt adequate control measures to protect the surrounding environment and will contribute in development of the study areas.

Socio Economic/ demographic status of the study area reveals that area further require improvement in the Economy and Infrastructure Development of the area. Hence it can be concluded that the present baseline environment status of the study area will not be affected by the proposed project. The proposed Existing 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.

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

4.1.1 Anticipated Impact

The main anticipated impact on the Land Environment due to quarrying operation is change in Landscape, change in Land – use Pattern. **Chendarapalli Grey Granite Cluster Quarry** (Total Cluster 30.28.8 Ha) (Cluster area is calculated as per MoEF & CC Notification – S.O. 2269 (E) Dated: 01.07.2016) including existing and proposed quarries). The proposed project area is proponent own patta land, no forest land involved in this lease applied area. The ultimate depth of the proposed project is quarrying is varying from 30m below the ground level and will not intersect the ground water table. The project is site specific.

4.1.2 Mitigation measures

Due to the quarrying activities in the project the land use pattern will be altered. In order to minimize the adverse effects, the following control measures will be implemented:

- In the Opencast Method of Mining the degradation of land is insignificant, after completion of the quarrying operation the land, the land will be partially backfilled with dumped material and part of the area will be allowed to collect rainwater which will act as temporary reservoir, this Granite waste, overburden not produce any toxic effluents in the form of solid, liquid or gas
- Top Soil will be removed and utilized for greenbelt development in the safety barrier
- The periphery of the mining lease area will be converted to a greenbelt to prevent Noise and sound propagation to the nearby lands
- Construction of garland drains all around the quarry pit and construction of check dam at strategic location in lower elevations to prevent soil erosion due to surface runoff during rainfall and also to collect the storm water for various uses within the proposed area
- Barbed wire fencing will be re constructed at the conceptual stage, Security will be posted round the clock, to prevent inherent entry of the public and cattle.

4.1.1.2 Soil Environment

4.1.1.3 Impact on Soil Environment

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

4.1.1.4 Mitigation measures for Soil Conservation

- The top soil will be preserved in the safety barrier and kept in moisture condition. The preserved top soil will be utilized for greenbelt development in the safety barrier and utilized for plantation on the top bench.
- Garland drains will be constructed around the project area to arrest any soil from the quarry area being carried away by the rainwater. This will also avoid the soil erosion and siltation in the mining pits and maintaining the stability of the benches.

4.1.1.5 Waste Dump Management

4.1.1.6 Anticipated Impact

Solid waste is in the form of Granite waste which does not produce any toxic effluent during dumping. Garland drains will be constructed around the waste dump to prevent the rainwater entering into the quarrying pit besides this garland drain will also help in facilitating the rainwater to the natural gradient.

There is generation of topsoil is about 5065m³ for the entire period and 680 m³ during this five-year mining plan period. The top soil will be preserved all along the safety barrier and utilized for construction of bund and afforestation purpose. The total waste to be produced during this 3rd Scheme Mining plan period is around 58,968 m³ (Granite waste 80%) the same will be temporarily dump on the southwestern side with Dimensions of 215m(L) x 142m (W) x 33m (D). As and when there is accumulation of waste, the same is loaded into the tipper by loading machines and dumped in the respective places ear-marked for the purpose.

4.1.1.7 Mitigation measures

- Retaining wall with weep hole, Garland drain will be provided around the dump areas
- Proper angle of repose to be maintained
- Grasses to be done over the dump areas for stability.
- Soil erosion may also be accelerated on areas where the overburden from the ore excavation operation will be dumped. As there is neither a toxic effluent nor solid waste from the mine, quality of soil is not expected to be adversely affected.

4.2 Water Environment (Impact & Mitigation Measures)

4.2.1 Anticipated Impact on Surface and ground water

The impact due to mining on the water quality is expected to be insignificant because of no use of chemicals or hazardous substances during quarrying process. For the quarrying activity water will be utilized for wire saw cutting (which will be recycled), water sprinkling on haul roads and greenbelt development. The quarrying activity will not intersect ground water table as ultimate depth of the quarry is 33m and water table is found at a depth of 62m summer and 57m rainy season BGL.

4.2.2 Mitigation measures

The following mitigation measures are suggested for water management

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

There is no proposal Granite processing or workshop within the project area thus there is no effluent anticipated in the mine.

Detail of water requirements in KLD as given below:

Table 4.1 Water Requirement for the Project-P1

Purpose	Quantity	Source
Dust Suppression	0.5 KLD	For Drinking purpose Packaged drinking water will be brought from nearby approved water vendors For domestic purpose Bore well water will be utilized
Green Belt development	0.5 KLD	From existing bore well on nearby quarry
*Drinking and Domestic purpose	1.0 KLD	From existing bore well on nearby quarry
Total	2.0 KLD	

Source: Prefeasibility report

Table 4.2 Water Requirement for the Project-P2

Purpose	Quantity	Source
Dust Suppression	0.8KLD	From Existing, bore wells and drinking water will be sourced from Approved Water vendors.
Green Belt development	1.0KLD	From Existing bore wells from nearby area
*Drinking and Domestic purpose	0.7KLD	From Existing bore wells from nearby area
Total	2.5 KLD	

- With respect to Turbidity, Total Iron and Silica, Pre-treatment methods like settling or filtration, Water Softening (Ion Exchange) shall be adopted to make it fit for drinking purposes. But it can be used for other domestic purposes
- Rainwater will be collected in sump in the mining pit and will be allowed to store and pumped out to surface setting tank of 15 m x 10m x 3m to remove suspended solids if any. This collected water will be judiciously used for dust suppression onwards 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
- Construction of garland drains to divert surface run-off into the quarrying area
- Retaining walls with weep hole will be constructed around the dump to arrest silt wash off
- Periodic 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
- Wastewater discharge from mine will be treated in settling tanks before using for dust suppression and tree plantation purposes
- De-silting will be carried out before and immediately after the monsoon season
- Regular monitoring and analysing the quality of water in open well, bore wells and surface water

4.3 Air Environment (Impact & Mitigation Measures)

The air borne particulate matter is the main air pollutant in this opencast mining. The mining operation will be carried out by Diamond wire saw cutting, jackhammer drilling (35mm dia) and Hydraulic Excavators will be utilized for handling of Granite waste.

4.3.1. Anticipated Impact

The air borne particulate matter generated by quarrying operation, and transportation. The emissions of Sulphur dioxide (SO₂), Oxides of Nitrogen (NO_x) due to excavation/loading equipment and vehicles plying on haul roads are marginal. Loading - unloading and transportation of Granite and overburden, wind erosion of the exposed area and movement of light vehicles will be the main polluting source in the mining activities releasing Particulate Matter (PM₁₀) affecting Ambient Air of the area. Prediction of impacts on air environment has been carried out taking into consideration proposed production (ROM) on air environment and net increase in emissions by Open pit source modelling in AERMOD Software.

4.3.2 AERMOD Frame work of Computation & details

By using the above-mentioned inputs, ground level concentrations due to the quarrying activities have been estimated to know the incremental concentration in ambient air quality and impact in the study area. The

effect of air pollutants upon receptors are influenced by concentration of pollutants and their dispersion in the atmosphere. Air quality modelling is an important tool for prediction, meet the regulatory standards and to apply mitigation measures to reduce impact caused by quarrying activities. PM₁₀ was 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 10 km around the source to assess the impact at each receptor separately at the various locations and maximum incremental GLC value at the project site. Maximum impact of 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.

4.3.2.1 Emission Rate --P1

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

The general equation for emissions estimation is:

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

Where:

- E = Emissions;
 A = Activity rate;
 EF = Emission factor, and
 ER = Overall emission reduction efficiency, %

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

Table 4.3: Estimated Emission Rate for Quarry- P1

Emission Estimation for quarry P1				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.058502145	g/s
	Blasting	Point Source	0.000165758	g/s
	Mineral Loading	Point Source	0.036881835	g/s
	Haul Road	Line Source	0.002484595	g/s/m
	Overall Mine	Area Source	0.055232507	g/s
Estimated Emission rate for SO ₂	Overall Mine	Area Source	0.000175182	g/s
Estimated Emission rate for NO _x	Overall Mine	Area Source	0.000009498	g/s

Table 4.4: Estimated Emission Rate for Quarry- P2

Emission Estimation for quarry P2				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.053648792	g/s
	Blasting	Point Source	0.000107501	g/s
	Mineral Loading	Point Source	0.035673986	g/s
	Haul Road	Line Source	0.002483905	g/s/m
	Overall Mine	Area Source	0.063223918	g/s
Estimated Emission rate for SO ₂	Overall Mine	Area Source	0.000131333	g/s
Estimated Emission rate for NO _x	Overall Mine	Area Source	0.000009693	g/s

Source: Emission calculator

4.3.2 Frame work of Computation & Model details

By using the above-mentioned inputs, ground level concentrations due to the quarrying activities have been estimated to know the incremental concentration in ambient air quality and impact in the study area. The effect of air pollutants upon receptors are influenced by concentration of pollutants and their dispersion in the atmosphere. Air quality modelling is an important tool for prediction, planning and evaluation of air pollution control activities besides identifying the requirements for emission control to meet the regulatory standards and to apply mitigation measures to reduce impact caused by quarrying activities. PM₁₀ was the major pollutant occurred during quarrying activities. The prediction included the impact of Excavation, Drilling, Blasting, loading and movement of vehicles during transportation and meteorological parameters such as wind speed, wind direction, temperature, rainfall, humidity and Cloud cover.

Impact was predicted over the distance of 10 km around the source to assess the impact at each receptor separately at the various locations and maximum incremental GLC value at the project site. Maximum impact of 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.

Figure 4.1: AERMOD Terrain Map

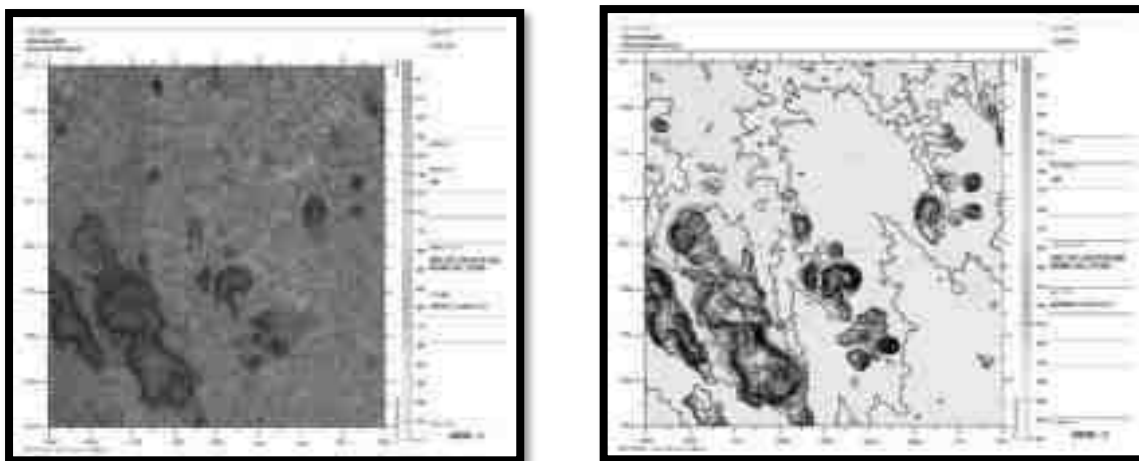


Figure 4.2: Predicted Incremental Concentration of Fugitive Dust

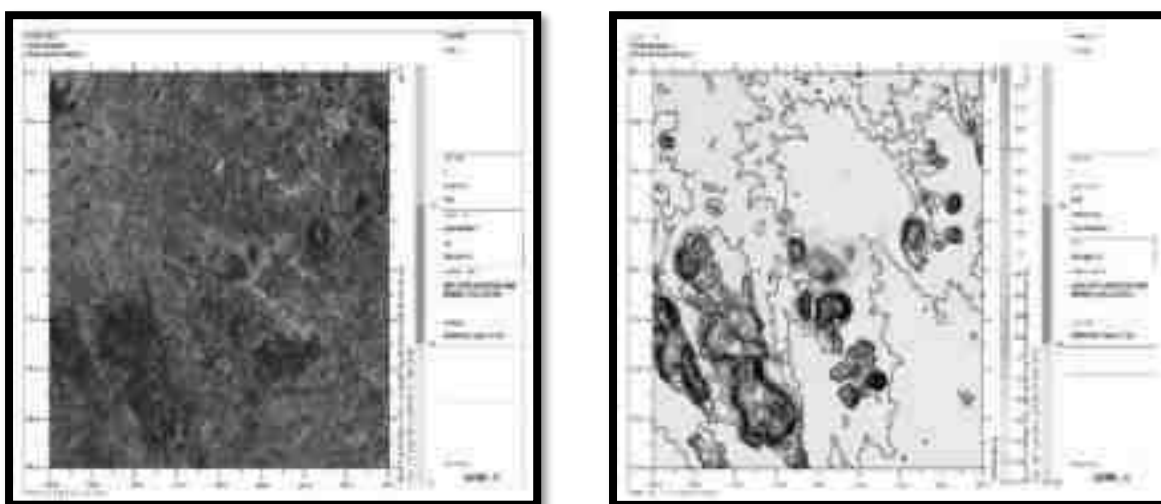


Figure 4.3: Predicted Incremental Concentration of PM₁₀

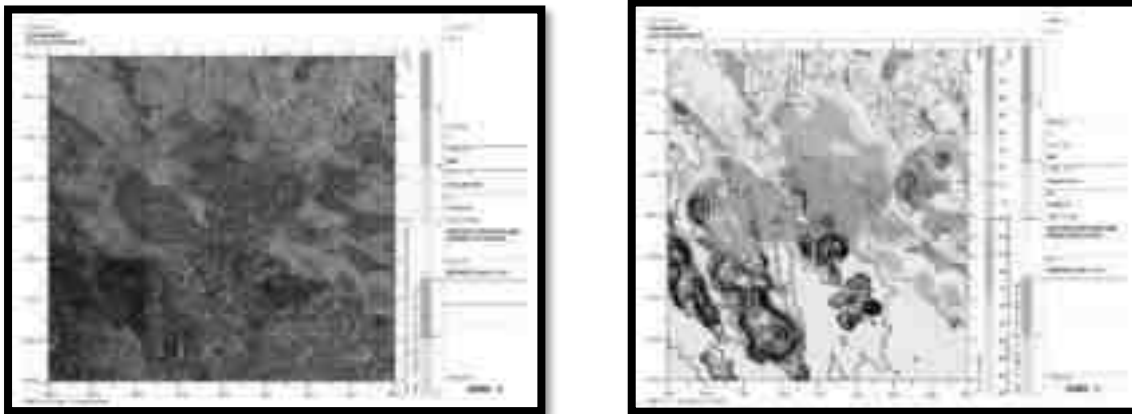


Figure No 4.4: Predicted Incremental Concentration Of PM_{2.5}

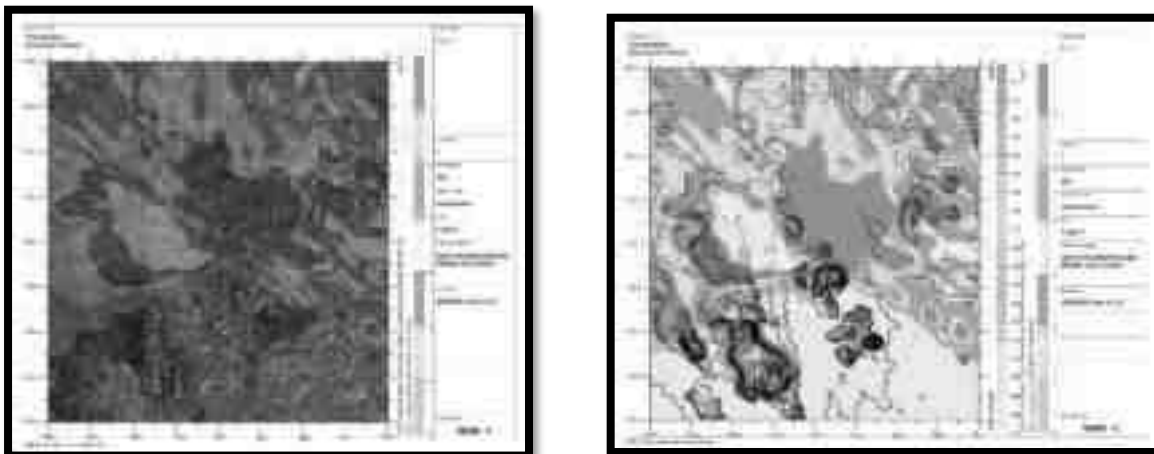


Figure No 4.5: Predicted Incremental Concentration Of So₂

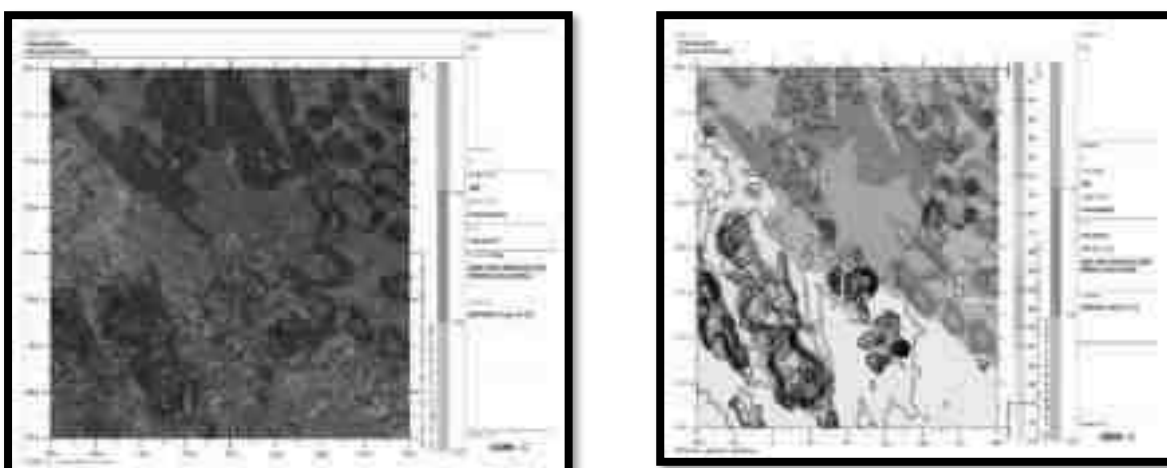
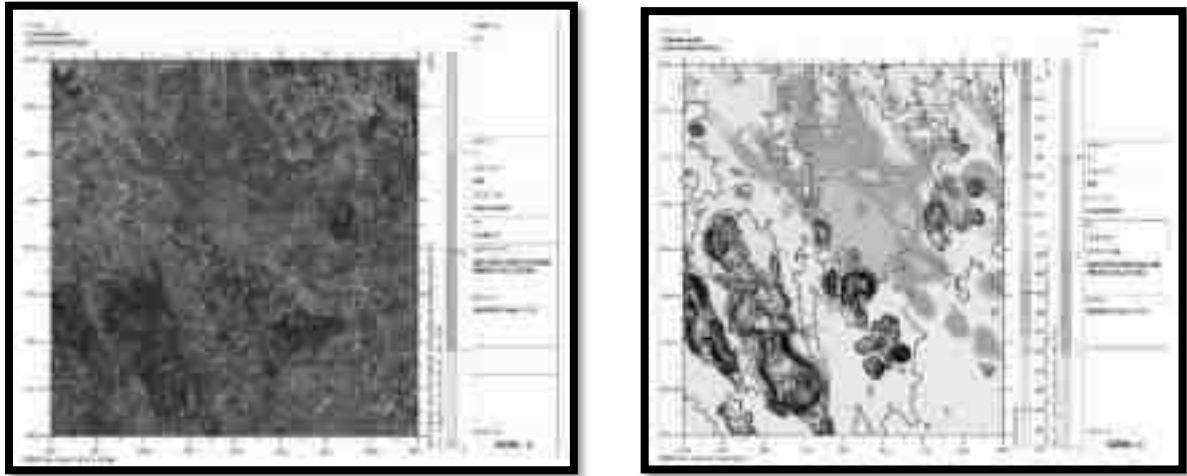


Figure No 4.6: Predicted Incremental Concentration of No_x



4.3.2.1 Model Results

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

Table 4.5: Incremental & Resultant GLC of Fugitive Dust

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline Fugitive ($\mu\text{g}/\text{m}^3$)	Incremental value of Fugitive due to mining ($\mu\text{g}/\text{m}^3$)	Total Fugitive ($\mu\text{g}/\text{m}^3$) (5+6)
AAQ1	12°29'22.38"N 78°18'19.29"E	-39	81	57.96	129	186.96
AAQ2	12°29'33.08"N 78°18'25.76"E	160	414	63.31	96	159.31
AAQ3	12°29'9.63"N 78°19'5.76"E	1377	-318	62.78	49	111.78
AAQ4	12°31'13.88"N 78°16'59.76"E	-2468	3545	63.37	0	63.37
AAQ5	12°27'27.87"N 78°17'49.41"E	-953	-3478	64.68	0	64.68
AAQ6	12°31'28.99"N 78°19'8.55"E	1462	4013	63.90	0	63.90
AAQ7	12°29'0.16"N 78°21'27.89"E	5714	-607	64.98	0	64.98
AAQ8	12°30'8.75"N 78°15'34.26"E	-5075	1521	66.32	0	66.32

Table 4.6: Incremental & Resultant GLC OF PM₁₀

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM ₁₀ ($\mu\text{g}/\text{m}^3$)	Incremental value of PM ₁₀ due to mining ($\mu\text{g}/\text{m}^3$)	Total PM ₁₀ ($\mu\text{g}/\text{m}^3$) (5+6)
AAQ1	12°29'22.38"N 78°18'19.29"E	-39	81	44.8	15.91	60.7
AAQ2	12°29'33.08"N 78°18'25.76"E	160	414	47.5	15.52	63.0
AAQ3	12°29'9.63"N 78°19'5.76"E	1377	-318	46.5	15.09	61.6
AAQ4	12°31'13.88"N 78°16'59.76"E	-2468	3545	44.4	8.00	52.4
AAQ5	12°27'27.87"N 78°17'49.41"E	-953	-3478	22.3	0	22.3
AAQ6	12°31'28.99"N 78°19'8.55"E	1462	4013	22.4	13.88	36.3
AAQ7	12°29'0.16"N 78°21'27.89"E	5714	-607	45.3	5.07	50.3
AAQ8	12°30'8.75"N 78°15'34.26"E	-5075	1521	44.4	2.00	46.4

Table 4.7: Incremental & Resultant GLC OF PM_{2.5}

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM ₁₀ ($\mu\text{g}/\text{m}^3$)	Incremental value of PM ₁₀ due to mining ($\mu\text{g}/\text{m}^3$)	Total PM ₁₀ ($\mu\text{g}/\text{m}^3$) (5+6)
AAQ1	12°29'22.38"N 78°18'19.29"E	-39	81	22.1	7.82	29.9
AAQ2	12°29'33.08"N 78°18'25.76"E	160	414	22.1	7.34	29.5
AAQ3	12°29'9.63"N 78°19'5.76"E	1377	-318	22.1	7.00	29.1
AAQ4	12°31'13.88"N 78°16'59.76"E	-2468	3545	22.3	4.71	27.0
AAQ5	12°27'27.87"N 78°17'49.41"E	-953	-3478	22.3	0	22.3
AAQ6	12°31'28.99"N 78°19'8.55"E	1462	4013	22.3	6.50	28.8
AAQ7	12°29'0.16"N 78°21'27.89"E	5714	-607	22.4	3.78	26.2
AAQ8	12°30'8.75"N 78°15'34.26"E	-5075	1521	22.3	2.90	25.2

Table 4.8: Incremental & Resultant GLC OF SO₂

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM ₁₀ ($\mu\text{g}/\text{m}^3$)	Incremental value of PM ₁₀ due to mining ($\mu\text{g}/\text{m}^3$)	Total PM ₁₀ ($\mu\text{g}/\text{m}^3$) (5+6)
AAQ1	12°29'22.38"N 78°18'19.29"E	-39	81	6.9	2.49	9.4
AAQ2	12°29'33.08"N 78°18'25.76"E	160	414	7.0	2.45	9.4
AAQ3	12°29'9.63"N 78°19'5.76"E	1377	-318	6.3	2.40	8.7
AAQ4	12°31'13.88"N 78°16'59.76"E	-2468	3545	5.9	0.95	6.8

AAQ5	12°27'27.87"N 78°17'49.41"E	-953	-3478	7.3	0	7.3
AAQ6	12°31'28.99"N 78°19'8.55"E	1462	4013	6.8	1.90	8.7
AAQ7	12°29'0.16"N 78°21'27.89"E	5714	-607	6.8	0.69	7.4
AAQ8	12°30'8.75"N 78°15'34.26"E	-5075	1521	7.2	0	7.2

Table 4.9: Incremental & Resultant GLC OF NO_x

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM ₁₀ (µg/m ³)	Incremental value of PM ₁₀ due to mining (µg/m ³)	Total PM ₁₀ (µg/m ³) (5+6)
AAQ1	12°29'22.38"N 78°18'19.29"E	-39	81	24.3	10.78	35.1
AAQ2	12°29'33.08"N 78°18'25.76"E	160	414	24.4	10.39	34.8
AAQ3	12°29'9.63"N 78°19'5.76"E	1377	-318	24.1	10.02	34.1
AAQ4	12°31'13.88"N 78°16'59.76"E	-2468	3545	25.0	0	25.0
AAQ5	12°27'27.87"N 78°17'49.41"E	-953	-3478	24.1	0	24.1
AAQ6	12°31'28.99"N 78°19'8.55"E	1462	4013	24.4	7.61	32.0
AAQ7	12°29'0.16"N 78°21'27.89"E	5714	-607	24.0	0	24.0
AAQ8	12°30'8.75"N 78°15'34.26"E	-5075	1521	24.2	0	24.2

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, 60, 80 & 80 µg/m³ for PM₁₀, PM_{2.5}, SO₂ & NO_x respectively. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be further being controlled.

4.3.3. 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

- Blasting will be carried out only to remove the overburden and weathered portion
- Establish time of blasting to suit the local conditions and water sprinkling on blasting face
- 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

Haul Road & Transportation –

- Water will be sprinkled on haul roads, Loading Points 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.
- Main source of gaseous pollution will be from vehicle used for transportation of mineral; therefore, weekly maintenance of machines improves combustion process & makes reduction in the pollution.
- The un-metalled haul roads will be compacted weekly before being put into use.
- Over loading of tippers will be avoided to prevent spillage.
- It will be ensured that all transportation vehicles carry a valid PUC certificate.
- Grading of haul roads and service roads to clear accumulation of loose materials.

Green Belt –

- Planting of trees all along main mine haul road and regular grading of haul roads will be practiced to prevent the generation of dust due to movement of dumpers/trucks
- Green belt of adequate width will be developed around the project area

Occupational Health –

- Dust mask will be provided to the workers and their use will be strictly monitored
- Annual medical check-ups, 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 (Occasionally) and plying of trucks & HEMM. These activities will not cause any problem to the inhabitants of this area because there is no human settlement in close proximity to the project area. Noise modelling has been carried out considering blasting and compressor operation (drilling) and transportation activities.

Predictions have been carried out to compute the noise level at various distances around the working pit due to these major noise-generating sources.

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

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

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

Where:

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

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

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

4.4.1 Anticipated Impact

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

- Source data
- Receptor data
- Attenuation factor

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

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

Table 4.10: Predicted Noise Incremental Values

Location ID	N1	N2	N3	N4	N5	N6	N7	N8
Maximum Monitored Value (Day) dB(A)	46.9	45.7	44.2	44.6	46.3	43.5	41.2	41.20
Incremental Value dB(A)	60.1	49.2	37.8	27.6	29.2	28.1	25.3	31.16
Total Predicted Noise level dB(A)	60.3	50.8	45.1	44.7	46.4	43.6	41.3	41.61
NAAQ Standards	Industrial Day Time- 75 dB (A) & Night Time- 70 dB (A) Residential Day Time- 55 dB (A) & Night Time- 45 dB (A)							

The incremental noise level is found within the range of 49.2– 60.1 dB (A) in Core Zone and 25.3-37.8dB (A) in Buffer zone. The noise level at different receptors in buffer zone is lower due to the distance 33.3 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 for Control of Noise

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 are utilized for breaking boulders;
- Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will reduce noise;
- The blasting will be carried out during favourable atmospheric condition and less human activity timings by using nonelectrical initiation system;
- Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise;
- Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise;
- Silencers / mufflers will be installed in all machineries;
- Green Belt will be developed around the project areas 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 mining activities in the project area 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 proposed mine is moving of Heavy Earth Moving Machineries vibration due to blasting is very minimal since the blasting will not carried out frequently in this type of Granite quarry operation. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease area. The kuchha houses are more prone to cracks and damage due to the vibrations induced by blasting whereas RCC framed structures can withstand more ground vibrations. Apart from this, the ground vibrations may develop a fear factor in the nearby settlements.

Another impact due to blasting activities is fly rocks. These may fall on the houses or agricultural fields nearby the mining lease area and may cause injury to persons or damage to the structures. Nearest habitation from the project area is located 350 m South East. The ground vibrations due to the blasting in proposed mine are calculated using the empirical equation.

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

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

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

Q = maximum instantaneous charge (kg)

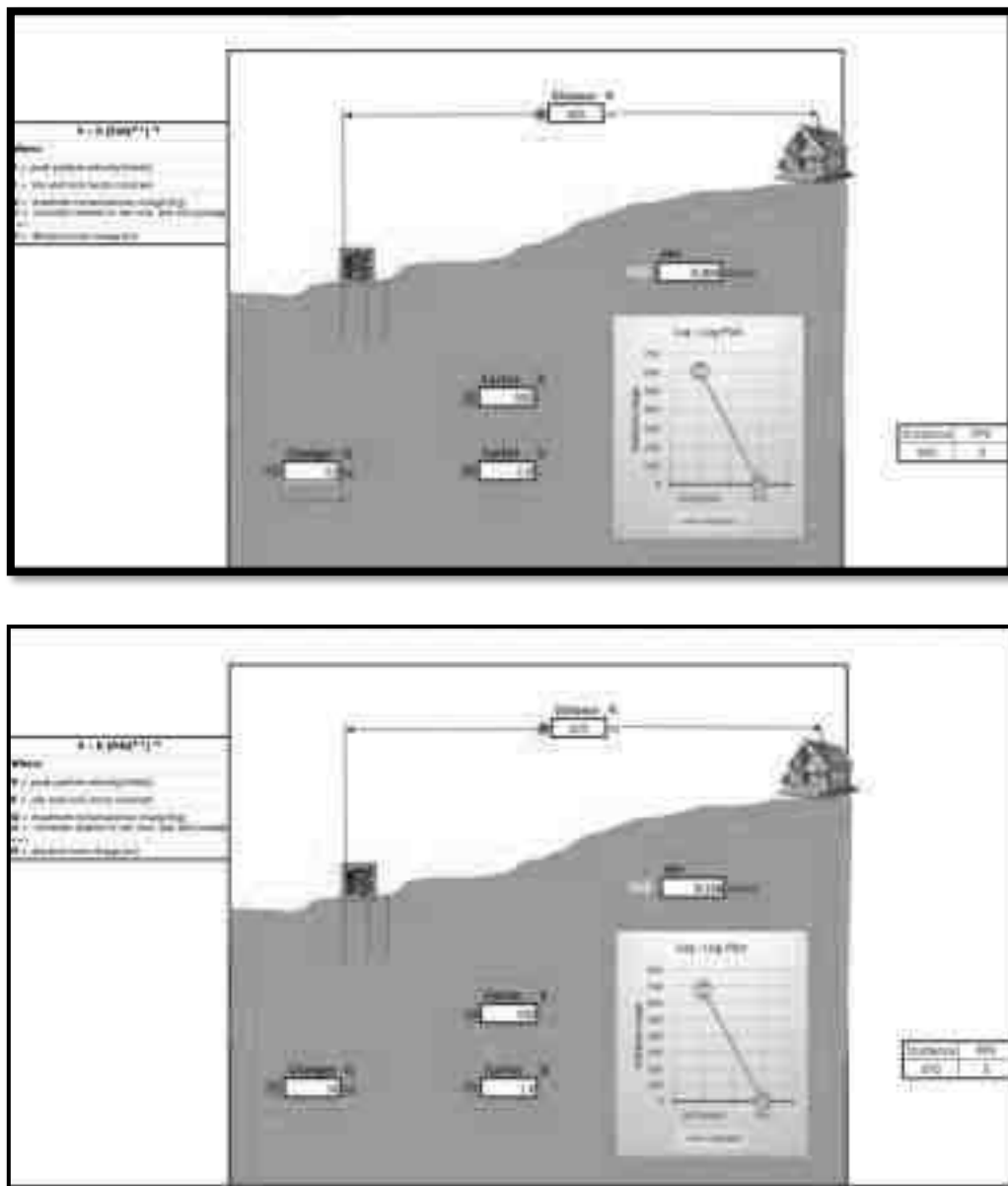
B = constant related to the rock and site (usually 1.6)

R = distance from charge (m)

TABLE 4.11: PREDICTED PPV VALUES DUE TO BLASTING

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	21	603	0.203
P2	16	670	0.138

Figure No 4.7: Ground Vibration Prediction-P1-P2



From the above graph, the charge per blast of 21 kg is well below the Peak Particle Velocity of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997. It should be ensured that the explosives used for blasting at one blast should not exceed more than 100kg at any point of time. However, as per statutory requirement control measures will be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

4.4.3.1 Mitigation measures for Control of Vibration

- The blasting operations in the mine are proposed to be carried out by jackhammer drilling and blasting using delay detonators, which reduces the ground vibrations;
- Proper quantity of explosive, suitable stemming materials and appropriate delay system should be adopted to avoid overcharging and for safe blasting;
- Adequate safe distance from blasting should 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 shall 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.

4.5 Ecology and Biodiversity

4.5.1. Anticipated Impact on Flora

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

4.5.2 Mitigation Measures

4.5.2.1. Green Belt Development

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

- Plants that grow fast will be preferred.
- Preference for high canopy covers plants with local varieties.
- Perennial and evergreen plants will be preferred.
- The development of Green Belt is an important aspect for any plant because:
- It helps in noise abatement for the surrounding area.
- It maintains the ecological balance.
- It increases the aesthetic value of site.

Table No 4.12 List of plant species proposed for Greenbelt development

S. No	Name of the plant (Botanical)	Family Name	Common Name	Habit
1.	Cassia roxburghii	Fabaceae	Sengondrai	T
2.	Syrygium cumini	Myrtaceae	Naval	T
3.	Morinda pubescens	Rubiaceae	Nuna	T
4.	Thespesia Populnea	Malvaceae	Puvarasu	T
5.	Borassus flabellifer	Arecaceae	Panai	T
6.	Saraca asoca	Fabaceae	Asoca	T
7.	Limonia acidissima	Rutaceae	Odhiam	T
8.	Lannea coromandelica	Anacardiaceae	Vila maram	T
9.	Pongamia pinnata	Fabaceae	Pungam	T
10.	Pterocarpus marsupium	Fabaceae	Vengai	T

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

4.5.2. Anticipated Impact on Fauna

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

- Green belt development will be carried out which will help in minimizing adverse impact on the flora found in the area.

4.5.2.1. Mitigation Measures

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

4.5.2.2. Afforestation

More number of trees has been observed along the approach road to the lease area, the trees will be maintained in good condition. The 7.5m and 10m 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, Mango, Casuarina will be planted along the Lease boundary and avenues as well as over non-active dumps at a rate of 50 trees per annum with interval 3m in between. A retaining wall will be constructed around the dumping yard. The rate of survival expected to be 80% in this area. Afforestation Plan is given in Table No.4.13 and preparation of green belt details are given in Table No.4.15.

Table 4.13: Greenbelt development plan-P1

<i>Year</i>	<i>No. of trees proposed to be planted</i>	<i>Survival %</i>	<i>Name of the species</i>	<i>No. of trees expected to be grown</i>
I	1240	80%	Neem, Pungam etc.,	990

Table 4.14: Greenbelt development plan-P2

<i>Year</i>	<i>No. of trees proposed to be planted</i>	<i>Survival %</i>	<i>Name of the species</i>	<i>No. of trees expected to be grown</i>
I	1750	80%	Neem, Mango, Manjanathi, Pungam etc.,	1400

Table 4.15: Preparation of green belt details -P1

ACTIVITY	YEAR					RATE	COST (Rs.)
	2022-23	2023-24	2024-25	2025-26	2026-27		
Plantation in nos.	300	300	300	300	300	@100Rs	1,50,000
Plantation and maintenance cost	30000	30000	30000	30000	30000	Per sapling	

Barbed wire fencing (in mts) 750mts (Already Fenced)	2,25,000	-	-	-	-	@300 Rs Per Meter	2,25,000
Garland Drain 550 Mtrs length	1,65,000	-	-	-	-	@300 Rs Per Meter	1,65,000
Total							5,40,000

Table 4.16: Preparation of green belt details -P2

ACTIVITY	YEAR					RATE	COST (Rs.)
	2022-23	2023-24	2024-25	2025-26	2026-27		
Plantation in nos.	100	100	100	100	100	@200Rs	1,00,000
Plantation and maintenance cost	20,000	20,000	20,000	20,000	20,000	Per sapling	
Barbed wire fencing (in mts) 900mts (Already Fenced)	2,70,000	-	-	-	-	@300 Rs Per Meter	2,70,000
Garland Drain 650 Mtrs length	1,05,000	-	-	-	-	@300 Rs Per Meter	1,95,000
Total							5,65,000

Source: Approved Scheme of Mining Plan

4.5.2.2.1. Species Recommendation for Plantation granted in the district

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

- Natural growth of existing species and survival rate of various species.
- Suitability of a particular plant species for a particular type of area.
- Creating of biodiversity.
- Fast growing, thick canopy copy, perennial and evergreen large leaf area.
- Efficient in absorbing pollutants without major effects of natural growth.
- The following species may be considering primary for plantation best suited for the prevailing climate condition in the area.

Table 4.17: Recommended Species to Plant in the Greenbelt

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, Puliyamaram	Tree
3	<i>Polyalthialongifolia</i>	Annonaceae	Kattumaram	Tree
4	<i>Borassus Flabellifer</i>	Arecaceae	Palmyra Palm	Tree

Table 4.18: Ecological Impact Assessments

<i>Sl.No</i>	<i>Attributes</i>	<i>Assessment</i>
1	Impact of mining activity on agricultural land nearby the proposed project site.	Agricultural land is located away from the proposed project site. There are no impacts on the agricultural land & Horticulture. Kindly refer to the conclusion.
2	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.
3	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.
4	Proximity to national park/wildlife sanctuary/reserve forest /mangroves/ coastline/estuary/sea	The following Reserved forest is situated within 10km radius. Noganoor R.F. 2.2 km west, Aiyur Extn R.F. 2 km east, and Denkanikottai R.F. 3.6 km on the North side. There is no Eco Sensitive zone/ Critically polluted area/ HACA/CRZ located within 10 km radius of the area.
5	The proposed project restricts access to waterholes for wildlife	'No '
6	Proposed mining project impact surface water quality that also provides water to wildlife	'No 'scheduled or threatened wildlife animals sighted regularly core in the core area.
7	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.
8	Risk of fall/slip or cause death to wild animals due to project activities.	'No'
9	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.
10	Mining projects affect the forest-based livelihood/ any specific forest product on which local livelihood depended.	'No'
11	The project likely to affect migration routes.	'No 'migration route observed during the monitoring period.
12	The project is likely to affect the flora of an area, which have medicinal value	'No'
13	Forestland is to be diverted, has carbon high sequestration.	'No 'There was no forest land diverted.

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

4.6 Socio Economic

The socio-economic impacts of mining are many. Impacts of a mine project may be positive or Negative. The adverse impacts attribute to physical displacement due to land acquisition, which is followed by loss of livelihood, mental agony, changes in social structure, and risk to food security etc., People are also directly affected due to pollution. Social Impact Assessment (SIA) is a process of analysis, monitoring and managing the social consequences of a project. Study on Socio-economic status has already been carried out using primary socio-economic survey for generating the baseline data of Socio-economic status.

4.6.1 Anticipated Impact

From the primary Socio-economic survey & through secondary data available from established literature and census data 2011, it is found that there would be positive impact on Socio-economic condition of the nearby area. There is no habitation within 300 m of the proposed mining lease area. Therefore, no major impact is anticipated on the nearby habitation during the entire life of the mine.

4.6.2 Mitigation Measures

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

4.7 Occupational Health and Safety

Occupational health and safety hazards will 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

- 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)
- 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
- 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/ Silicosis 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.

4.7.5 Post COVID Health Management Plan for Workers

The following Health Management plan will be strictly implemented in the Mines, Mine officials like Mines Manager and Foreman will be Act as a Controller of Health Management of the workers.

- Temperature will be checked to all the workers while arriving to work on each day
- If any persons/employees have fever of 100.4 or higher, chills, shortness of breath will be sent to Hospital and the persons will be employed after fourteen days
- All the persons inside the mine area instructed to wear fabric or disposable pleated masks covering Nose and Mouth
- Social distancing of 6 feet will be maintained all the time
- Temporary Hand washing points will be installed near the working places, workers will be initiated to Wash hands frequently with soap and water for a minimum of 20 seconds and advised to avoid touching face. This is an essential contagion-control mechanism

4.7.6 Plastic Waste Management

As per the Tamil Nadu Government Order (Ms) No. 84 Environment and Forest (EC.2) Department Dated 25.06.2018 following kind of plastics will not be used in the mines area.

- Use and throw away plastics such as carry bags, plastic bags, plastic sheets used for food wrapping, spreading, plastic plates, plastic coated tea cups and plastic tumblers will not be used in the mines

Action Plan:

Action Plan	Responsibility
All the employees will be checked for plastics before entering the quarry.	Watchman
Every week or month a meeting of workers under the chairmanship of the mine manager will be held to explain the disadvantages of plastic use.	Mine Foreman & Mining Mate
They will be advised not to bring plastic materials into the mines and those who are involved in such activities will not be allowed to work on the day of the snow.	Mines Manager
The miners will be provided with areca nut plates and mugs to help reduce the use of plastics.	Mines owner

4.8 Mine Closure

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

Objective of Mine closure

- 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.

4.8.1 Mine Closure criteria

The criteria involved in mine closure are discussed below:

4.8.1.1 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.,

4.8.1.2 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.

4.8.1.3 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 (Annexure I)

5. ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

5.1 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.

The quarrying operation like drilling, blasting, excavation, loading & transportation are being carried out. The site has been selected based on geological investigation and exploration as below:

- Transportation facility for materials & manpower
- Overall impact on environment and mitigation feasibility
- Socio – economic background.

Enough infrastructures exists and lesser resources are required to be deployed. Since, any further construction for infrastructure is not required and hence does not affect the environment considerably. The mineral deposits are site specific in nature; hence question of seeking alternate site does not arise for this project.

6. ENVIRONMENTAL MONITORING PROGRAMME

6.0 General

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

The main objective of environmental monitoring is to ensure that the obtained results in respect of environmental attributes and prevailing conditions during operation stage are in conformity with the prediction during the planning stage. In case of substantial deviation from the earlier prediction of results, this forms as base data to identify the cause and suggest remedial measures. Environmental monitoring is mandatory to meet compliance of statutory provisions under the Environment (Protection) Act, 1986, relevant conditions regarding monitoring covered under EC orders issued by the SEIAA 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 Project Proponent. A comprehensive monitoring mechanism has been devised for monitoring of impacts due to proposed project; Environmental protection measures like dust suppression, control of noise and blast vibrations, maintenance of machinery and vehicles, housekeeping in the mine premises, plantation, implementation of Environmental Management Plan and environmental clearance conditions will be monitored by the 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 Mine Management.

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

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. 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).

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

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

6.3 Monitoring Schedule and Frequency

Monitoring shall confirm that commitments are being met. This may take the form of direct measurement and recording of quantitative information, such as amounts and concentrations of discharges, emissions and wastes, for measurement against statutory standards. Monitoring may include socio-economic interaction, through local liaison activities or even assessment of complaints.

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

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

The details of monitoring are detailed in Table 6.2

Table 6.2: Monitoring Schedule for the Project Area

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, PM2.5, PM10, SO2 and NOx.
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 for Thiru. Mir Tahar Ali, Grey Granite Quarry (Total Cluster 17.73.5 Ha) is Rs. 3,80,000 for conducting Air Quality, Meteorology, Water Quality, Hydrology, Soil Quality, Noise Quality Vibration Study, Greenbelt.

Table 6.3: Environmental Monitoring Budget P1-P2

Sl.No.	Parameter	No of Location	Recurring Cost per annum
1	Air Quality	4	Rs 2,60,000/-
2	Noise Level	4	Rs 10,000/-
3	Ground Vibration	2	Rs 20,000/-
4	Water sampling	1	Rs 90,000/-
	Total		Rs 3,80,000

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 Mine Management level and 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 will submit the periodical reports to

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

CHAPTER – 7: ADDITIONAL STUDIES

7.0 General

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

- Public Consultation
- Risk Assessment
- Disaster Management Plan

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. Risk Assessment is all about prevention of accidents and to take necessary steps to prevent it from happening. Factors of risks involved due to human induced activities in connection with mining & allied activities with detailed analysis of causes and control measures for the mine is given in below Table 7.4.

Table 7.4 Risk Assessment

S. No	Risk factors	Causes of risk	Control measures
1	Accidents due to explosives and heavy mining machineries	Improper handling and unsafe working practice	<ul style="list-style-type: none"> ▪ All safety precautions and provisions of Mine Act, 1952, Metalliferous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations; ▪ Entry of unauthorized persons will be prohibited; ▪ Firefighting and first-aid provisions in the mine office complex and mining area; ▪ Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the employees and regular check for their use ▪ Working of quarry, as per approved plans and regularly updating the mine plans; ▪ Cleaning of mine faces shall be daily done in order to avoid any overhang or undercut; ▪ Handling of explosives, charging and firing shall be carried out by competent persons only under the supervision of a Mine Manager; ▪ Maintenance and testing of all mining equipment as per manufacturer guidelines.

2	OB / Waste Dump	Sliding of benches Height and slope of the benches Drainage facilities	<ul style="list-style-type: none"> ▪ Dumps benches are maintained with proper 3 m height and 37° slope to prevent slope failure and terraced. ▪ Dumping in the waste dump in layers and dozing daily. ▪ Vegetation of the top and slopes of the dump to prevent erosion and providing water drainage channels ▪ Providing proper drainage facilities in mine and dump area. ▪ Construction of retaining wall around dump area to stop sliding of material. ▪ Garland drain to be made around OB dump area
3	Drilling& Wire Saw Cutting	Due to improper and unsafe practices Due to high pressure of compressed air, hoses may burst Drill Rod may break	<ul style="list-style-type: none"> ▪ Safe operating procedure established for drilling (SOP) will be strictly followed. ▪ Only trained operators will be deployed. ▪ No drilling shall be commenced in an area where shots have been fired until the blaster/blasting foreman has made a thorough Examination of all places, ▪ Drill& Wire saw operator shall examine the drilling and wire saw equipment and satisfy himself ▪ Drilling & cutting operations shall not be carried on simultaneously on the benches at places directly one above the other. ▪ Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment and wire saw equipment as per operator manual. ▪ All drills and wire saw unit shall be provided with wet drilling and cutting arrangement and it shall be maintained in efficient working in condition. ▪ Operator shall regularly use all the personal protective equipment.
4	Blasting	Fly rock, ground vibration, Noise and dust. Improper charging, stemming & Blasting/ fining of blast holes Vibration due to movement of vehicles	<ul style="list-style-type: none"> ▪ The maximum charge per delay and by optimum blast hole pattern, vibrations will be controlled within the permissible limit and blast can be conducted safely. ▪ SOP for Charging, Stemming & Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation ▪ Shots are fired during daytime only. ▪ All holes charged on any one day shall be fired on the same day. ▪ The danger zone is and will be distinctly demarcated (by means of red flags)
5	Transportation	Potential hazards and unsafe workings contributing to accident and injuries Overloading of material While reversal & overtaking of vehicle	<ul style="list-style-type: none"> ▪ 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.

		Operator of truck leaving his cabin when it is loaded.	<ul style="list-style-type: none"> ▪ Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the vehicle. ▪ Concave mirrors should be kept at all corners ▪ All vehicles should be fitted with reverse horn with one spotter at every tipping point ▪ Loading according to the vehicle capacity ▪ Periodical maintenance of vehicles as per operator manual
6	Natural calamities	Unexpected happenings	<ul style="list-style-type: none"> ▪ Escape Routes will be provided to prevent inundation of storm water ▪ Garland drains will be provided at the toe of dump ▪ 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.

7.3 Disaster Management Plan

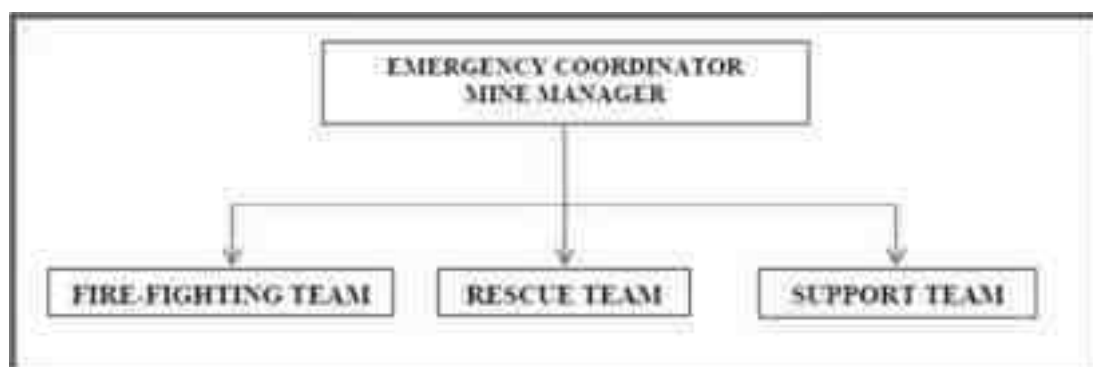
The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.

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:

- Effect the 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

It is to optimize operational efficiency to rescue rehabilitation and render medical help and to restore normalcy. To tackle the consequences of a major emergency inside the mines or immediate vicinity of the mines, a Disaster Management Plan must be formulated, and this planned emergency document is called “Disaster Management Plan”.

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 below –



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 7.5.

Table 7.5: Proposed Teams to Deal with Emergency Situation

Designation	Qualification
Fire-Fighting Team	
Team Leader	Mines Manager
Team Member	Mines Foreman
Team Member	Mining Mate
Rescue Team	
Team Leader	Mines Manager
Team Member	Environment Officer
Team Member	Mining Foreman
Support Team	
Team Leader	Mines Manager
Assistant Team Leader	Environment Officer
Team Member	Mining Mate
Security Team	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 Rollcall 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 7.6: Proposed Type of Fire Extinguishers

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
Location	Type of Fire Extinguishers

Alarm system to be followed during disaster

On receiving the message of disaster from Site Controller, fire-fighting team, the mine control room attendant will sound siren wailing for 5 minutes. Incident controller will arrange to broadcast disaster message through public address system.

On receiving the message of "Emergency Over" from Incident Controller the emergency control room attendant will give "All Clear Signal", by sounding alarm straight for 2 minutes.

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

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

- All safety precautions and provisions of Metalliferous Mines Regulations (MMR), 1961 is strictly followed during all mining operations.
- Observance of all safety precautions for blasting and storage of explosives as per MMR 1961.
- Entry of unauthorized persons into mine & allied areas is completely prohibited.
- Firefighting and first-aid provisions in the mines office complex and mining area are provided.
- Provisions of all the safety appliances such as safety boot, helmets, goggles, dust masks, ear plugs and ear muffs etc. are made available to the employees and the use of same is strictly adhered to through regular monitoring.
- Training and refresher courses for all the employees working in hazardous premises.
- Working of mine, as per approved plans and regularly updating the mine plans.
- Cleaning of mine faces is regularly done.
- Handling of explosives, charging and blasting are carried out only by qualified persons following SOP.
- Checking and regular maintenance of garland drains and earthen bunds to avoid any inflow of surface water in the mine pit.
- Provision of high-capacity standby pumps with generator sets with enough quantity of diesel for emergency pumping especially during monsoon.
- A blasting SIREN is used at the time of blasting for audio signal.
- Before blasting and after blasting, red and green flags are displayed as visual signals.
- Checking of blasting area for any un-blasted hole or material.
- Warning notice boards indicating the time of blasting and NOT TO TRESPASS are displayed at prominent places.
- Regular maintenance and testing of all mining equipment were carried out as per manufacturer's guidelines.

7.4 Cumulative Impact Study

There are Proposed and existing, abandoned quarries within a radius of 500 meters from the proposed project area. The list of quarries is as below –

Table 7.7: List of Quarries within 500 Meter Radius from this Proposal

PROPOSED QUARRIES				
CODE	Name of the Owner	S.F. Nos	Extent	Status
P1	Thiru. MIR TAHAR ALI, No.18/16, 3rd cross, Co-operative colony Krishnagiri - 635 203.	380/1(P)	2.48.0	Obtained ToR vide Lr.No. SEIAA-TN/F.No.4902/1 (a) /TOR-966/2021 Dated: 08.05.2021
P2	M/s. Zak Exports No.35/13, 2nd Cross cooperative colony,	380/1(P)	3.50.0	Obtained ToR vide ToR vide Lr.No.SEIAA- TN/F.No.10152/ToR-1530/2023 Dated:07.08.2023-P2
P3	Thiru. Syed Nazar Babulal	373/1A, 373/1B (P)	1.10.0	-
P-4	Thiru.Salman Sathar*	341/1(P)	1.36.8	Applied area and under process
P-5	M/s. Bismilah Exports*	339/1(P)	1.02.0	Applied area and under process
P-6	M/s. Tamil Nadu Minerals Ltd*	383/1	6.94.5	Applied area and under process
		Total	16.41.3 Ha	
EXISTING QUARRIES				
E-1	Thiru. B.K.Murali, S/o.C.Krishnan, No..70/53, Kara kuppam Road, Bargur, Krishnagiri	382/5A, 5B,6A, 6B etc	2.78.5	28.02.2011 to 27.02.2031
E-2	Thiru.B.S.Ravi	369/2	2.46.5	10.11.2003 to 09.11.2023
E-3	Thiru.B.S.Ravi	339/2	1.19.0	27.03.2006 to 26.03.2026
E-4	Thiru.A.Sathar*	375/2D etc	1.78.0	01.09.2016 to 31.08.2036
E-5	Thiru.A.Sathar*	375/2A etc	1.03.5	07.10.2013 to 06.10.2033
E-6	Tmt.Rukkammal, W/o Duraisamy Naidu, Chendarapalli Village, Anchoor (PO) Krishnagiri	335/4A1	1.20.0	14.12.2009 to 13.12.2029
E-7	Thiru. A.Ameed,* S/o. Abdul Gaffar, 151/3, Jagadevipalaym, Krishnagiri	377/1B, etc.,	2.85.5	03.03.2016 to 02.03.2036

E-8	Tmt. Mariam Banu* , W/o. Mir Zsaim Al, No 1/192, Muslim Masuthi st, Jagadevipalayam, Krishnagiri.	378/3 etc.,	3.90.0	01.03.2016 to 29.02.2036
E-9	Tmt.M.Varalakshmi * W/o. Munirathinam, Chendarapalli, Anchoor (Po), Krishnagiri	335/4B, 341/4	1.08.5	14.06.2018 to 13.06.2036
E-10	Thiru.Venkatesan*	9 (P) Jagadevipalayam Village, Krishnagiri Taluk, Krishnagiri	3.22.0	Ec Granted (Lr. No.sErAA-TN/F.No.4964/EC1(al/2863/2015 dated :15.02.2016)
Total			21.51.5 Ha	
Expired/Abandoned Quarries				
A-1	M/s.TAMIN, Chennai	361 & 368	5.86.5	26.06.1999 to 20.06.2019
A-2	Thiru.P.K.Selvaraj	383/4 & 384/2	0.64.5	04.04.1994 to 03.04.2004
A-3	Tvl. Enterprising Enterprises	401 (P)	4.05.0	26.01.1996 -25.01.2016
Total			10.56.0	
TOTAL CLUSTER EXTENT			30.28.8 Ha	* Cluster Quarry

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

Table 7.8: Salient Features of Proposed Projects “P1”

Name of the Quarry	Thiru. MIR TAHAR ALI –Grey Granite quarry	
Lease period	20 years	
Mining Plan Period	5 Years	
Life of the Mine	20 years	
Existing Depth	NIL	
Previous lease particulars	It is a Patta land, registered name Thiru. Mir Mazahar Ali and Thiru.Mohammed Fared Ali vide patta no. 2338. The lessee has obtained consent from the pattadars for the period of 25 years.	
Proposed Depth for five years plan period	33m	
Ultimate Depth	215m(L) x 142m (W) x 33m (D)	
Toposheet No	57 L/07	
Latitude between	12°29'15.49" N to 12°29'23.98" N	
Longitude between	78°18'17.37" E to 78°18'24.15" E	
Topography	Elevated terrain with gradient towards Northwest side. The highest elevation is 486m AMSL	
Machinery proposed	Jackhammer	6
	Compressor	2
	Hydraulic drilling machine	-
	Hydraulic/Crawler crane	1
	Mobile crane	-
	Excavator	1
	Tipper	1
	Diesel Generator	1
	Diamond wire saw	1
Water pump	-	

	Water tanker	-
Proposed manpower deployment		32
Project cost		Rs.1,22,89,000/-
EMP Cost		Rs. 3,80,800/-
CER cost		Rs. 5,00,000/-

Table 7.9: Salient Features of Proposed Projects “P2”

Name of the Quarry		M/s. Zak Exports – Grey Granite quarry
Lease period		20 years
Mining Plan Period		5 Years
Life of the Mine		20 years
Existing Depth (Previous)		112m(L) x 115m (W) x 9m (D)
Previous lease particulars		It is a Patta land, M/s. Zak Exports is a partnership firm executed on 14.10.2015 and the partnership deed reconstituted on 25.05.2016 with three partners. Thiru. Mir Mazahar ali is an authorized person for signing all the documents on behalf of this firm. Patta no 2338, the company has obtained consent from the pattadars for the period of 25 years from the data of 15.06.2016 to 14.06.2041.
Proposed Depth for five years plan period		44m
Ultimate Pit dimensions (Maximum)		185m(L) x 189m (W) x 44m (D)
Toposheet No		57 L/07
Latitude between		12°29'21.3975" N to 12°29'29.4083" N
Longitude between		78°18'18.3081" E to 78°18'26.5027" E
Topography		Elevated terrain with gradient towards Northwest side. The highest elevation is 482.5 to 484.5m AMSL
Machinery proposed	Jackhammer	5
	Compressor	2
	Hydraulic drilling machine	-
	Hydraulic/Crawler crane	1
	Mobile crane	-
	Excavator	2
	Tipper	2
	Diesel Generator	1
	Diamond wire saw	1
	Double disc blade cutting	2
	Water tanker	-
Proposed manpower deployment		35
Project cost		Rs.2,12,24,000/-
EMP Cost		Rs. 3,80,000/-
CER cost		Rs. 5,00,000/-

Table 7.10: Salient Features of Proposed Projects “P3”

Name of the Quarry		Thiru. B. Syednazar Babulal – Grey Granite quarry
Extent		1.10.0 Ha
S.F No		373/1A, 373/1B (P)
Lease period		20 years
Mining Plan Period		5 Years
Life of the Mine		20 years
Existing Depth		NIL
Previous lease particulars		It is a Patta land
Proposed Depth of mining		23m
Ultimate Depth		XY-AB 83m(L) x 75m (W) x 23m (D) X1Y1-CD 40m(L) x 48m (W) x 8m (D)
Toposheet No		57 L/07
Latitude between		12°29'33.04" to 12 °29'37.77"N

Longitude between		78°18'10.76" to 78°18'16.25"E
Topography		Elevated terrain with gradient towards Northwest side. The highest elevation is 486m AMSL
Machinery proposed	Jackhammer	6
	Compressor	2
	Hydraulic drilling machine	-
	Hydraulic/Crawler crane	-
	Mobile crane	1
	Excavator	1
	Tipper	2
	Diesel Generator	1
	Diamond wire saw	1
	Water pump	-
Water tanker	-	
Proposed manpower deployment		34
Project cost		Rs.2,12,04,000 Lakhs
EMP Cost		Rs. 3,80,800/-
CER cost		Rs. 5,00,000/-
Nearest habitation		Balinayanapalli- 420m - N

Table 7.11: Salient Features of Proposed Projects "P4"

Name of the Quarry		Thiru.Salman Sathar – Soolamalai Grey Granite quarry
Extent		1.36.8 Ha
S.F No		341/1(P)
Lease period		20 years
Mining Plan Period		5 Years
Life of the Mine		17 years
Existing Depth		NIL
Previous lease particulars		It is a Patta land, Patta No 1998
Proposed Depth of mining		28m
Ultimate Depth		151m(L) x 102m (W) x 28m (D)
Toposheet No		57 L/07
Latitude between		12°29'32.7111" to 12 °29'39.1286"N
Longitude between		78°18'04.6583" to 78°18'09.0436"E
Topography		Elevated terrain with gradient towards Northwest side. The highest elevation is 478m AMSL
Machinery proposed	Jackhammer	6
	Compressor	2
	Hydraulic drilling machine	-
	Hydraulic/Crawler crane	-
	Excavator	1
	Tipper	2
	Diesel Generator	1
	Diamond wire saw	1
	Water pump	-
	Water tanker	-
Proposed manpower deployment		33
Project cost		Rs.2,29,27,000 Lakhs
EMP Cost		Rs. 3,80,800/-
CER cost		Rs. 5,00,000/-
Nearest habitation		Getur 640m - NE

Table 7.12: Salient Features of Proposed Projects "P5"

Name of the Quarry		M/s. Bismillah Export – Soolamalai Grey Granite quarry
Extent		1.02.0 Ha
S.F No		339/1 (P)
Lease period		20 years

Mining Plan Period		5 Years
Life of the Mine		20 years
Existing Depth		NIL
Previous lease particulars		It is a Patta land, Patta No 2012
Proposed Depth of mining		18m
Ultimate Depth		184m(L) x 41m (W) x 18m (D)
Toposheet No		57 L/07
Latitude between		12°29'33.6345" to 12 °29'40.2216"N
Longitude between		78°18'00.3456" to 78°18'02.5405"E
Topography		Elevated terrain with gradient towards Northwest side. The highest elevation is 478m AMSL
Machinery proposed	Jackhammer	4
	Compressor	2
	Hydraulic drilling machine	-
	Hydraulic/Crawler crane	1
	Excavator	1
	Tipper	2
	Diesel Generator	1
	Diamond wire saw	1
	Water pump	-
Water tanker	-	
Proposed manpower deployment		30
Project cost		Rs.4,96,24,000 Lakhs
EMP Cost		Rs. 3,80,800/-
CER cost		Rs. 5,00,000/-
Nearest habitation		Gettur 680m - NE

Table 7.13: Salient Features of Existing Quarry "E1"

Name of the Quarry		Thiru. A. Sathar, Grey Granite quarry
Extent		1.78.0 Ha
SF No		375/2D, 375/3, 375/2E(P) & 377/1A1(P)
Lease period		20 years
Mining Plan Period		5 Years
Life of the Mine		20 years
Existing Depth		NIL
Previous lease particulars		It is a Patta land, The quarry lease was granted vide G.O. (3D) No.48, Industries (MME.2) Department, Dated: 25.07.2016 for a period of twenty years (Refer Annexure No. I). The lease deed was executed on 01.09.2016 and the lease period is valid upto 31.08.2036
Proposed Depth Scheme for plan period		34m
Existing Pit dimension		156m (L) X 65m (W) X9m (D)
Ultimate Depth of mining (Max)		66m(L) x 72m (W) x 34m (D) 55m(L) x 16m (W) x 17m (D)
Toposheet No		57 L/07
Latitude between		12°29'28.41"N to 12°29'33.67"N
Longitude between		78°18'19.25"E to 78°18'25.93"E
Topography		Elevated terrain with gradient towards Northwest side. The highest elevation is 477-482m AMSL
Machinery proposed	Jackhammer	6
	Compressor	2
	Hydraulic drilling machine	-
	Hydraulic/Crawler crane	-
	Mobile crane	-
	Excavator	2
	Tipper	2
	Diesel Generator	1
	Diamond wire saw	1
Double disc blade cutting		

	Water tanker	-
Proposed manpower deployment		30
Project cost		Rs.1,86,06,000/-
EMP Cost		Rs. 3,80,800/-
CER cost		Rs. 5,00,000/-
Nearest habitation		670m - NW

Table 7.14: Salient Features of Existing Quarry "E2"

Name of the Quarry		Thiru. A. Sathar, Grey Granite quarry
Extent		1.03.0 Ha
SF No		375/2A, 375/2C1, 375/2E(P)
Lease period		20 years
Mining Plan Period		5 Years
Life of the Mine		20 years
Existing Depth		NIL
Previous lease particulars		It is a Patta land, The quarry lease was granted vide G.O. (3D) No.48, Industries (MME.2) Department, Dated: 25.07.2016 for a period of twenty years (Refer Annexure No. I). The lease deed was executed on 01.09.2016 and the lease period is valid upto 31.08.2036
Proposed Depth Scheme for plan period		12m
Toposheet No		57 L/07
Latitude between		12°29'30.42"N
Longitude between		78°18'30.76"E
Topography		Elevated terrain with gradient towards Northwest side. The highest elevation is 477-482m AMSL
Machinery proposed	Jackhammer	6
	Compressor	2
	Hydraulic drilling machine	-
	Hydraulic/Crawler crane	-
	Mobile crane	-
	Excavator	2
	Tipper	2
	Diesel Generator	1
	Diamond wire saw	1
	Double disc blade cutting	
Water tanker	-	
Proposed manpower deployment		30
Project cost		Rs.256.32 Lakhs
EMP Cost		Rs. 3.00 Lakhs
CER cost		Rs. 5,00,000/-
Nearest habitation		670m - NW

Table 7.15: Salient Features of Existing Quarry "E3"

Name of the Quarry		Thiru. A. Ahmed, Grey Granite quarry
Extent		2.85.5 Ha
SF No		377/1B, 378/2, 377/2A, 378/1, 377/2B, 377/1A1B and 377/1A2
Lease period		20 years
Mining Plan Period		5 Years
Life of the Mine		20 years
Existing Depth		8m
Previous lease particulars		It is a Patta land, Registered in the name of applicant (Thiru.A.Ameed) vide Patta No. 35, 1547, 1548,1565 and S.F.No.378/2 Registered in the name of Tmt.Sanaz Begam vide patta No.1549. The applicant has obtained the consent from the Pattadar for a period of 25 years.
Proposed Depth Scheme for Quarry plan period		23m
Existing Pit dimension		Pit I (Max)- 79m (L) X 30m (W) X8m (D) Pit II (Max)- 57m (L) X 53m (W) X8m (D)

Ultimate Depth of mining (Max)		Pit I - 127m(L) x 30m (W) x 18m (D) Pit II- 92m(L) x 76m (W) x 23m (D)
Toposheet No		57 L/07
Latitude between		12°29'27.39"N to 12°29'34.89"N
Longitude between		78°18'25.24"E to 78°18'34.97"E
Topography		Elevated terrain with gradient towards Northwest side. The highest elevation is 475-482m AMSL
Machinery proposed	Jackhammer	8
	Compressor	2
	Hydraulic drilling machine	-
	Hydraulic/Crawler crane	-
	Mobile crane	-
	Excavator	2
	Tipper	2
	Diesel Generator	1
	Diamond wire saw	1
	Double disc blade cutting	-
Water tanker	-	
Proposed manpower deployment		42
Project cost		Rs. 2,04,88,000
EMP Cost		Rs. 3,80,800/-
CER cost		Rs. 5,00,000/-
Nearest habitation		Gettur 700m - NW

Table 7.16: Salient Features of Existing Quarry "E4"

Name of the Quarry		Tmt.Mariam Banu, Grey Granite quarry
Extent		3.90.0 Ha
SF No		378/3, 379/7 & 379/8
Lease period		20 years
Mining Plan Period		5 Years
Life of the Mine		20 years
Existing Depth		13m
Previous lease particulars		It is a Patta land, Registered Jointly in the name of applicant (Thiru.Meeranzoom Ali, Mrs. Sameem Jaharaa and Shakeem Jaharaa) vide Patta No. 1033 The applicant has obtained the consent from the Pattadar for a period of 31 years.
Proposed Depth Scheme for Quarry plan period		38m
Existing Pit dimension		Pit I (Max)- 77m (L) X 145m (W) X 13m (D) Pit II (Max)- 58m (L) X 29m (W) X 13m (D)
Ultimate Depth of mining (Max)		Pit I - 200m(L) x 158m (W) x 38m (D) Pit II- 29m(L) x 58m (W) x 23m (D)
Toposheet No		57 L/07
Latitude between		12°29'21.97"N to 12°29'31.50"N
Longitude between		78°18'28.26"E to 78°18'35.78"E
Topography		Elevated terrain with gradient towards Northwest side. The highest elevation is 478-487m AMSL
Machinery proposed	Jackhammer	8
	Compressor	2
	Hydraulic drilling machine	-
	Hydraulic/Crawler crane	1
	Mobile crane	-
	Excavator	2
	Tipper	2
	Diesel Generator	1
	Diamond wire saw	1
	Double disc blade cutting	-
Water tanker	-	
Proposed manpower deployment		43
Project cost		Rs. 2,04,88,000

EMP Cost	Rs. 3,80,800/-
CER cost	Rs. 5,00,000/-
Nearest habitation	Achamangalam 950m - E

Source: Scheme of Quarry Period

Table 7.17: Salient Features of Existing Quarry "E5"

Name of the Quarry	Tmt.M.Varalakshmi , Grey Granite quarry	
Extent	1.08.5 Ha	
SF No	341/4, 335/4B	
Lease period	20 years	
Mining Plan Period	5 Years	
Life of the Mine	22 years	
Existing Depth	9m	
Previous lease particulars	-	
Proposed Depth Scheme for Quarry plan period	23m	
Existing Pit dimension (First Five years)	43m (L) X 38m (W) X 9m (D)	
Ultimate Depth of mining (Max)	Pit I -200m(L) x 158m (W) x 38m (D) Pit II- 29m(L) x 58m (W) x 23m (D)	
Toposheet No	57 L/07	
Latitude between	12°29'33.00"N to 12°29'39.00"N	
Longitude between	78°18'7.00"E to 78°18.12.00"E	
Topography	Elevated terrain with gradient towards Northwest side. The highest elevation is 481m AMSL	
Machinery proposed	Jackhammer	6
	Compressor	2
	Hydraulic drilling machine	-
	Hydraulic/Crawler crane	1
	Mobile crane	-
	Excavator	1
	Tipper	2
	Diesel Generator	-
	Diamond wire saw	NIL
	Double disc blade cutting	-
Water tanker	-	
Proposed manpower deployment	35	
Project cost	Rs. 52 Lakhs	
EMP Cost	Rs. 3,80,800/-	
CER cost	Rs. 5,00,000/-	
Nearest habitation	Gettur 600m -N	

Source: Scheme of Quarry Period

Table 7.18: Salient Features of Existing Quarry "E6"

Name of the Quarry	THIRU. S. VENKATESAN, Jagadevipalayam Grey Granite quarry	
Extent	3.22.0 Ha	
SF No	9 (P) Patta Land	
Mining Plan Period	5 Years	
Category	B2 Project	
Depth of mining	16m	
Previous lease particulars	The Proponent has obtained Precise area Letter from the District Collector, KRISHNAGIRI vide letter. Rc. No. 11337/MME.2/2015-1 dated 10.12.2015 and the Mining Plan was approved by The Assistant Director of Mines and Geology, KRISHNAGIRI vide Roc. 5273/MM5/2015 dated 06.01.2016.	
Proposed Depth of mining	16m	
Toposheet No	57 L/07	
Latitude between	12°29'25.93"N to 12°29'33.50"N	

Longitude between		78°18'36.08"E to 78°18.44.07"E
Topography		515m AMSL
Machinery proposed	Jackhammer	6
	Compressor	2
	Hydraulic drilling machine	-
	Hydraulic/Crawler crane	1
	Mobile crane	-
	Excavator	1
	Tipper	2
	Diesel Generator	-
	Diamond wire saw	NIL
	Double disc blade cutting	-
	Water tanker	-
Proposed manpower deployment		15
Water requirements		2.5 KLD
Project cost		Rs. 22,50,000 Lakhs
EMP Cost		Rs. 3,50,000/-
CER cost		Rs. 5,00,000/-
Nearest habitation		748m -E

Source: Parivesh portal, PFR Report, Form1

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 Movement of HEMM and operating of machineries in the cluster.

Air Environment –

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

Table 7.18: Cumulative Production Load of Granite

Quarry	Mineable Reserves ROM In m ³	Mineable Reserves of Granite	Proposed production ROM for five-year period	Production of ROM Per Day	Proposed production Granite for five-year period	Production of Granite Per day in m ³	Weathered rock in Production m ³	Weathered rock per day in m ³	Topsoil in Production m ³	Topsoil per day in m ³	Number of Lorry loads per day (ROM)
P1	2,91,611	58,323	73,710	49	14,742	10	-	-	680	2	8
P2	4,79,579	1,67,853	54,539	36	19,089	13	-	-	-	-	6
P3	20,570	21,200	21,428	14	7,500	5	-	-	4,736	5	2
P4	1,12,305	39,307	34,180	23	11,963	8	7,072	6	3,905	3	4
P5	39,420	13,797	25,840	17	9,044	6	6,308	7	3,526	4	3
P6	-	-	-	-	-	-	-	-	-	-	-
Total	9,43,665	3,00,480	2,09,697	139	62,338	42	13,380	13	12,847	14	23
E1*	48,150	24,075	19,130	13	9,565	6	-	-	-	-	2
E2*	-	-	-	-	-	-	-	-	-	-	-
E3*	57,200	14,300	19,150	13	4,787	3	684	2	483	2	2
E4*	5,13,390	1,28,348	48,365	32	12,091	8	-	-	-	-	5
E5*	55,640	11,128	12,510	8	2,502	2	4998	6	2,600	3	1
E6*	-	-	-	-	9130	6	-	-	-	6484	1
Total	6,74,890	1,77,851	99,155	66	38,075	25	5682	8	3083	5	11
Grand Total	16,18,555	4,78,331	3,08,852	205	91,283	67	19,062	21	15,930	19	34

Source: 3rd Scheme of Approved Mining plan of Respective mines and PFR Report ,form1.

On a cumulative basis considering all the 12 quarries (6 Existing and 6 Proposed) it can be seen that the overall production of Granite ROM per day is 205m³ and overall production of Granite is 67m³ per day (recovery percentage is vary from one quarry to another), No of Lorry loads per day is 34

Based on the above production quantities the emissions due to various activities in all the 12 quarries 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 7.19.

Table 7.19: 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	0.058502145	g/s
	Blasting	Point Source	0.000165758	g/s
	Mineral Loading	Point Source	0.036881835	g/s
	Haul Road	Line Source	0.002484595	g/s/m
	Overall Mine	Area Source	0.055232507	g/s
Estimated Emission rate for SO ₂	Overall Mine	Area Source	0.000175182	g/s
Estimated Emission rate for NO _x	Overall Mine	Area Source	0.000009498	g/s
Emission Estimation for quarry- P2				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.053648792	g/s
	Blasting	Point Source	0.000107501	g/s
	Mineral Loading	Point Source	0.035673986	g/s
	Haul Road	Line Source	0.002483905	g/s/m
	Overall Mine	Area Source	0.063223918	g/s
Estimated Emission rate for SO ₂	Overall Mine	Area Source	0.000131333	g/s
Estimated Emission rate for NO _x	Overall Mine	Area Source	0.000009693	g/s
Emission Estimation for quarry- P3				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.040547969	g/s
	Blasting	Point Source	0.000025279	g/s
	Mineral Loading	Point Source	0.034067615	g/s
	Haul Road	Line Source	0.002506849	g/s/m

	Overall Mine	Area Source	0.060379322	g/s
Estimated Emission rate for SO ₂	Overall Mine	Area Source	6.70881E-05	g/s
Estimated Emission rate for NO _x	Overall Mine	Area Source	0.000003726	g/s
Emission Estimation for quarry- P4				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.046310552	g/s
	Blasting	Point Source	0.000051525	g/s
	Mineral Loading	Point Source	0.034636569	g/s
	Haul Road	Line Source	0.002483459	g/s/m
	Overall Mine	Area Source	0.043334402	g/s
Estimated Emission rate for SO ₂	Overall Mine	Area Source	8.5957E-05	g/s
Estimated Emission rate for NO _x	Overall Mine	Area Source	0.000002720	g/s
Emission Estimation for quarry- P5				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.042732409	g/s
	Blasting	Point Source	0.000034467	g/s
	Mineral Loading	Point Source	0.033915964	g/s
	Haul Road	Line Source	0.002483213	g/s/m
	Overall Mine	Area Source	0.038495293	g/s
Estimated Emission rate for SO ₂	Overall Mine	Area Source	6.70385E-05	g/s
Estimated Emission rate for NO _x	Overall Mine	Area Source	0.000001628	g/s
Emission Estimation for quarry E1*				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.040342329	g/s
	Blasting	Point Source	0.000025848	g/s
	Mineral Loading	Point Source	0.032440334	g/s
	Haul Road	Line Source	0.002482834	g/s/m
	Overall Mine	Area Source	0.048035065	g/s
Estimated Emission rate for SO ₂	Overall Mine	Area Source	4.75941E-05	g/s
Estimated Emission rate for NO _x	Overall Mine	Area Source	0.000001906	g/s
Emission Estimation for quarry E3*				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.039221369	g/s
	Blasting	Point Source	0.000022451	g/s
	Mineral Loading	Point Source	0.032509030	g/s
	Haul Road	Line Source	0.002482849	g/s/m
	Overall Mine	Area Source	0.058027231	g/s
Estimated Emission rate for SO ₂	Overall Mine	Area Source	4.98554E-05	g/s
Estimated Emission rate for NO _x	Overall Mine	Area Source	0.000003055	g/s
Emission Estimation for quarry E4*				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.051583325	g/s
	Blasting	Point Source	0.000088341	g/s
	Mineral Loading	Point Source	0.035210168	g/s
	Haul Road	Line Source	0.002483691	g/s/m
	Overall Mine	Area Source	0.065964141	g/s
Estimated Emission rate for SO ₂	Overall Mine	Area Source	0.000116541	g/s
Estimated Emission rate for NO _x	Overall Mine	Area Source	0.000009475	g/s
Emission Estimation for quarry E5*				

	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.034174359	g/s
	Blasting	Point Source	0.000011275	g/s
	Mineral Loading	Point Source	0.031621793	g/s
	Haul Road	Line Source	0.002482682	g/s/m
	Overall Mine	Area Source	0.039377638	g/s
	Estimated Emission rate for SO ₂	Overall Mine	Area Source	3.32904E-05
Estimated Emission rate for NO _x	Overall Mine	Area Source	0.000000853	g/s
Emission Estimation for quarry E6*				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.031093128	g/s
	Blasting	Point Source	0.000007030	g/s
	Mineral Loading	Point Source	0.032158887	g/s
	Haul Road	Line Source	0.002482778	g/s/m
	Overall Mine	Area Source	0.060857963	g/s
	Estimated Emission rate for SO ₂	Overall Mine	Area Source	4.12821E-05
Estimated Emission rate for NO _x	Overall Mine	Area Source	0.000002818	g/s

Source: Emission Calculations.

Table 7.19: Incremental & Resultant GLC within Cluster

PM ₁₀ in µg/m ³	
Location	CORE
Background	44.8
Highest Incremental	15.91
Resultant	60.7
NAAQ standard	100 µg/m ³
PM _{2.5} in µg/m ³	
Location	CORE
Background	22.1
Highest Incremental	7.82
Resultant	29.9
NAAQ standard	60 µg/m ³
SO ₂ in µg/m ³	
Location	CORE
Background	6.9
Highest Incremental	2.49
Resultant	9.4
NAAQ standard	80 µg/m ³
NO _x in µg/m ³	
Location	CORE
Background	24.3
Incremental	10.78
Resultant	35.1
NAAQ standard	80 µg/m ³

Noise Environment –

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

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

$$L_{p2} = L_{p1} - 20 \log (r_2/r_1) - Ae_{1,2}$$

Where:

L_{p1} & L_{p2} 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.

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

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

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

Table 7.20: Predicted Noise Incremental Values from Cluster

Location ID	Background Value (Day) dB(A)	Incremental Value dB(A)	Total Predicted dB(A)	Residential Area Standards dB(A)
Habitation Near P1	46.9	44.5	48.9	55
Habitation Near P2	43.7	43.6	46.6	
Habitation Near P3	43.2	47.6	49.0	
Habitation Near P4	43.5	44.0	46.8	
Habitation Near P5	44.2	43.4	46.9	
Habitation Near P6	-	-	-	
Habitation Near E1	43.8	44.0	46.9	
Habitation Near E2	43.6	44.5	47.1	

Habitation Near E3	42.6	40.5	44.7	
Habitation Near E4	42.5	41.0	44.8	
Habitation Near E5	42.1	44.5	46.5	
Habitation Near E6	42.3	44.2	46.2	

The incremental noise level is found within the range of 44.5 – 47.6 dB (A) in Core Zone. The noise level at different receptors in buffer zone is lower due to the distance involved and other topographical features adding to the noise attenuation. The resultant Noise level due to monitored values and calculated values at the receptors are based on the mathematical formula considering attenuation due to Green Belt as 4.9 dB (A) the barrier effect. From the above table, it can be seen that the ambient noise levels at all the locations near habitations are within permissible limits of Residential Area (buffer zone) as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (The Principal Rules were published in the Gazette of India, vide S.O. 123€, dated 14.2.2000 and subsequently amended vide S.O. 1046€, dated 22.11.2000, S.O. 1088€, dated 11.10.2002, S.O. 1569 €, dated 19.09.2006 and S.O. 50 € dated 11.01.2010 under the Environment (Protection) Act, 1986.).

Socio Economic Environment –

The 12 mines shall create employment to 359 people and revenue will be created to government

Table 7.21: Socio Economic Benefits from 12 Quarries

Location code	Employment	Project Cost	CER
P1	32	Rs.1,22,89,000/-	5,00,000
P2	35	Rs.2,12,24,000/-	5,00,000
P3	34	Rs.2,12,04,000/-	5,00,000
P4	33	Rs. 2,29,27,000/-	5,00,000
P5	30	Rs.4,96,24,000/-	5,00,000
P6	-	-	-
E1	30	Rs.1,86,06,000/-	5,00,000
E2	30	Rs.2,56,32,000/-	5,00,000
E3	42	Rs. 2,04,88,000/-	5,00,000
E4	43	Rs. 2,85,31,000/-	5,00,000
E5	35	Rs. 52,00,000/-	5,00,000
E6	15	Rs.22,50,000/-	5,00,000
Total	359	Rs. 22,79,75,000/-	55,00,000/-

A total of 359 people getting and will get employment from these cluster 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 by all the mines

As per para 6 (II) of the office memorandum, all the mines being a green field project & Capital Investment is ≤ 100 crores, they shall contribute 2% of Capital Investment towards CER as per directions of EAC/SEAC and the total CER amount from the 12 Quarries is Rs 50,00,000/-.

CHAPTER – 8: PROJECT BENEFITS

8.0 General

There are six proposed projects for Chendarapalli Grey Granite cluster quarries village aims to Proposed production cumulatively 2,09,697 (ROM for five year period) for Life of Mine of 20 Years. This will enhance the socio-economic activities in the adjoining areas and will result in the following benefits

- Increase in Employment Potential
- Improvement in Socio-Economic Welfare
- Improvement in Physical Infrastructure
- Improvement in Social infrastructure
- To meet out the demand supply gap of Granite and enhance the foreign exports

8.1 Employment Potential

It is proposed to provide employment to about 164 persons for carrying out mining operations and give preference to the local people in providing employment. In addition, there will be opportunity for indirect employment to many people in the form of contractual jobs, business opportunities, service facilities etc., the economic status of the local people will be enhanced due to mining project.

8.2 Socio-Economic Welfare Measures Proposed

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

8.3 Improvement in Physical Infrastructure

The proposed and Existing mine is located in Chendarapalli Village, Bargur (Krishnagiri) Taluk and Krishnagiri District of Tamil Nadu and the area have communications, roads and other facilities already well established. The following physical infrastructure facilities will further improve due to proposed mine.

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

8.4 Improvement in Social Infrastructure

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

8.5 Other Tangible Benefits

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

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

8.5.1 Corporate Social Responsibility

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

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

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

8.5.2 CSR Cost Estimation

CSR activities will be taken up in the Chendarapalli Village, Bargur (Krishnagiri) Taluk 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.

8.5.3 Corporate Environment Responsibility–

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

As per para 6 (II) of the office memorandum, being a green field project & Capital Investment is ≤ 100 crores, Thiru. Mir Tahar Ali and M/s. Zak Exports, shall contribute 2% of Capital Investment towards CER as per directions of EAC/SEAC.

Table 8.1: CER – Action Plan P1-P2

Code	CER
P1	Rs 5,00,000/-
P2	Rs 5,00,000/-
Total	Rs 10,00,000/-

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

CHAPTER – 9: ENVIRONMENTAL COST BENEFIT ANALYSIS

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

CHAPTER - 10: ENVIRONMENTAL MANAGEMENT PLAN -P1

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

The Proponent will – **Thiru. Mir Tahar Ali,**

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

10.1.1 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 the proposed existing quarry.

The said team will be responsible for:

- Analysis of the water and air samples collected through external laboratory
- Monitoring of the water/ waste water quality, air quality and solid waste generated
- 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. Aesthetic of the Environment will not be affected. 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
Designing vehicle wash-down system so that all washed water is captured and passed through grease and oil separators.	Mines Manager
Refueling will be carried out in a safe location, away from vehicle movement pathways	Mine Foreman & Mining Mate
No external dumping i.e., outside the project area	Mine Foreman
Greenbelt on dumps and its maintenance	Environment Officer
Garland drains with catch pits to be provided all around the project area to prevent run off affecting the surrounding lands.	Environment Officer
The periphery of Project area will be planted with thick plantation to arrest the fugitive dust, which will also act as acoustic barrier.	Mines Manager
Thick plantation using native flora species will be carried out on the backfilled area.	Mines Manager
There will be formation of a small surface water body in the mined-out area, which can be used for watering the greenbelt at the conceptual stages.	Environment Officer

10.3 Soil Management

10.3.1 Top Soil Management –

It is anticipated to remove 680m³ of topsoil and preserve it to facilitate greenbelt development on the backfilled area during mine closure.

10.3.2 Overburden / Waste and Side Burden Management –

- It is anticipating to remove 58,968 m³ of waste (Granite waste@ 80%) which will temporarily store at predetermined places as per mining plan and will be backfilled during mine closure.

Table 10.2: Proposed Controls for Soil Management

Control	Responsibility
backfilling process during mine closure as per mining plan	Mines Manager
The dump slopes will be planted with deep rooting shrubs, grasses and creepers for stabilizing them	Environment Officer
Garland drains are to be paved around the dump area to arrest possible wash off in the rainy seasons	Mines Manager
Surface run-off from the surface dumps via garland drains will be diverted to the mine pits	Mine Foreman & Mining Mate
The backfilled area shall be covered with the soil for green belt development	Environment Officer
Design haul roads and other access roads with drainage systems to minimize concentration of flow and erosion risk	Environment Officer
keeping records of mitigation of erosion events, to improve on management techniques	Environment Officer
The overall slope of the dump is maintained at angle of repose not exceeding 37° from horizontal	Mines Manager
The retaining wall has to be made to arrest the waste dump spills	Mines Manager
A monitoring map with information including their GPS coordinates, erosion type, intensity, and the extent of the affected area, as well as existing control measures and assessment of their performance	Environment Officer
Empty sediment from sediment traps Maintain, repair or upgrade garland drain system	Environment Officer
Test soils for pH, EC, chloride, exchangeable cations, particle size and water holding capacity	Mines Manager

10.4 Water Management

Water is a key component in mining projects as it is required for, and affected by, mining activities. Effective water management is important for a variety of reasons including: uninterrupted operation of the mine, compliance with operational permissions and applicable legislation, and minimization of effects on the receiving environment.

This section focuses on actions for avoidance, mitigation, and control, as well as a water management monitoring program –

- To protect water-related resources, and avoid harmful impacts;
- To supply and retain water for mine operations;
- to Define water-related environmental control structures; and
- To manage water to ensure that any discharges are following the applicable water quality levels and guidelines.

Table 10.3: Proposed Controls for Water Environment

Control	Responsibility
To maximize the reuse of pit water for water supply	Mines Manager
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	Environment Officer
Natural drains/nallahs/brooklets outside the project area should not be disturbed at any point of mining operations Safety distance of 50m will be always maintained from the odai and oorani	Mines Manager
Mine pit water is used for dust suppression and greenbelt development utilization of mine pit water is optimal and effective ways	Environment Officer
Ensure there is no process effluent generation or discharge from the project area into water bodies	Environment Officer
Domestic sewage generated from the project area will be disposed in septic tank and soak pit system	Mines Manager
Fast growing grasses, small plants and bushes will be grown on the overburden dumps to control soil erosion and siltation	Mines Manager
Retention walls and garland drains will be constructed around toe of waste dumps to arrest silt wash off from dumps during monsoon	Environment Officer
Rainwater harvesting measures will be adopted in the project area and in nearby villages to maintain and enhance the ground water table of the area	Environment Officer
Regularly assess and modify Water Management Plan to adapt to changing work plans and site conditions	Environment Officer
Familiarize all site personnel with the purpose and content of the Water Management Plan, and their responsibilities in its implementation	Environment Officer
Water management and sediment control structures and facilities will be regularly inspected and maintained according to the monitoring schedules	Environment Officer
Monthly or after rainfall, inspection for performance of water management structures and systems	Environment Officer
Conduct ground water and surface water monitoring for parameters specified by State Pollution Control Board (SPCB)	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.5 Air Quality Management

The proposed mining 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 water sprinkling on working face	Mines Manager
Develop thick Greenbelt with tall growing trees and thick foliage cover all along the boundary of the project (7.5 Meter Buffer Zone) to arrest dust spreading outside the project area and to be maintained. This plantation cover will also act as an acoustic barrier	Environment Officer
Daily maintenance of haul roads and daily water sprinkling to minimize the generation of fugitive dust due to movement of heavy earth moving machineries on it	Mines Manager
Handle the waste from the mine pit to respective dumps and backfilling during closure process, fugitive dust is anticipated. this fugitive emission can be controlled by well-maintained machineries, well maintained haul roads water sprinkling on haul roads twice a day. Besides it is also advised not to handle the waste during high windy periods	Mines Manager & Environment Officer
Wet drilling procedure /drills with dust extractor system to control dust generation during drilling at source itself to be implemented	Environment Officer
Plantation will be carried out on surface dumps, backfilled area and top benches of the mined out area	Environment Officer
Water reservoir will be developed in the left over mined out pit, which will serve as additional surface water resources for the nearby villages	Environment Officer
Maintenance as per operator manual of the equipment and machinery in the mines to minimizing air pollution and noise generation	Mines Manager
Over loading of trucks should be avoided	Mines Manager
All the mining equipment and trucks has been controlled with emission norms	Environment Officer
The village roads used for mineral transport will be maintained weekly and monthly basis to avoid fugitive dust emissions	Mines Manager
Dust mask are provided to the workers working in high dust generating areas and continue to provide the same	Mines Manager
Weekly and Monthly maintenance of deployed machineries, to reduce gaseous emission	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	Environment Officer
Monitor meteorological conditions (temperature, wind, rainfall)	Environment Office

Source: Proposed by FAE's & EIA Coordinator

10.6 Noise Management

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

Table 10.5: Proposed Controls for Noise Environment

Control	Responsibility
A thick greenbelt to be developed all along the Buffer Zone (7.5 Meters) of the project area to attenuate the noise and the same will be maintained	Mines Manager
Plantation activities to be carried out on surface dumps and infrastructure facilities, these plantations will help in attenuating the noise levels	Environment Officer
Preventive maintenance of mining machinery and replacement of worn-out accessories to control noise generation	Mines Manager
Deployment of mining equipment with an inbuilt mechanism to reduce noise	Environment Officer
Provision of earmuff / ear plugs to workers working in noise prone zones in the mines	Environment Officer
Provision of effective silencers for mining machinery and transport vehicles	Environment Officer
Provision of sound proof AC operator cabins to HEMM	Environment Officer
Sharp drill bits are used to minimize noise from drilling	Environment Officer
Controlled blasting technologies are adopted by using delay detonators to minimize noise from blasting	Mines Manager
Annual ambient noise level monitoring to be carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring	Environment Officer
Undertake noise or vibration monitoring in response to a complaint (from any sensitive receptor).	Mines Manager
Change the burden and spacing by altering the drilling pattern and/or delay layout, or altering the hole inclination during initial stage of operation	Mines Manager
If a noise or vibration complaint is received, follow the complaints and inquiries	Environment Officer
Undertake noise or vibration monitoring half yearly	Environment Officer

Source: Proposed by FAE's & EIA Coordinator

10.7 Ground Vibration and Fly Rock Control

Table 10.6: Proposed Controls for Ground vibration & Fly rocks

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 during initial stage 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
Prior to blasting within 500 meters of the lease boundary, establish a fly rock exclusion zone within adjacent properties and check with landholders that the area is not occupied by humans, blast clearance zones are applied for all blasts.	Environment Officer
Undertake vibration monitoring	Environment Officer

Source: Proposed by FAE's & EIA Coordinator

10.8 Biological Environment Management

The mine management 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 mined out area, backfilled area, etc., the water reservoir will be developed in lower benches of the mined-out area at conceptual stage will be used for the maintenance of green belt after the closure of mine.

Following control measures are proposed for its management and will be the responsibility of the environment officer.

- Greenbelt development all along the safety barrier of the project area
- 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 constructing a sprinkler near the newly planted area.
- Year wise plantation should 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.

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.

10.8.1 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 10.7: Recommended Species to Plant in the Greenbelt

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

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 in mines are fugitive dust and noise. Safety of employees during mining operation and maintenance of mining equipment will be taken care as per Mines Act 1952 and Rule 29 of Mines Rules 1955. To avoid any adverse effect on the health of workers due to dust, noise and vibration sufficient measures have been provided.

10.9.1 Medical Surveillance and Examinations –

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

The health status of workers in the mine shall be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detail's 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 above tests keep upgrading the database of medical history of the employees.

10.9.2 Proposed Occupational Health and Safety Measures –

- Providing a clean working environment that is conducive to safety & health annually
- Employee involvement and commitment in the implementation of health and safety guidelines
- Implementing safety and health management system and assessing the effectiveness through periodic audits
- Setting of safety and health objectives based on comprehensive strategic plans and measure performance against these plans
- Provision of necessary standard personal protective equipment's (PPE)
- Ensuring that all employees at all levels receive appropriate training and are competent to carry out their duties and responsibilities.
- Provision of rest shelters for mine workers with amenities like drinking water, fans, toilets urinals, canteen etc.,
- Rotation of workers exposed to noisy areas.
- Daily dust suppression on haul roads to prevent fugitive dust emission into the air.
- First-aid facility at the mine office.

10.9.3 Health and Safety Training Programme

The company shall 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 an Environmental Consultants to provide periodical training to all the employ to carry out the mining operation in and eco-friendly manner.

Table 10.8: List of Periodical Trainings Proposed for employees

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

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

Budgetary Provision for Environmental Management –

Adequate budgetary provision has been made by the Company for execution of Environmental Management Plan. The Table 5.2 and 5.3 give overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures (including reclamation).

Table 10.9: Capital and Recurring Cost of EMP -P1

	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	24800	24800
	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 - 3 Units	150000	15000
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed - 4 Units	5000	250
	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	49600
	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	191646
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 managent	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	24800	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	496000	10000

	3. Progressive Closure Activity Green belt development - 600 trees per one hectare - Proposal for 1240Trees - (300 Inside Lease Area & 900 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)	60000	9000
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	270000	27000
	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	81000	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	434889	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) - 32 Employees	128000	32000

	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	32000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	4960
	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	124000	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			2742600	1368256

In order to implement the environmental protection measures, an amount of Rs. 27.42 lakhs as capital cost and recurring cost as Rs. 13.68 lakhs as recurring cost is proposed considering present market price considering present market scenario.

Year Wise Break Up	
1st Year	4110856
2nd Year	1436668.8
3rd Year	1508502.2
4th Year	1583927.4
5th Year	1744123.7
6th Year	3202629.9
7th Year	1991461.4
8th Year	2091034.5
9th Year	2195586.2
10th Year	2386365.5
11th Year	3876983.8
12th Year	2699533
13th Year	2834509.6
14th Year	2976235.1
15th Year	3125046.9
16th Year	4652599.2
17th Year	3513929.2
18th Year	3689625.6
19th Year	3874106.9
20th Year	4067812.2
Total	576 Lakhs

CHAPTER - 10: ENVIRONMENTAL MANAGEMENT PLAN -P2

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

The Proponent will – **M/s. Zak Exports**

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

10.1.1 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 the proposed existing quarry.

The said team will be responsible for:

- Analysis of the water and air samples collected through external laboratory
- Monitoring of the water/ waste water quality, air quality and solid waste generated
- 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. Aesthetic of the Environment will not be affected. 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
Designing vehicle wash-down system so that all washed water is captured and passed through grease and oil separators.	Mines Manager
Refueling will be carried out in a safe location, away from vehicle movement pathways	Mine Foreman & Mining Mate
No external dumping i.e., outside the project area	Mine Foreman
Greenbelt on dumps and its maintenance	Environment Officer
Garland drains with catch pits to be provided all around the project area to prevent run off affecting the surrounding lands.	Environment Officer
The periphery of Project area will be planted with thick plantation to arrest the fugitive dust, which will also act as acoustic barrier.	Mines Manager
Thick plantation using native flora species will be carried out on the backfilled area.	Mines Manager
There will be formation of a small surface water body in the mined-out area, which can be used for watering the greenbelt at the conceptual stages.	Environment Officer

10.3 Soil Management

10.3.1 Top Soil Management –

There is no topsoil.

10.3.2 Overburden / Waste and Side Burden Management –

- It is anticipating to remove 35,450m³ of waste (Granite waste@ 65%) which will temporarily store at predetermined places as per mining plan and will be backfilled during mine closure.

Table 10.2: Proposed Controls for Soil Management

Control	Responsibility
backfilling process during mine closure as per mining plan	Mines Manager
The dump slopes will be planted with deep rooting shrubs, grasses and creepers for stabilizing them	Environment Officer
Garland drains are to be paved around the dump area to arrest possible wash off in the rainy seasons	Mines Manager
Surface run-off from the surface dumps via garland drains will be diverted to the mine pits	Mine Foreman & Mining Mate
The backfilled area shall be covered with the soil for green belt development	Environment Officer
Design haul roads and other access roads with drainage systems to minimize concentration of flow and erosion risk	Environment Officer
keeping records of mitigation of erosion events, to improve on management techniques	Environment Officer
The overall slope of the dump is maintained at angle of repose not exceeding 37° from horizontal	Mines Manager
The retaining wall has to be made to arrest the waste dump spills	Mines Manager
A monitoring map with information including their GPS coordinates, erosion type, intensity, and the extent of the affected area, as well as existing control measures and assessment of their performance	Environment Officer
Empty sediment from sediment traps Maintain, repair or upgrade garland drain system	Environment Officer
Test soils for pH, EC, chloride, exchangeable cations, particle size and water holding capacity	Mines Manager

10.4 Water Management

Water is a key component in mining projects as it is required for, and affected by, mining activities. Effective water management is important for a variety of reasons including: uninterrupted operation of the mine, compliance with operational permissions and applicable legislation, and minimization of effects on the receiving environment.

This section focuses on actions for avoidance, mitigation, and control, as well as a water management monitoring program –

- To protect water-related resources, and avoid harmful impacts;
- To supply and retain water for mine operations;
- to Define water-related environmental control structures; and
- To manage water to ensure that any discharges are following the applicable water quality levels and guidelines.

Table 10.3: Proposed Controls for Water Environment

Control	Responsibility
To maximize the reuse of pit water for water supply	Mines Manager
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	Environment Officer
Natural drains/nallahs/brooklets outside the project area should not be disturbed at any point of mining operations Safety distance of 50m will be always maintained from the odai and oorani	Mines Manager
Mine pit water is used for dust suppression and greenbelt development utilization of mine pit water is optimal and effective ways	Environment Officer
Ensure there is no process effluent generation or discharge from the project area into water bodies	Environment Officer
Domestic sewage generated from the project area will be disposed in septic tank and soak pit system	Mines Manager
Fast growing grasses, small plants and bushes will be grown on the overburden dumps to control soil erosion and siltation	Mines Manager
Retention walls and garland drains will be constructed around toe of waste dumps to arrest silt wash off from dumps during monsoon	Environment Officer
Rainwater harvesting measures will be adopted in the project area and in nearby villages to maintain and enhance the ground water table of the area	Environment Officer
Regularly assess and modify Water Management Plan to adapt to changing work plans and site conditions	Environment Officer
Familiarize all site personnel with the purpose and content of the Water Management Plan, and their responsibilities in its implementation	Environment Officer
Water management and sediment control structures and facilities will be regularly inspected and maintained according to the monitoring schedules	Environment Officer
Monthly or after rainfall, inspection for performance of water management structures and systems	Environment Officer
Conduct ground water and surface water monitoring for parameters specified by State Pollution Control Board (SPCB)	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.5 Air Quality Management

The proposed mining 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 water sprinkling on working face	Mines Manager
Develop thick Greenbelt with tall growing trees and thick foliage cover all along the boundary of the project (7.5 Meter Buffer Zone) to arrest dust spreading outside the project area and to be maintained. This plantation cover will also act as an acoustic barrier	Environment Officer
Daily maintenance of haul roads and daily water sprinkling to minimize the generation of fugitive dust due to movement of heavy earth moving machineries on it	Mines Manager
Handle the waste from the mine pit to respective dumps and backfilling during closure process, fugitive dust is anticipated. this fugitive emission can be controlled by well-maintained machineries, well maintained haul roads water sprinkling on haul roads twice a day. Besides it is also advised not to handle the waste during high windy periods	Mines Manager & Environment Officer
Wet drilling procedure /drills with dust extractor system to control dust generation during drilling at source itself to be implemented	Environment Officer
Plantation will be carried out on surface dumps, backfilled area and top benches of the mined out area	Environment Officer
Water reservoir will be developed in the left over mined out pit, which will serve as additional surface water resources for the nearby villages	Environment Officer
Maintenance as per operator manual of the equipment and machinery in the mines to minimizing air pollution and noise generation	Mines Manager
Over loading of trucks should be avoided	Mines Manager
All the mining equipment and trucks has been controlled with emission norms	Environment Officer
The village roads used for mineral transport will be maintained weekly and monthly basis to avoid fugitive dust emissions	Mines Manager
Dust mask are provided to the workers working in high dust generating areas and continue to provide the same	Mines Manager
Weekly and Monthly maintenance of deployed machineries, to reduce gaseous emission	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	Environment Officer
Monitor meteorological conditions (temperature, wind, rainfall)	Environment Office

Source: Proposed by FAE's & EIA Coordinator

10.6 Noise Management

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

Table 10.5: Proposed Controls for Noise Environment

Control	Responsibility
A thick greenbelt to be developed all along the Buffer Zone (7.5 Meters) of the project area to attenuate the noise and the same will be maintained	Mines Manager
Plantation activities to be carried out on surface dumps and infrastructure facilities, these plantations will help in attenuating the noise levels	Environment Officer
Preventive maintenance of mining machinery and replacement of worn-out accessories to control noise generation	Mines Manager
Deployment of mining equipment with an inbuilt mechanism to reduce noise	Environment Officer
Provision of earmuff / ear plugs to workers working in noise prone zones in the mines	Environment Officer
Provision of effective silencers for mining machinery and transport vehicles	Environment Officer
Provision of sound proof AC operator cabins to HEMM	Environment Officer
Sharp drill bits are used to minimize noise from drilling	Environment Officer
Controlled blasting technologies are adopted by using delay detonators to minimize noise from blasting	Mines Manager
Annual ambient noise level monitoring to be carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring	Environment Officer
Undertake noise or vibration monitoring in response to a complaint (from any sensitive receptor).	Mines Manager
Change the burden and spacing by altering the drilling pattern and/or delay layout, or altering the hole inclination during initial stage of operation	Mines Manager
If a noise or vibration complaint is received, follow the complaints and inquiries	Environment Officer
Undertake noise or vibration monitoring half yearly	Environment Officer

Source: Proposed by FAE's & EIA Coordinator

10.7 Ground Vibration and Fly Rock Control

Table 10.6: Proposed Controls for Ground vibration & Fly rocks

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 during initial stage 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
Prior to blasting within 500 meters of the lease boundary, establish a fly rock exclusion zone within adjacent properties and check with landholders that the area is not occupied by humans, blast clearance zones are applied for all blasts.	Environment Officer
Undertake vibration monitoring	Environment Officer

Source: Proposed by FAE's & EIA Coordinator

10.8 Biological Environment Management

The mine management 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 mined out area, backfilled area, etc., the water reservoir will be developed in lower benches of the mined-out area at conceptual stage will be used for the maintenance of green belt after the closure of mine.

Following control measures are proposed for its management and will be the responsibility of the environment officer.

- Greenbelt development all along the safety barrier of the project area
- 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 constructing a sprinkler near the newly planted area.
- Year wise plantation should 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.

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.

10.8.1 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 10.7: Recommended Species to Plant in the Greenbelt

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

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 in mines are fugitive dust and noise. Safety of employees during mining operation and maintenance of mining equipment will be taken care as per Mines Act 1952 and Rule 29 of Mines Rules 1955. To avoid any adverse effect on the health of workers due to dust, noise and vibration sufficient measures have been provided.

10.9.1 Medical Surveillance and Examinations –

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

The health status of workers in the mine shall be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detail's 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 above tests keep upgrading the database of medical history of the employees.

10.9.2 Proposed Occupational Health and Safety Measures –

- Providing a clean working environment that is conducive to safety & health annually
- Employee involvement and commitment in the implementation of health and safety guidelines
- Implementing safety and health management system and assessing the effectiveness through periodic audits
- Setting of safety and health objectives based on comprehensive strategic plans and measure performance against these plans
- Provision of necessary standard personal protective equipment's (PPE)
- Ensuring that all employees at all levels receive appropriate training and are competent to carry out their duties and responsibilities.
- Provision of rest shelters for mine workers with amenities like drinking water, fans, toilets urinals, canteen etc.,
- Rotation of workers exposed to noisy areas.
- Daily dust suppression on haul roads to prevent fugitive dust emission into the air.
- First-aid facility at the mine office.

10.9.3 Health and Safety Training Programme

The company shall 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 an Environmental Consultants to provide periodical training to all the employ to carry out the mining operation in and eco-friendly manner.

Table 10.8: List of Periodical Trainings Proposed for employees

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

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

Budgetary Provision for Environmental Management –

Adequate budgetary provision has been made by the Company for execution of Environmental Management Plan. The Table 5.2 and 5.3 give overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures (including reclamation).

Table 10.9: Capital and Recurring Cost of EMP-P2

	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	35000	35000
	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 - 3 Units	125000	12500
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed - 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	70000
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0

	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Competent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	141801
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 managment	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	35000	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	700000	10000

	3. Progressive Closure Activity Green belt development - 600 trees per one hectare - Proposal for 1240Trees - (300 Inside Lease Area & 1100 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)	60000	9000
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	330000	33000
	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	84750	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	321780	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) - 35 Employees	140000	35000

	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	35000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	7000
	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	175000	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			3070000	1360801.4

In order to implement the environmental protection measures, an amount of Rs. 30.70lakhs as capital cost and recurring cost as Rs. 13.60 lakhs as recurring cost is proposed considering present market price considering present market scenario.

Year Wise Break Up	
1st Year	4430801.4
2nd Year	1428841.5
3rd Year	1500283.5
4th Year	1575297.7
5th Year	1738812.6
6th Year	3360753.2
7th Year	1993790.9
8th Year	2093480.4
9th Year	2198154.5
10th Year	2392812.2
11th Year	4047452.8
12th Year	2714825.4
13th Year	2850566.7
14th Year	2993095
15th Year	3142749.8
16th Year	4834887.3
17th Year	3541631.7
18th Year	3718713.2
19th Year	3904648.9
20th Year	4099881.3
Total	586 Lakhs

CHAPTER – 11: SUMMARY AND CONCLUSIONS

Chendarapalli Grey Granite Quarries (Total Cluster 30.28.8 Ha) falls under “B” category as per MoEF & CC Notification (S.O. 3977 (E)).

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

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

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

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster quarries and formulate the effective mitigation measures for each individual leases. A detailed account of the emission sources, emissions control equipment, background Air quality levels, Meteorological measurements, Dispersion model and all other aspects of pollution like effluent discharge, Dust generation etc., have been discussed in this report. The baseline monitoring study has been carried out during the months March 2022 to May 2022 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 Grey Granite Quarry as per market demand.

Sustainable and modern mining leads us to see positive impact of mining operation and providing consistent employment for nearly 67 people directly in the cluster and indirectly around 150 people.

As discussed, it is safe to say that the proposed existing 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 Chendarapalli Grey Granite Quarries (Total Cluster 30.28.8 Ha).

12. DISCLOSURE OF CONSULTANTS

S.Nos.	Proponent Name	S.F.no	Extent (Ha)
1	Thiru. Mir Tahar Ali,	380/1(P)	2.48.0
2	M/s. Zak Exports	380/1 (P)	3.50.0

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

Name and address of the consultancy:

GEO EXPLORATION AND MINING SOLUTIONS

No 17, Advaita Ashram Road,
Alagapuram, Salem – 636 004
Tamil Nadu, India
Email: infogeoexploration@gmail.com
Web: www.gemssalem.com
Phone: 0427 2431989.

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

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

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

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA/EMP

Declaration by experts contributing to the EIA/EMP for Chendarapalli Grey Granite Quarries (Cluster Extent of 30.28.8 ha) in Chendarapalli Village of Bargur Taluk, Krishnagiri District of Tamil Nadu. 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:




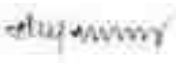

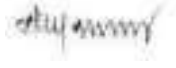








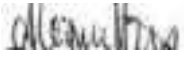





Period of Involvement: **January 2022 to till date**

Associated Team Member with EIA Coordinator:

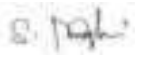

1. Mr.S.Nagamani
2. Mr. P.Viswanathan
3. Mr. Santhoshkumar
4. Mr. S. Ilavarasan





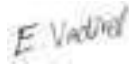


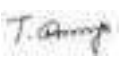
FUNCTIONAL AREA EXPERTS ENGAGED IN THE PROJECT

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. 	Mrs. Amirtham	

		<ul style="list-style-type: none"> Identification of species labelled as Rare, Endangered and threatened as per IUCN list. Impact of the project on flora and fauna. Suggesting species for greenbelt development. 	Mr. 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. Ifthikhar Ahmed	
12	SHW	<ul style="list-style-type: none"> Identify source of generation of non-hazardous solid waste and hazardous waste. Suggesting measures for minimization of generation of waste and how it can be reused or recycled. 	Mr. A. Jagannathan	
			Mr. J. R. Vikram Krishna	

LIST OF TEAM MEMBERS 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. Viswanathan	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 	
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 	
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 	
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 	
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 	
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 	
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 	

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 Chendarapalli Grey Granite Quarries (Cluster Extent of 30.28.8 ha) in Chendarapalli Village of Bargur Taluk, Krishnagiri 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/RA0276 Dated: 20-02-2023

Validity:

Valid till 06.08.2025

ANNEXURE

CHENDARAPALLI GREY GRANITE QUARRIES

CLUSTER EXTENT = 30.28.8 Ha

S.Nos.	Proponent Name	S.F.no	Extent (Ha)
1	Thiru. Mir Tahar Ali,	380/1(P)	2.48.0
2	M/s. Zak Exports	380/1 (P)	3.50.0

ToR Obtained Vide

1. Lr.No. SEIAA-TN/F.No.4902/1 (a) /TOR-966/2021 Dated: 08.05.2021- Thiru. Mir Tahar Ali,
2. Lr.No.SEIAA-TN/F.No.10152/ToR-1530/2023 Dated:07.08.2023- M/s. Zak Exports

Project Proponents

P1	P2
Thiru. Mir Tahar Ali, No.18/16, 3 rd cross, Co-operative colony Krishnagiri - 635 203.	M/s. Zak Exports No.35/13, 2 nd Cross cooperative colony, Krishnagiri - 635 001.

LIST OF ANNEXURES

CODE	DESCRIPTION	PAGE NO
P1 Thiru. MIR TAHAR ALI,	COPY OF TERMS OF REFERENCE	1A -18A
	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	19A -22A
	COPY OF SCHEME OF MINING PLAN APPROVED LETTER	23A -32A
	COPY OF SCHEME OF APPROVED MINING PLAN WITH PLATES	33A -120A
P2 M/s. ZAK EXPORTS	COPY OF TERMS OF REFERENCE	121A -144A
	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	145A -147A
	COPY OF SCHEME OF MINING PLAN APPROVED LETTER	148A -153A
	COPY OF SCHEME OF APPROVED MINING PLAN WITH PLATES	154A - 309A
	COPY OF ADDITIONAL DOCUMENT	310A - 314A
P4 Thiru.Salman Sathar	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	315A – 316A
P5 M/s. Bismilah Exports	COPY OF MINING PLAN APPROVED LETTER	317A – 324A
EXISTING QUARRIES		
E4 Thiru.A.Sathar	COPY OF ENVIRONMENTAL CLEARANCE	325A -332A
E5 Thiru.A.Sathar	COPY OF ENVIRONMENTAL CLEARANCE	333A -356A
E7 Thiru. A.Ameed	COPY OF ENVIRONMENTAL CLEARANCE	357A -360A
E8 Tmt. Mariam Banu	COPY OF ENVIRONMENTAL CLEARANCE	361A -362A
	COPY OF BASE LINE MONITORING DATA	363A -410A
	COPY OF NABET CERTIFICATE	411A



THIRU. K.V. GIRIDHAR, I.F.S.,
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY – TAMIL NADU

3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai - 600015.
Phone No. 044-24359973
Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr No. SEIAA-TN/E.No.4902/1(a)/TOR-966/2021 Dated:08.05.2021

To

Thiru. Mir Tahar Ali
No.18/16, 3rd Cross
Co-Operative Colony
Krishnagiri - 635203

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference (ToR) with Public Hearing for the Existing Grey Granite Quarrying over an extent of 2.48.0 Ha at S.F.No 380/1(P) of Chendarapalli Village, Krishnagiri Taluk, Krishnagiri District by Thiru. Mir Tahar Ali under project category – “B1” and Schedule S.No: 1(a) – TOR issued along with Public Hearing- preparation of EIA report –Regarding.

- Ref:**
1. Application for Terms of Reference dated: 18.01.2016.
 2. MoEF&CC Notification S.O.804 (E) dated 14.03.2017.
 3. Letter. No. SEIAA-TN/F.4902/2016/NGT dated: 15.05.2017.
 4. MoEF&CC Notification S.O.1030 (E) dated 08.03.2018.
 5. MoEF&CC O.M.No. F.No.Z-11013/22/2017-1A.II (M) dated 15.03.2018.
 6. MoEF&CC O.M.No. F.No.Z-11013/22/2017-1A.II (M) dated 16.03.2018.
 7. Letter. No. SEIAA-TN/F.4902/2016/NGT dated: 17.03.2018.
 8. Application No. SIA/TN/MIN/23403/2018, dated: 06.04.2018.
 9. Minutes of the 107th SEAC Meeting held on 14.04.2018
 10. MoEF&CC OM F. No. 22-10/2019-1A.111 dated 09.09.2019.
 11. Minutes of the 298th SEIAA Meeting held on 14.05.2018.
 12. Minutes of the 335th SEIAA Meeting held on 31.12.2018
 13. Hon'ble NGT (SZ) order dated 30.06.2020 in O.A.No.136 of 2017.
 14. MoEF&CC, O.M., F.No.L-11011/200/2017-1A-II (M) dated: 18.08.2020


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15. Letter. No. SEIAA-TN/F.4902/2016/NGT dated: 28.10.2020.
16. MoEF&CC O.M.No. 22-28/2020-IA.III Dated: 12.11.2020
17. Proponent letter dated 01.12.2020.
18. Minutes of the 442nd SEIAA Meeting held on 29.04.2021.


In the reference 1st cited, you have submitted application seeking Environmental Clearance for existing Grey Granite Quarry over an extent of 2.48.0Ha at S.F.No. 380/1 (P), Chendarapalli Village, Krishnagiri Taluk, Krishnagiri District. It is an existing Grey Granite Quarry under operation without obtaining EC and having mining lease valid up to 09.12.2027.

Whereas in the reference 2nd cited, the Ministry of Environment, Forest and Climate Change (MoEF&CC) Notification dated 14.03.2017 has stated that the cases of violations will be dealt strictly as per the procedure specified in the following manner:

"In case the project or activities requiring prior Environmental Clearance under EIA Notification 2006 from the concerned Regulatory Authority are brought for Environmental Clearance after starting the construction work, or have undertaken expansion, modernization and change in product-mix without prior EC, these projects shall be treated as cases of violations and in such cases, even Category B projects which are granted Environmental Clearance by the SEIAA constituted under sub-section(3) section 3 of the Environment (Protection) Act 1986 shall be appraised for grant of Environmental Clearance only by the Expert Appraisal Committee and Environmental Clearance will be granted at the Central Level".

Accordingly it was informed that your application for seeking Environmental Clearance after starting activity without prior EC Grey Granite Quarry over an extent of 2.48.0Ha at S.F.No. 380/1 (P), Chendarapalli Village, Krishnagiri Taluk, Krishnagiri District, could not be processed at SEIAA-TN and you were requested to submit the proposal to MoEF&CC for Environmental Clearance stating the violations vide t/o letter 3rd cited in the reference.

Whereas in the reference 4th cited, the MoEF&CC has stated that the cases of violations projects or activities covered under category A of the Schedule to the EIA Notification, 2006, including expansion and modernization of existing projects or activities and change in product mix, shall be appraised for grant of Environmental Clearance by the EAC in the Ministry and the Environmental Clearance shall be granted at Central level, and for category B projects, the appraisal and approval thereof shall vest with the State or Union territory level Expert Appraisal


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Committees and State or Union territory Environment Impact Assessment Authorities in different States and Union territories, constituted under sub-section (3) of section 3 of the Environment (Protection) Act, 1986.

Whereas in the reference 5th cited, the MoEF&CC have issued the following guidelines regarding implementation of Notification S.O.1030 (E)

- i. The proposals received up to 13th September, 2017 on the Ministry's portal, shall be considered by the EAC or the SEAC / SEIAA in the respective States / UTs, as the case may be, in order of their submission.
- ii. All the proposals of category 'B' projects / activities pertaining to different sectors, received within six months only i.e. up to 13th September, 2017 on the Ministry's portal, but yet not considered by the EAC in the Ministry, shall be transferred online to the SEAC / SEIAAs in the respective States / UTs.
- iii. The proposals submitted directly for considering of EC (in place of ToR), shall also be considered on the same lines, in order of their submission on the Ministry's portal.
- iv. All the projects of category 'B' pertaining of different sectors, although considered by the EAC in the Ministry and accorded ToR, shall be appraised for grant of EC by the SEAC / SEIAA in the respective States / UTs.
- v. All projects / activities of all sectors, shall be required to adhere to the directions of Hon'ble Madras High Court vide order dated 13th October, 2017 while upholding the Ministry's Notification dated 14th March, 2017.

Whereas in the reference 6th cited, the MoEF&CC has issued the following directions regarding compliance of directions of Hon'ble Madras High Court order dated 14th March, 2018 in WMP Nos.3361, 3362 & 3721 of 2018 in WP.No.11189 of 2017.

1. The project proponent, who have not submitted the proposals within six months window i.e up to 13th September, 2017 in pursuance of the ministry's notifications.O.804(E) dated 14.03.2017, are required to submit the proposals within 30 days, to the EAC for category A projects or the SEAC/SEIAA in the respective States/UTs for category B projects.

2. The project proponent, who have submitted the proposals on the Ministry's portal after 13th September, 2017 are also required to submit the proposals within 30 days, to the EAC for category A projects or the SEAC/SEIAA in the respective States/UTs for category B projects

In view of the above, you are requested adhere the above directions vide reference 7th cited above. Accordingly you have submitted the details of the proposal to the SEIAA-TN for obtaining specific Terms of Reference for Grey granite at S.F. No. 380/T (P), Chendarapalli Village, Krishnagiri Taluk, Krishnagiri District vide reference 8th cited.

The proposal was placed before the 107th SEAC Meeting held on 14.04.2018 and the SEAC has recommended the proposal for grant of Terms of Reference for the project for assessment of Ecological damage, remediation plan and natural & community resource augmentation plan to be prepared as an independent chapter in the Environment Impact assessment report by the Accredited consultant and also with collection and analysis of data for assessment of ecological damage, preparation of remediation plan and natural & community resource augmentation plan to be done by an environmental laboratory duly notified under the Environment (Protection) Act, 1986, accredited by NABET or a laboratory of council of Scientific and Industrial research Institutions working in the field of environment. Three months data relating to the ecological parameters is to be submitted with analysis subject to the following conditions.

1. The project proponent besides above has to also submit the No Objection certificate(NOC) in compliance of the orders of the Hon'ble Supreme court to approach State Mines and Geology Department for certification regarding payment of 100% cost of illegally mined minerals to the State Government in terms of the Section 21(5) of the MMDR Act, 1957. The amounts so payable to the state government for the granite block, would inter-alia, account for the mining operation in violation of the following:-
 - a. Without Environmental Clearance (EC) or in excess of quantity approved in EC.
 - b. Without consent to Operate (CTO) or in excess of quantity approved in CTO.
 - c. Without mining plan/scheme of mining or in excess of quantity approved in mining plan/scheme of mining.
 - d. Without forest clearance
 - e. Any other violation.

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2. The project proponent is hereby directed to furnish information and NOC as per the guidelines issued by MoEF& CC, orders of the Hon'ble Supreme court and the annexure provided by SEIAA, while submitting EIA/EMP for consideration of EC. The proposal is recommended for the grant of Standard ToR for mining projects as specified by MoEF& CC subject to the above conditions in addition to the Additional TOR specified by the SEAC to deal with the violation aspects of the mining projects.

The proposal was placed before the 298th SEIAA Meeting held on 14.05.2018. Discussed in detail, the Authority decided to address the applicant to furnish the approved mining plan. Even after lapse of more than two years, no response was received from your side. It is not clear whether the lease period is alive or not. Further, the Government of India, Ministry of Environment, Forest and Climate Change, Impact Assessment Division vide its office Memorandum F. No. 22-10/2019-1A.111 dated 09.09.2019 stated the relevant portion as below:

- A. It is possible that there may be certain category B proposals which were submitted at SEIAA during or prior to the violation window period but not under violation category and later during the appraisal by State Level Expert Appraisal committee (SEAC) identified as violation proposals.
- B. Now, a decision has been taken in the Ministry that such proposals as mentioned in para (8) above, may be considered in terms of provisions of Ministry's Notification dated 14.03.2017 & 08.03.2018 by the SEIAA. It is clarified that only those proposals may be taken up for consideration under this provision which had been submitted to SEAC during the window or prior to it as detailed above.

Meanwhile the Hon'ble NGT(SZ) in its order dated 30.06.2020 in O.A.No.136 of 2017, in the case of Tamil Nadu Small Mine Owners Federation Vs the Secretary, MoEF&CC, GoI & others has pronounced as follows.

1. The applications which are pending as on 31.3.2016 for Environment Clearance have to be treated as normal applications and not violation applications and the authorities are directed to dispose of those applications in accordance with law.
2. The persons, who have not filed applications on or before 31.3.2016 and filed thereafter, can be treated as violation applications and the MoEF & CC /SEIAA


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is directed to dispose of those applications as violation cases in accordance with law.

3. It is also made clear that all mining leases, either major or minor, even less than 5 hectares area, has to apply and get Environment Clearance as per the amended EIA Notification dated 15.1.2016. This will apply to the existing mining leases as well.

In view of the above, you are requested to furnish the following details so as to consider your proposal for issue of ToR under either violation or non-violation categories in accordance with existing Rules.

1. The details of validity of Mining plan as approved by the competent Authority.
2. Copy of approved scheme of mining in case of renewal.
3. Letter stating that the quarry lease deed has not been cancelled or terminated and is subsisting as on date.
4. Present status of operation of quarry.
5. Details of abandoned/expired, existing and proposed quarries located within 500m radius of the quarry lease area in the prescribed format obtained from AD/DD of the Department of Geology and Mining.
6. The latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.

The Project Proponent has replied to the quarries raised vide his letter dated 01.12.2020 and hence the proposal was placed in 442nd SEIAA meeting held on 29.04.2021.

Appraisal by SEAC:

The proposal seeking ToR was placed before the 107th EAC meeting held on 14.04.2018. Based on the document furnished, the Committee observed that the project falls under the category B2 and schedule 1(a) of the EIA Notification, 2006. The SEAC recommends the Terms of Reference for the project for assessment of Ecological damage, remediation plan and natural & community resource augmentation plan to be prepared as an independent chapter in the Environment Impact Assessment report by the Accredited consultant and also with collection and analysis of data for the assessment of ecological damage, preparation of remediation plan and natural & community resource augmentation plan

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to be done by an Environmental laboratory duly notified under the Environment (Protection) Act, 1986, accredited by NABET or a laboratory of council of Scientific and Industrial research Institutions working in the field of Environment. Three months data relating to the ecological parameters is to be submitted with analysis and subject to following condition.

- a. The project proponent besides above has to also submit the No Objection certificate (NOC) from State Mines and Geology Department. The NOC should also indicate whether the mine was operated.
- Without Environmental Clearance (EC) or in excess of quantity approved in EC.
 - Without consent to Operate (CTO) or in excess of quantity approved in CTO.
 - Without mining plan/scheme of mining or in excess of quantity approved in mining plan/scheme of mining.
 - Without Forest clearance
 - Any other violation such as excess quantity mined during the mining period to assess the ecological and other damages.

Discussion by SEIAA and the Remarks:-

The proposal was placed in 442nd SEIAA meeting held on 29.04.2021. After detailed discussions, the Authority noted as follows.

1. The proponent, **Thiru Mir Tahar Ali**, has applied for ToR to SEIAA -TN on 18.01.2016 for mining Grey Granite over an extent of 2.48.0 Ha at S.F. No. 380/1 (P), Chendarapalli Village, Krishnagiri Taluk, Krishnagiri District. It is an existing Grey Granite quarry under operation without obtaining EC and having mining lease valid up to 09.12.2027.
2. As per the ministry's notification S. O. 804(E) dated 14.03.2017, the proponent has submitted the details of the proposal to the O/o SEIAA-TN for obtaining specific Terms of Reference for Grey granite at S.F. No. 380/1 (P), Chendarapalli Village, Krishnagiri Taluk, Krishnagiri District.
3. The proposal was placed before the 107th SEAC Meeting held on 14.04.2018 and the SEAC has recommended the proposal for the grant of Standard ToR for mining projects

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as specified by MoEF& CC subject to the certain conditions in addition to the Additional TOR specified by the SEAC to deal with the violation aspects of the mining projects.

4. The proposal was placed before the 298th SEIAA Meeting held on 14.05.2018. Discussed in detail, the Authority decided to address the applicant to furnish the approved mining plan.
5. In the meantime, the Government of India, Ministry of Environment, Forest and Climate Change, Impact Assessment Division vide its office Memorandum F. No. 22-10/2019-1A.111 dated 09.09.2019 stated the relevant portion as below:

C. It is possible that there may be certain category B proposals which were submitted at SEIAA during or prior to the violation window period but not under violation category and later during the appraisal by State Level Expert Appraisal committee (SEAC) identified as violation proposals.

D. Now, a decision has been taken in the Ministry that such proposals as mentioned in para (8) above, may be considered in terms of provisions of Ministry's Notification dated 14.03.2017 & 08.03.2018 by the SEIAA. It is clarified that only those proposals may be taken up for consideration under this provision which had been submitted to SEAC during the window or prior to it as detailed above.

2. The Hon'ble NGT(SZ) in its order dated 30.06.2020 in O.A.No.136 of 2017, in the case of Tamil Nadu Small Mine Owners Federation Vs the Secretary, MoEF&CC, Gol& others has pronounced as follows.
 - A. The applications which are pending as on 31.3.2016 for Environment Clearance have to be treated as normal applications and not violation applications and the authorities are directed to dispose of those applications in accordance with law.
 - B. The persons, who have not filed applications on or before 31.3.2016 and filed thereafter, can be treated as violation applications and the MoEF& CC /SEIAA is directed to dispose of those applications as violation cases in accordance with law.
 - C. It is also made clear that all mining leases, either major or minor, even less than 5 hectares area, has to apply and get Environment Clearance as per the amended EIA Notification dated 15.1.2016. This will apply to the existing mining leases

as well.

3. As per the Assistant Director, Department of Geology & Mining letter dated 26.11.2020 the total area of cluster is more than 5 hectare, comes under B1 category which requires public hearing


In view of the above, the Authority unanimously accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC but under normal category so as to comply the Hon'ble NGT(SZ) in its order dated 30.06.2020 in O.A.No.136 of 2017, since the proponent has initially has applied for ToR to SEIAA -TN on **18.01.2016** (before 31.03.2016) for mining Grey Granite over an extent of 2.48.0 Ha at S.F. No. 380/1 (P), Chendarapalli Village, Krishnagiri Taluk, Krishnagiri District & normal condition in addition to the following condition.

1. The proponent shall submit the EIA report along with valid approved mining plan by the competent Authority.
2. As per the MoEF& CC office memorandum F.No.22-65/2017-LA.III dated: 30.09.2020 and 20.10.2020 the proponent shall furnish the detailed EMP, mentioning all the CER activities as committed and the concerns raised during public hearing meeting & the action plan to mitigate the concerns while applying for CTE from TNPCB.

A. STANDARD TERMS OF REFERENCE

- 1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
- 2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
- 3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.

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- 4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
- 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.

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- 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) 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.
- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
- 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
- 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
- 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
- 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area,

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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 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).
- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors.

- There should be at least one monitoring station within 500 m of the mine lease in the predominant 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

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- both in AMSL and hgl. A schematic diagram may also be provided for the same.
- 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
 - 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
 - 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
 - 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
 - 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
 - 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
 - 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible,

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quantitative dimensions may be given with time frames for implementation.

- 38) Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- 44) Besides the above, the below mentioned general points are also to be followed:-
 - a) Executive Summary of the EIA/EMP Report
 - b) All documents to be properly referenced with index and continuous page numbering.
 - c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
 - e) Where the documents provided are in a language other than English, an English translation should be provided.
 - f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
 - g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should

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be followed.

- h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.
- i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
- j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

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

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

- 1) Project name and location (Village, District, State, Industrial Estate (if applicable).
- 2) Products and capacities. If expansion proposal then existing products with capacities and reference to earlier EC.
- 3) Requirement of land, raw material, water, power, fuel, with source of supply (Quantitative)
- 4) Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
- 5) Measures for mitigating the impact on the environment and mode of discharge or disposal.
- 6) Capital cost of the project, estimated time of completion.
- 7) Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of its acquisition, nearby (in 2-3 km.) water body,

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population, with in 10km other industries, forest , eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)

- 8) Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
- 9) Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
- 10) Likely impact of the project on air, water, land, flora-fauna and nearby population
- 11) Emergency preparedness plan in case of natural or in plant emergencies
- 12) Issues raised during public hearing (if applicable) and response given
- 13) CER plan with proposed expenditure.
- 14) Occupational Health Measures
- 15) Post project monitoring plan

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

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Copy of permission related to Port facility, Desalination plant, wind mill /solar power plant from competent Authority.
- d. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- e. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- f. 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 -

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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 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.

The receipt of this letter may be acknowledged.


MEMBER SECRETARY
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Copy to:

1. The Principal Secretary to Government, Environment & Forests Dept, Govt. of Tamil Nadu, Fort St. George, Chennai - 9.
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
4. The APCCF (C), Regional Office, Ministry of Environment & Forest (SZ), 34, HEPC Building, 1st&2nd Floor, Cathedral Garden Road, Nungampakkam, Chennai -34.
5. Monitoring Cell, IA Division, Ministry of Environment & Forests, Paryavaram Bhavan, CGO Complex, New Delhi 110003.
6. The District Collector, Krishnagir District.
7. Stock File.

08 MAY 2021

From
Dr. S.Vediappan, M.Sc.,Phd.,
Deputy Director,
Dept of Geology and Mining,
Krishnagiri.

To
Thiru. Mir Tahar Ali,
18/6, 3rd Cross, Co -
Operative Colony,
Krishnagiri.

Roc.No.1188/2018 /Mines dated: 13 .04.2023.

Sir,

Sub:	Mines and Minerals - Minor Mineral - Grey Granite - Krishnagiri District - Bargur Taluk- Chendarapalli Village - Patta land in S.F.No. 380/1 (P) over an extent of 2.48.00 Hects of Grey Granite quarry lease application preferred by Thiru. Mir Tahar Ali - Details of quarries situated within 500 mts radial distance - Requested by the lessee - Details furnished - reg.
Ref:	1. G.O.(3D) No.79, Industries (MME-2) Department dated: 25.10.2007.
	2. Mining plan approved by the Commissioner of Geology and Mining in letter No. 2046/MM5/2007 dated: 10.10.2007.
	3. 3 rd Scheme of Mining plan for the period 2022-23 to 2026-27 submitted by the lessee at district office on 06.08.2022.
	4. Commissioner of Geology and Mining, Chennai Lr.Rc.No.3256/MM4/2022 dated: 05.01.2023.
	5. Commissioner of Geology and Mining letter Rc.No. 1193/MM4/2023 dated: 17.03.2023
	6. Thiru. Mir Tahar Ali letter dated: 29.03.2023.

kind attention is invited to the reference cited.

2) A quarry lease had been granted infavour of been Thiru. Mir Tahar Ali for quarrying Grey Granite over an extent of 2.48.00 Hects of Patta lands in S.F.No. 380/1 (P) of Chendarapalli Village, Bargur Taluk, Krishnagiri District for a period of 20 years under the provisions of Rule 19(A) of Tamil Nadu Minor Mineral Concession Rule 1959.

3. In this connection, 3rd Scheme of Mining Plan submitted by the lessee has been approved by the Commissioner of Geology and Mining, vide letter dated: 17.03.2023.

4. In this regard, the lessee has requested to furnish the details of quarries situated within cluster category for the subject quarry vide letter dated: 29.03.2023.

5. As requested by the lessee the details of quarries situated within the 500m radius is furnished as follows:

i) Details of Existing quarries

Sl. No	Name of the Lessee and address	GO No & Date	Taluk & Village	S.F.No.	Extent in Hectare	Lease period
1.	Thiru.Mir. Tahar All	G.O.3D.No.79 Ind MME.2 Dept dt:25.10.2007.	Bargur Chendarapalli	380/1 (Part)	2.48.0	10.12.2007 to 09.12.2027 (Instant Proposal for 3 rd Scheme of mining).
2.	Thiru. B.k. Murali, S/o. C.Krishnan, No. 70/53, Kara Kuppam Road, Bargur, Krishnagiri.	G.O.3D.No.34 Ind (MME.2) Dept dt:25.02.2011	Bargur Chendarapalli	382/5A, 382/5B, 382/6A, 382/6B, 382/6C, 382/7A, 382/7B, 382/8, 382/9A, 382/9B, 382/9C, 382/10 382/11	02.78.5	28.02.2011 to 27.02.2031
3.	M/s. Zak Exports	G.O.3D.No.25 Ind MME.2 Dept dt:21.11.2017.	Bargur Chendarapalli	380/1 P	3.50.0	06.12.2017 to 05.12.2037
4.	Thiru.B.S.Ravi	G.O.3D.No.35 Ind MMB.2 Dept dt:16.09.2003.	Bargur Chendarapalli	369/2	2.46.5	10.11.2003 to 09.11.2023.
5.	Thiru.B.S.Ravi	G.O.3D.No.30 Ind MMB.3 Dept dt:22.02.2006.	Bargur Chendarapalli	339/2	1.19.0	27.03.2006 to 26.03.2026

6.	Thiru.A.Sathar	G.O.3D.No.48 Ind MME.2 Dept dt:25.07.2016.	Bargur Chendarapalli	375/2D etc	1.78.0	01.09.2016 to 31.08.2036.
7.	Thiru.A.Sathar	G.O.3D.No.13 Ind MME.2 Dept dt:03.09.2013.	Bargur Chendarapalli	375/2A etc	1.03.5	07.10.2013 to 06.10.2033
8	Tvl. Enterprising Enerprises B 25A, 50 th St. Ashok Nagar, Chennai - 83	G.O.3D.No.86in d MME.2 Dept dt: 24.04.1995.	Bargur Chendarapalli	404/1(P)	4.05.0	15.05.1995 to 14.05.2005 Lease expired operated under court order(Rule 39).
9.	Tmt. D. Rukkammal, w/o Duraismay Naidu, Chendarapalli village, Anchoor (po) - 635 203, Krishnagiri.	G.O.3D.No.34 Ind (MME.2 Dept dt:03.10.2009	Bargur Soolamalai	335/4A1	1.20.0	14.12.2009 to 13.12.2029
10.	Thiru. A. Ameer S/o Abdul Gaffar, 151/3, Jagadevipalayam, Krishnagiri.	G.O.3D.No.25 Ind (MME.2 Dept dt: 15.02.2016.	Bargur Chendarapalli	377/1B, etc.,	2.85.5	03.03.2016 to 02.03.2036
11.	Tmt. Mariam Banu, W/o. Mir Zasim Ali, No. 1/192, Muslim Masuthi St, Jagadevipalayam, Krishnagiri.	G.O.3D.No.28 Ind (MME.2 Dept dt: 15.02.2016.	Bargur Chendarapalli	378/3, etc.,	13.90.0	01.03.2016 to 29.02.2036
12.	Tmt. M. Varalakshmi W/o. Munirathinam, Chendarapalli, Anchoor (Po), Krishnagiri.	G.O.3D.No.24in d (MME.2 Dept dt: 16.04.2018.	Bargur Soolamalai	335/4B, 341/4	1.08.5	14.06.2018 to 13.06.2036

ii) Details of Expired/ Abandoned quarries

Sl. No.	Name of the lessee	GO.No. & Dated	Village & Taluk	S.F No.	Extent in Het	Lease period.
1.	M/s. Tamil Nadu Minerals Ltd, Chennai	G.O.3D.No.237 nd(MME.1) Dept dt:17.03.1999.	Bargur Chendarapalli	381 & 368	5.86.5	21.06.1999 to 20.06.2019
2.	Thiru. P.K. Selvaraj	G.O.3D.No.25 Ind(MME.1) Dept dt: 19.01.1994.	Bargur Chendarapalli	383/4 & 384/2	0.64.5	04.04.1994 to 03.04.2004

3.	M/s. Tamil Nadu Minerals Ltd, Chennai	G.O.3D.No.289 Ind(MME.1) Dept dt:28.12.1995	Bargur Chendarapalli	383/1	6.94.5	26.01.1996 to 25.01.2016
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iii) Details of Applied area.

Sl No	Name of the Lessee and address	Taluk & Village	S.F.No.	Extent in Hectares	Remarks
1	Thiru. Syed Nazar Babulal, S/o, Babuylal, 114, Jagadevipalayam village & Post, Bargur Taluk, Krishnagiri	Bargur Chendarapalli	373/1A, 373/1B.	2.42.50	-

S. S. S.
13.12.2013
Deputy Director,
Dept of Geology and Mining,
Krishnagiri.

S. S. S.
13/12/13

Copy to :-

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

COMMISSIONERATE OF GEOLOGY AND MINING

From

To

Thiru.J.Jayakanthan, I.A.S.,
Commissioner,
Department of Geology and Mining,
Guindy, Chennai - 600 032.

Thiru.Mir Tahar Ali,
18/16, 3rd Cross Co-operative Colony,
Krishnagiri Taluk and District
TamilNadu - 635 001.

Rc. No.1193/MM4/2023, dated: .03.2023

Sir,

Sub: Mines and Minerals - Minor Mineral - Grey Granite -
Krishnagiri District - Bargur Taluk - Chendarapalli
Village - S.F.No. 380/1(P) over an extent of 2.48.00 hecets
of Patta lands - Quarry lease granted to Thiru. Mir Tahar
Ali - 3rd Scheme of Mining Plan for the period 2022-23 to
2026-27 (10.12.2022 to 09.12.2027) - Submitted by the
lessee for approval - Forwarded for passing suitable orders
by the Deputy Director, G&M, Krishnagiri- Approval
accorded.

- Ref:
1. Mining plan approved by the Commissioner and
Director of Geology and Mining in letter No.
2046/MM5/2007 dated: 10.10.2007.
 2. G.O.(3D) No.79, Industries (MME-2) Department
dated: 25.10.2007.
 3. Order of the Hon'ble National Green Tribunal Southern
Zone, Chennai in O.A.No.139 & 140 of 2017 dated:
11.07.2017.
 4. Order of the Hon'ble National Green Tribunal Southern
Zone, Chennai No.M.A.221 of 2017 in M.A.135 of 2017 in
O.A.140 of 2017 (SZ) O.ANos.281 and 282 of 2017 (SZ)
dated: 16.03.2020.
 5. The District Collector, Krishnagiri Demand notice in
Rc.No.1042/2018/C-10/Mines dated: 19.02.2020.
 6. The Hon'ble High Court of Madras in W.P.No. 5982/2020
order dated: 23.12.2021.
 7. The Commissioner of Geology and Mining letter Rc.No.
7431/MM4/2020 dated: 19.01.2021.
 8. 3rd Scheme of Mining plan for the period 2022-23 to
2026-27 submitted by the lessee at district office on
06.08.2022.
 9. The Commissioner of Geology and Mining, Chennai
Lr.Rc.No.3256/MM4/2022 dated: 05.01.2023.

10. Assistant Geologist (Mines) inspection report dated:
15.02.2023.

11. The Deputy Director, G&M, Krishnagiri
Rc.No.1188/2018/Mines dt.17.2.2023.

Kind attention is invited to the above references.

2) The lessee Thiru. Mir Tahar Ali in the reference 8th cited, has submitted Third Scheme of Mining for approval for the quarry lease granted in G.O.(3D) No.79, Industries (MME-2) Department dated: 25.10.2007 for quarrying Grey Granite over an extent of 2.48.00 ha of patta land in S.F.No.380/1(P) of Chendarapalli Village, Bargur Taluk, Krishnagiri district under TNMMCR,1959 for a period of 20 years. The lease deed was executed on 10.12.2007 and valid upto 09.12.2027.

3) The Deputy Director (G&M), Krishnagiri in the reference 11th cited has forwarded the Third Scheme of Mining for the period 2022-23 to 2026-27 submitted by lessee Thiru. Mir Tahar Ali and stated the following.

- a. The Mining plan for the subject Grey Granite quarry lease in Chendarapalli Village, Bargur Taluk, Krishnagiri district was approved by the Commissioner and Director of Geology and Mining Chennai vide letter No. 2046/MM5/2007 dated: 10.10.2007, which came into effect from the date of execution i.e. on 10.12.2007.
- b. In this stage as stipulated in GCDR 1999, as per the 3rd scheme submitted by the lessee it was mentioned in para 1.1, that, the lessee has submitted the 1st scheme & 2nd scheme of Mining but, the 2nd scheme was returned by the Commissioner of Geology and Mining letter dt.19.1.2021 vide reference 7th cited for the reason that Environmental Clearance was not obtained.
- c. In this regard, Thiru. Mir Tahar Ali, have filed application seeking Environmental clearance before the

SEIAA on 18.01.2016 for the subject area within the stipulated period before the cutoff date of 31.03.2016 given by Ministry of Environment Forest and Climate Change. But SEIAA has not passed any order. In a similar issue Tvl. Imperial Granite have filed O.A. before the Hon'ble National Green Tribunal and got the order of the Hon'ble National Green Tribunal, Southern Zone, Chennai in O.A.No.139 & 140 of 2017 dated: 11.07.2017 and 16.03.2020 and the extracts of the order is as follows.

"SEIAA shall pass the order in the light of the recommendations of SEAC within two weeks from the date of receipts of this order". NGT state that the application filed by applicant were pending with SEIAA and in fact the State Expert Committee has recommended the project, treating them as Not Violators. But in spite of SEIAA has not passed any other, so there is No violation".

- d. Subsequently, lessee has submitted 3rd scheme of mining for the period from 2022-23 to 2026-27 (10.12.2022 to 09.12.2027) on 06.08.2022 (5 years) for approval.
- e. As per the 3rd scheme of mining plan for period from 2022-23 to 2026-27 (10.12.2022 to 09.12.2027) submitted for approval, it is mentioned that the total mineable reserves @ 20% recovery is about 58323 Cbm for a maximum depth of 33 mts and the proposed recoverable reserves @ 20% during the plan period for 3rd five years production of about 14742 cbm is acceptable, since, weathered/fractured rock is encountered in the top layer. The year wise production for the proposed five years has furnished below.

Year	ROM (m ³)	Recoverable reserves @ 20% (m ³)	Granite Waste @ 80%(m ³)	Topsoil (m ³)
10.12.2022 to 09.12.2023	14615	2923	11692	680

10.12.2023 to 09.12.2024	15015	3003	12012	-
10.12.2024 to 09.12.2025	14580	2916	11564	-
10.12.2025 to 09.12.2026	14945	2989	11956	-
10.12.2026 to 09.12.2027	14555	2911	11644	-
Total	73710	14742	58968	680

- f. With regard to dumping of waste during the scheme of mining plan period, it has been proposed to dump on the southern side.
- g. The lessee had obtained transport permits of 10652.840 Cbm by remitting seigniorage fee as against the proposed production of 1000 cbm from the 1st scheme of mining period from 2012-13. As per section 20 of the MM (DR) Amended Act 2021, mineral quarried within the lease area is lawful.
- h. The lessee had obtained transport permit in violation period (i.e.,) from 15.01.2016 to 10.01.2017. Hence, as per the Hon'ble Supreme Court of India order dated.02.08.2017 in W.P. (Civil) No.114 of 2014 and the Director of Geology and Mining, Chennai letter Rc.No. 1375/LC/2016,dated.20.08.2018, it was directed to remit 100% cost of the mineral lifted without Environmental Clearance for the violation period from 15.01.2016 to 10.01.2017. Based on the instruction the demand notice had been issued by the District Collector, Krishnagiri dated: 19.02.2020 with a tune of Rs. 3,96,00,047/- for transportation of **2024.672** cbm of Grey Granite, which was permitted and transported in the violation period.
- i. Accordingly, the lessee Thiru. Mir Tahar Ali filed W.P against the above demand notice before Hon'ble High Court of Madras in W.P.No. 5982/2020 and the Hon'ble High Court in its common order dated: 23.12.2021 dismissed the W.P. Against the order the lessee has filed

W.A. No. 367/2022 before the Hon'ble High Court of Madras and the case is pending.

- j. Further, the Commissioner of Geology and Mining, Chennai in letter dated 05.01.2023 vide reference 7th cited has instructed to forward all the pending mining plans and scheme of mining plan to Commissioner of Geology and Mining immediately for taking further action.
- k. Meanwhile, the lessee Thiru.Mir Tahar Ali has submitted sworn affidavit on 10.02.2023 to assure that he will adhere the final order issued by the Hon'ble High Court of Madras in WP.No. 5982/2020 if any.
- l. The Geological plan, Geomorphological and reserve details furnished in the scheme of mining plan are verified by the Assistant Geologist (Mines) with the ground realities and they are found correct.
- m. The applicant should provide 7.5 mts safety distance to the adjacent patta lands.
- n. The applicant should provide 10 meters safety distance to the Government poramboke land and should erect a wire fence all along the boundary between the area applied for lease and Government land situated in S.F.No. 379.
- o. During the field inspection conducted by the Assistant Geologist (Mines) it is verified that the lessee has complied the terms and conditions stipulated in the lease granting G.O and lease deed and no violations has been found out except the quantity quarried which is more than the mining plan quantity and other contents of the scheme of mining tallies with the present field condition. There is no litigation in the subject area except EC violation issue and over depth than the earlier mining plan/mining scheme and there is no archeological monuments situated within the radial distance of 300m.

from the subject area and no wild life sanctuary within 1.0km radius satisfies Rule 36 (1-A) of amended Tamil Nadu Minor Mineral Concession Rules 1959.

p. Finally, the Deputy Director, Geology and Mining, Krishnagiri District has forwarded the 3rd scheme of mining for the period 2022-23 to 2026-27 (10.12.2022 to 09.12.2027) submitted by the lessee Thiru. Mir Tahar Ali on 06.08.2022 in respect of the area granted on lease in Patta land S.F.No. 380/1 (part) over an extent of 2.48.00 hecets of Chendarapalli Village, Bargur Taluk, Krishnagiri district for passing suitable orders,

4) The Third Scheme of Mining forwarded by the Deputy Director (G&M), Krishnagiri District for passing suitable orders have been scrutinized and found to be correct as per rules.

5) Therefore, based on the report of the Deputy Director (G&M), Krishnagiri district and in exercise of the powers conferred under Rule 18(4) of Granite Conservation and Development Rules, 1999 read with G.O. (Ms) No.87, Industries (MMC.1) Department dated 22.02.2001, the Third Scheme of Mining submitted by Thiru.Mir Tahar Ali in respect of the subject area is approved for a quantity of 14742 cbm for the period of 10.12.2022 -9.12.2023 to 10.12.2026-9.12.2027.

Period	ROM (Cbm)	Recoverable Reserves @ 20% (Cbm)
10.12.2022 to 9.12.2023	14615	2923
10.12.2023 to 9.12.2024	15015	3003
10.12.2024 to 9.12.2025	14580	2916
10.12.2025 to 9.12.2026	14945	2989
10.12.2026 to 9.12.2027	14555	2911
Total	73710	14742

subject to the following conditions in addition to the conditions stipulated in Government Order under reference 2nd cited:

- i. Now there is a WA pending in Hon'ble High Court regarding EC penalty. He has given undertaking that he will abide by decision of the Hon'ble High Court.
- ii. Lessee should remit the dead rent for non-operation periods.
- iii. This Third Scheme of Mining 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.
- iv. The approval of the Third Scheme of Mining (including progressive mine closure 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 law including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1986, Indian Explosives Act, 1884 (Central Act IV of 1884) and the rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- v. This Third Scheme of Mining including progressive mine closure plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- vi. Provisions of the Mines Act, 1952 and the Rules and Regulations made there under including submission of notice of opening, appointment of manager and other statutory officials as required under Mines Act, 1952 shall be complied with.
- vii. Provisions made under Mines and Minerals (Development & Regulation) Act, 1957, MMDR Amendment Act, 2015 and Granite Conservation and Development Rules, 1999 made there under shall be complied with.
- viii. This approval of Third Scheme of Mining is restricted to the mining lease area only. The mining lease area is as shown on the statutory plan under Granite Conservation and Development Rules, 1999. The Commissionerate of Geology and Mining does not take any

- responsibility regarding correctness of the boundaries of the lease shown on the ground with reference to the lease map and other plans furnished by the lessee.
- ix. If anything is found to be concealed as required by the Granite Conservation and Development Rules, 1999 and Tamil Nadu Minor Mineral Concession Rules, 1959 and proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.
 - x. Relaxation to be obtained under Rule 106(2)(b) of Metalliferous Mines Regulations, 1961 from the Director of Mines Safety, if necessary.
 - xi. The lessee should obtain environmental clearance from the appropriate authority in respect of the subject area as per rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the notification of the Ministry of Environment and Forest and any other clearances if any.
 - xii. This Third Scheme of Mining is approved for the proposal contained therein and is applicable from the date of approval of the document for the quarrying activities to be carried out within the leasehold area.
 - xiii. The earlier instances of irregular / illegal quarrying, if any, shall not be regularized through the approval of this document.
 - xiv. The lessee shall remit the penalty / cost of mineral / other dues if any as arrived by the District Collector / Deputy Director (G&M), Krishnagiri district.
 - xv. The quarry labourers shall be registered with the Labour Board and shall be enrolled under the Insurance Scheme.
 - xvi. Non adherence to any condition set-out above, the approval shall be deemed to have been withdrawn with immediate effect.
 - xvii. The lessee should comply with the additional conditions stipulated in the Government of India, Ministry of Mines, Order No. 11/02/2020, dated: 14.01.2020 issued as per the Order of the Hon'ble Supreme Court of India, dated: 08.01.2020 that states, "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.

xviii. The lessee should remit the Stamp Duty as per the approved modified Scheme of mining during the currency of the lease period if any.

xix. The lessee should carry out DGPS survey and erection of RCC boundary pillars as per the norms stipulated in the EOI notification in Rc.No.2921/MM4/2019 dated.01.02.2018 and subsequent corrigendum dated 13.08.2019 through the empanelled agencies.

xx. A green belt should be constructed to prevent sound and air pollution due to the proposed quarrying activity of quarrying Grey Granite over an extent of 2.48.00 ha of patta land in S.F.No.380/1(P) of Chendarapalli Village, Bargur Taluk., Krishnagiri district by planting at least 250 seedlings all along the boundary of the area.

xxi. No hindrance shall be caused to the adjacent patta and Government poramboke lands if any while quarrying and transportation of granite.

xxii. The waste materials generated during the course of quarrying should be dumped only within the lease hold area that will be earmarked for the purpose in the mining plan as per rule 31 of GCDR, 1999.


xxiii. The lessee shall submit Scheme of Mining, mine closure plan and other statutory requirements within the time stipulated for submission of the above as per rules.

xxiv. The lessee should maintain the fencing in the lease granted area with barbed wire as follows.

- The pillar post shall be firmly grounded with concrete foundation of height not less than 2mts with a distance between two pillars shall not be more than 3mts.
- The lessee shall incorporate the DGPS readings for the entire boundary pillars of the area and the same should be clearly shown in the mining plan.

- A soft copy of the digitized map with DGPS readings should be submitted in the CD to the Deputy Director (G&M), Krishnagiri.
- xxv. The boundary stones for the subject quarry should be fixed and the district administration / Geology and Mining Department should ensure that the quarrying operation should be restricted only within the area granted for lease.
- xxvi. As per rule 12 (v) of Mineral (other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016, the lessee shall at his own expense, erect, maintain and keep in repair all boundary pillars.
- xxvii. The lessee may use mild explosives during quarrying, and storing of explosives if required, by obtaining valid licence under Explosive Act and Rules.
- xxviii. The lessee should abide to any directions issued by the Hon'ble High Court if any.
- xxix. If any violation is found during quarrying operation, the penal provisions of Tamil Nadu Minor Mineral Concession Rules, 1959 and other rules and act in force will attract.
- xxx. Child labour should not be engaged in the quarry works.
- xxxi. The quarry workers should be enrolled in the insurance scheme through the Labour Department.

Encl: Two copies of Approved 3rd Scheme of mining for the period 2022-23 to 2026-27.


14/5/2023
Commissioner of Geology and Mining

Copy Submitted to:

The Additional Chief Secretary to Government,
Industries, Investment Promotion
and Commerce Department,
Secretariat, Chennai-600009.

**SCHEME OF QUARRYING ALONG WITH
PROGRESSIVE QUARRY CLOSURE PLAN
FOR CHENDARAPALLI GREY GRANITE QUARRY**

(Under Rule 18 (2) of Granite Conservation and Development Rules, 1959)

Lease Period: 10.12.2007 to 09.12.2027

Patta Land / Scheme Period: 10.12.2022 to 09.12.2027

IN

LOCATION OF THE QUARRY LEASE AREA

EXTENT : 2.48.0 Ha,
S.F.No. : 380/1(PART)
VILLAGE : CHENDARAPALLI
TALUK : BARGUR
DISTRICT : KRISHNAGIRI
STATE : TAMILNADU.

FOR

APPLICANT / LESSEE

Thiru. Mir Tahar Ali,

No.18/16, 3rd Cross Co-operative Colony,
Krishnagiri Taluk and District,
Tamil Nadu - 635 001.

PREPARED BY

Dr. P. THANGARAJU, M.Sc., Ph.D.,

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

No.17, Advaita Ashram Road,
Alagapuram, Salem District,
Tamil Nadu - 636 004

Mobile No. +91 94422 78601, 94433 56539

E-mail: infogeoexploration@gmail.com



Mir Tahar Ali,
No.18/16, 3rd Cross Co-operative Colony,
Krishnagiri Taluk and District,
Tamil Nadu – 635 001.

CONSENT LETTER FROM LESSEE

The Scheme of Quarrying along with Progressive Quarry Closure Plan in respect of Chendarapalli Grey Granite Quarry over an extent of 2.48.0 Hectares of Patta land in S.F.No. 380/1(Part) of Chendarapalli Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State has been prepared by

Dr. P. THANGARAJU, M.Sc., Ph.D.,
Qualified Person

I request the Commissioner, Department of Geology and Mining, Chennai to make further correspondence regarding the modification of the Scheme of quarrying with the said Qualified Person at his following address.

Dr. P. THANGARAJU, M.Sc., Ph.D.,
No.17, Advaita Ashram Road,
Alagapuram, Salem – 636 004.
Mobile: +91 94422 78601, 94433 56539.

I hereby undertake that all the modifications, if any made in the Scheme of Quarrying by the Qualified Person may be deemed to have been made with my knowledge and consent and shall be acceptable to me and binding on me in all respects.

Signature of the lessee

Mir Tahar Ali

Mir Tahar Ali

Place: Krishnagiri

Date: 01.08.2022



Mir Tahar Ali,
No.18/16, 3rd Cross Co-operative Colony,
Krishnagiri Taluk and District,
Tamil Nadu - 635 001.

DECLARATION OF MINE OWNER

The Scheme of Quarrying along with Progressive Quarry Closure Plan in respect of Chendarapalli Grey Granite Quarry over an extent of 2.48.0 Hectares of Patta land in S.F.No. 380/1(Part) of Chendarapalli Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State has been prepared in full consultation with me by

Dr. P. THANGARAJU, M.Sc., Ph.D.,
Qualified Person

I have understood its contents and agree to implement the same in accordance with Laws applicable to Mines.

Signature of the lessee

Mir Tahar Ali

Mir Tahar Ali

Place: Krishnagiri

Date: 01.08.2022



CERTIFICATE FROM THE QUALIFIED PERSON

Certified that I, **Dr. P. Thangaraju, M.Sc., Ph.D.**, having an office at No.17, Advaita Ashram Road, Alagapuram, Salem - 636 004, am a Post Graduate in Geology (Madras University) from Madras University, Chennai and I worked in the field of Geology in a role of Geologist.

Rule 15(I)(a) and (b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016 stipulates the eligibility for preparing Mining plans as "(I)(a) a degree in mining engineering or 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 prepare this Scheme of Quarrying along with Progressive Quarry Closure Plan in respect of Chendarapalli Grey Granite Quarry over an extent of 2.48.0 Hectares of Patta land in S.F.No. 380/1(Part) of Chendarapalli Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State for **Thiru. Mir Tahar Ali**, residing at No.18/16, 3rd Cross Co-operative Colony, Krishnagiri Taluk and District, Tamil Nadu - 635 001. Since the Mining Plan is prepared as per the provisions contained in Rule 15(I)(a) and (I)(b) of Minerals (Other than Atomic, Hydro Carbons Energy Minerals) Concession Rules, 2016.

Signature of the Qualified Person

Dr. P. Thangaraju, M.Sc., Ph.D.,

Place : Salem

Date : 06.08.2022



Dr. P. THANGARAJU, M.Sc., Ph.D.,
No.17, Advaltha Ashram Road,
Alagapuram,
Salem - 636 004.
Mobile: +91 94422 78601, 94433 56539.

CERTIFICATE FROM THE QUALIFIED PERSON

This is to certify that the Provisions of Granite Conservation and Development Rules, 1999 as amended in Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Scheme of Quarrying along with Progressive Quarry Closure Plan in respect of Chendarapalli Grey Granite Quarry over an extent of 2.48.0 Hectares of Patta land in S.F.No. 380/1(Part) of Chendarapalli Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State has been prepared for

Thiru. Mir Tahar Ali,
No.18/16, 3rd Cross Co-operative Colony,
Krishnagiri Taluk and District,
Tamil Nadu - 635 001.

Whenever specific permissions/exemptions/ relaxations and approvals are required, the lessee will approach the concerned authorities of Commissioner of Geology and Mining, Government of Tamil Nadu, Guindy, Chennai- 600 032 for such permissions/exemptions/ relaxations and approvals.

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

Signature of the Qualified Person


Dr. P. THANGARAJU, M.Sc., Ph.D.,

Place: Salem

Date: 06.08.2022



Dr. P. THANGARAJU, M.Sc., Ph.D.,
No.17, Advaita Ashram Road,
Alagapuram,
Salem - 636 004.
Mobile: +91 94422 78601, 94433 56539.

CERTIFICATE FROM THE QUALIFIED PERSON

Certified that the Provisions of Mines Act, Rules and Regulations made there under have been observed in the preparation of Scheme of Quarrying along with Progressive Quarry Closure Plan in respect of Chendarapalli Grey Granite Quarry over an extent of 2.48.0 Hectares of Patta land in S.F.No. 380/1(Part) of Chendarapalli Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State has been prepared for

Thiru. Mir Tahar Ali,
No.18/16, 3rd Cross Co-operative Colony,
Krishnagiri Taluk and District,
Tamil Nadu - 635 001.

Whenever specific permissions / exemptions / relaxations and approvals are required, the lessee will approach the concerned authorities of the Director of Mines Safety, No.#5, 17th Main, 100ft Road, 4th Block, Koramangaia, Bengaluru, Karnataka - 560 034 for such permissions/ exemptions /relaxations and approvals.

It is also certified that information furnished in the Scheme of Quarrying are true and correct to the best of my knowledge.

Signature of the Qualified Person

Dr. P. THANGARAJU, M.Sc., Ph.D.,

Place: Salem

Date: 06.08.2022



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SCHEME OF QUARRYING ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN FOR CHENDARAPALLI GREY GRANITE QUARRY

Lease Period = 10.12.2007 to 09.12.2027

Scheme Period = 10.12.2022 to 09.12.2027

(Prepared Under Rule 18(2) of Granite Conservation and Development Rules, 1999)

1.0 INTRODUCTION:

The present Scheme of quarrying along with Progressive Quarry Closure Plan is prepared in respect of Chendarapalli Grey Granite quarry belongs to **Thiru. Mir Tahar Ali**, residing office at No.18/16, 3rd Cross Co-operative Colony, Krishnagiri Taluk and District, Tamil Nadu - 635 001 for over an extent of 2.48.0 Hectares of Patta land in S.F.No. 380/1 (Part) of Chendarapalli Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State.

This scheme of Quarrying is prepared with a view of optimum exploitation of deposit by systematic quarrying with proper bench dimensions and safety measures, to enable the Grey Granite deposit on a long run with consistent of Grey Granite to waste ratio and with a view to maintain uniform cost of quarrying, profit margin, conservation and proper dumping of waste/rejects with minimum damage to the environment and society.

The lessee for the past one decade has vast experience in safe and systematic quarrying, Trading and export of granite blocks.

1.1 Particulars of Approval of Mining Plan and Date of Commencement of Mining Operation:

The mining plan was prepared in respect of Multi colour granite quarry and the same was approved by the Commissioner, Department of Geology and Mining, Guindy, Chennai vide **letter No.2046/MMS/2007 dated 10.10.2007** (Annexure No. VIII).

The quarry lease was granted vide **G.O. 3(D) No.79, Industries (MME.2) Department Dated: 25.10.2007** for a period of twenty years (Refer Annexure No. I). The quarry lease deed has **executed on 10.12.2007** and the lease period is **valid upto 09.12.2027** (Annexure No. IX).

The First Scheme of Mining Plan was prepared and submitted for the period of 2012-13 and 2016-17 (Five years).

The Second Scheme of Mining Plan was prepared and submitted to the Director, Department of Geology and Mining, Chennai for the period of 2017-18 and 2021-22 (Five years)

Now, the third scheme of quarrying is prepared and submitted to obtain approval for the period of **2022-23 to 2026-27 (Five years)**.

1.2 Detail of lease particulars are given as under:

Table - 1

GO. No.	Extent (Ha.)	Date of Execution	Lease Period	Valid upto
G.O.(3D) No.79 Dated: 25.10.2007	2.48.0	10.12.2007	20 Years	09.12.2027

1.3 Proposed and achieved Production particulars for Mining Plan period is given table below:

Table - 2

Year	Proposed			Achieved		
	ROM (m ³)	Recovery in %	Production (m ³)	Production (m ³)	Despatch (m ³)	Stock (m ³)
Approved Mining Plan						
2007 - 08	500	10	50	125.268	51.288	73.980
2008 - 09	1000	10	100	1631.536	1641.536	63.980
2009 - 10	1000	10	100	1140.526	1140.585	63.921
2010 - 11	1000	10	100	922.855	924.854	61.922
2011 - 12	1000	10	100	1397.265	1327.275	131.912
Total	4500	10	450	5217.450	5085.538	131.921
1st Scheme of Quarrying						
2012 - 13	1000	20	200	1189.503	989.503	331.912
2013 - 14	1000	20	200	2865.106	2865.107	331.911
2014 - 15	1000	20	200	2445.832	2445.832	331.911
2015 - 16	1000	20	200	2904.01	2904.92	331.001
2016 - 17	1000	20	200	1547.478	1447.478	431.001
Total	5000	20	1000	10951.929	10652.840	431.001
2nd Scheme of Quarrying						
2017 - 18	14615	20	2923	Awaiting for environmental clearance - Maintenance		
2018 - 19	15015	20	3003			
2019 - 20	14580	20	2916			
2020 - 21	14945	20	2989			
2021 - 22	14555	20	2911			
Total	73710	20	14742	-	-	-
Grand Total	83210		16192	16169.379	15738.378	431.001

The recovery anticipated @ 10 to 20% but achieved an average recovery of 10% due to weathered joints, fractures and fissures of the top layer of the granite formation. As per the proposal given in the mining plan and scheme of mining plan the considerable quantity of production was enhanced due to market demand for grey granite dimensional blocks. There are about 72 blocks undressed which may have a gross measurement of 431.001m³. These blocks when being approved by the buyer's overseas, the same will be dressed into desired dimensions size and will be despatch for sale, if any defect found during buyer's overseas it can be considered as waste.

1.4.0 REVIEW OF MINING PLAN:

1.4.1 Name of the Quarry :	Chendarapalli Grey Granite Quarry
Name of Lessee :	Thiru. Mir Tahar Ali,
Address :	No.18/16,3 rd Cross Co-operative colony, Krishnagin Taluk and District,
State :	Tamil Nadu,
PIN Code :	635 001
E-mail :	msexports.2211@gmail.com
Mobile :	+91 84895 47086 and 93442 23717.

1.4.2 REVIEW OF COMPLIANCE POSITION OF SALIENT FEATURES OF MINING PLAN:

All the condition stipulated in the G.O. and lease deed was maintained and mitigated during the course of quarrying operations.

1.5.0 REVIEW OF IMPORTANT CHAPTERS OF PREVIOUS SCHEME:**1.5.1 EXPLORATION:**

The Geological Survey of India and Department of Geology and Mining have already carried out mapping by the well experienced geologists.

No detailed prospecting was carried out by any agencies. The applicant had selected the area by outcrop observation. The RQP and his team members made a detailed geological study of the area and clearly demarcated the Grey granite deposit with a mine surveyor. The granite formation is clearly visible from the existing pit.

Even though the depth persistence of the Grey Granite stone may be beyond 33m depth from the Petrogenetic character of the rock, only 33m (Topsoil 3m + Grey Granite 30m) depth persistent has been taken as economically viable depth to calculate categories of proved, probable, and possible reserves during the previous scheme period.

The recovery of saleable Grey Granite stones has been taken as 20% and if the recovery percentage is good the recovery may increase or bad it may decrease.

Based on the valuable geological information from these organizations estimation of geological resources and mineable reserves was arrived at considering the waste and market potentiality. Hence, program for future exploration didn't propose during the scheme period.

1.5.2 MINE DEVELOPMENT

The quarry development and production has proposed in the previous scheme of quarrying and actual production is given table below. During the previous scheme period the quarry development and production has proposed on the western side and progressed towards eastern side with total dimensions of (L) 58m x (W) 100m x (Depth) 23m. The production details for the previous scheme of quarrying period are given as under.

PROPOSAL GIVEN THE PREVIOUS SCHEME:

Table - 3

Year	Proposed			Achieved		
	ROM (m ³)	Recovery in %	Production (m ³)	Production (m ³)	Despatch (m ³)	Stock (m ³)
Approved Mining Plan						
2007 - 08	500	10	50	125.268	51.288	73.980
2008 - 09	1000	10	100	1631.536	1641.536	63.980
2009 - 10	1000	10	100	1140.526	1140.585	63.921
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2011 - 12	1000	10	100	1397.265	1327.275	131.912
Total	4500	10	450	5217.450	5085.538	131.921
1st Scheme of Quarrying						
2012 - 13	1000	20	200	1189.503	989.503	331.912
2013 - 14	1000	20	200	2865.106	2865.107	331.911
2014 - 15	1000	20	200	2445.832	2445.832	331.911
2015 - 16	1000	20	200	2904.01	2904.92	331.001
2016 - 17	1000	20	200	1547.478	1447.478	431.001
Total	5000	20	1000	10951.929	10652.840	431.001
2nd Scheme of Quarrying						
2017 - 18	14615	20	2923	Awaiting for environmental clearance - Maintenance		
2018 - 19	15015	20	3003			
2019 - 20	14580	20	2916			
2020 - 21	14945	20	2989			
2021 - 22	14555	20	2911			
Total	73710	20	14742	-	-	-
Grand Total	83210		16192	16169.379	15738.378	431.001

The proposed recovery was @ 10 to 20%, but achieved an average recovery of 10%. The lessee has proposed new innovative machineries and equipment with technically highly qualified personnel for improving the recovery percentage. During the previous scheme period the lessee didn't carried out quarry operations due to need of Environmental Clearance and market recession. Generally the top layer of the granite formation is having more weathered joints and fractures. The quarry operation was carried out in the top benches were more fissures and fractures are found. In deep seated conditions the fissures and fractures got much reduced, which may enhance the recovery percentage due to absence of weathered joints and fractures of the deep seated granite formation. At present the lessee has fully developed the lease area and proposed to work in the sheet rock, the sheet rock is having good recovery due to very hard and massive in the area.

Hence, we have considered an average recovery of 20% during the present scheme period, it may enhance. The lessee invested a huge amount and carried out continuously the developing work to find out the potential area for economical quarrying.

Due to need of Environmental Clearance and market recession, the lessee has suspended only production of granite but he has carried out other activity like development works, Waste management, Construction of Garland drain and maintain the garland drain after every monsoon, Bund formation and Green belt development during the previous scheme period.

In the interest of quarrying, the lessee worked out continuously and tried his maximum effort to market. The lessee was keen in carrying out the quarrying operations in a scientific and systematic manner to win the Grey Granite in all possible means.

1.5.3 REVIEW OF MINING DEVELOPMENT:

During the previous scheme period the quarry development and production has proposed on the western side and progressed towards eastern side with total dimensions of (L) 58m x (W) 100m x (Depth) 23m but, the lessee didn't carried out the quarry operation during the previous scheme period. At present there are eleven different depths of pits exists within the lease area. The maximum dimensions of the present pits are given table below (Please refer Plate No. III).

Table - 4

Existing Quarry Pit - Dimensions						
Depth Nos	Existing R.L.	Pit R.L.	Area in Sq.m	Total Depth (m)	Depth (m)	
					Topsoil	Granite
D-1	486	484	2313	2	2	-
D-2	486	483	3138	3	3	-
D-3	486	482	601	4	3	1
D-4	486	480	1219	6	3	3
D-5	486	478	1779	8	3	5
D-6	486	478	2012	8	3	5
D-7	486	478	3417	8	3	5
D-8	486	470	1535	16	3	13
D-9	486	465	1205	21	3	18
D-10	486	463	2349	23	3	20
D-11	486	458	1648	28	3	25

Table - 5

Depth Nos	Existing R.L.	Pit R.L.	Area in Sq.m	Total Depth (m)	Depth (m)		Volume (m ³)		Total Excavation (m ³)
					Pit wise excavated Volume		Topsoil	Granite	
					Topsoil	Granite			
D-1	486	484	2313	2	-	4626	-	4626	
D-2	486	483	3138	3	-	9414	-	9414	
D-3	486	482	601	4	1	1803	601	2404	
D-4	486	480	1219	6	3	3657	3657	7314	
D-5	486	478	1779	8	3	5337	8895	14232	
D-6	486	478	2012	8	3	6036	10060	16096	
D-7	486	478	3417	8	3	10251	17085	27336	
D-8	486	470	1535	16	3	4605	19955	24560	
D-9	486	465	1205	21	3	3615	21690	25305	
D-10	486	463	2349	23	3	7047	46980	54027	
D-11	486	458	1648	28	3	4944	41200	46144	
Total							61335	170123	231458

Table - 6

Excavation Details						
Total Excavation (m ³)	Despatch (m ³)	Stock (m ³)	Topsoil Bund 6018m ² x 5m(H) (m ³)	Granite Waste & Top soil Dump-I 3033m ² x 5m(H) (m ³)	Granite Waste Dump-II 1269m ² x 5m(H) (m ³)	Topsoil and Waste fragmentation and utilized for Leveling, Road and Ramp formation (m ³)
231458	15738.378	431.001	30,090.0	1,09,279.0	41,915.1	34,004.561

The lessee has much conservation of the Grey granite, invested a huge amount and his resources to win the Grey granite from the lease area. The lessee has carried out all possible ways and best effort to develop and exploit the Grey granite consistently.

1.6.0 AFFORESTATION PROGRAMME:

Program of Green belt as given in the previous scheme period is given as under. The safety zone along the Southern side boundary barrier has been utilized for Green belt development.

Proposal as given in the Previous Scheme of quarrying:

Table - 7.

Year	No. of trees proposed to be planted	Name of the species	Area in m ²	Proposed		Achieved	
				Survival rate expected in %	No. of trees expected to be grown	Survival rate in %	No of trees Grown
2016 - 17	30	Neem, Mango, Pongamia Pinnata, Casuarina, Tamarind, etc.,	310	80	24	10	3
2017 - 18	30		310	80	24	10	3
2018 - 19	30		310	80	24	10	3
2019 - 20	30		310	80	24	10	3
2020 - 21	30		310	80	24	10	3

Nearly 1550m² area is proposed for Green belt development with 150 numbers of Neem tree sapling around the quarry and the survival was 80 trees mentioned during the previous scheme period, but survival of trees are 15 Nos @ 10%. The tree sapling carried out during the plan period is affected by the failure of monsoon and water scarcity. Anyhow, the lessee ensures to compensate the Green belt during the present scheme period.

1.7. LAND RECLAMATION AND REHABILITATION:

Due to nature of occurrence of the granite body in this quarry is beyond the workable limit. During the previous scheme period the quantum of waste is proposed about 58,968m³ the same has proposed to dump on the southern side with maximum dimension of (L) 144m x (W) 31m x (H) 13.2m and excavated topsoil was proposed to preserved all along the safety barrier and utilized for construction of bund and Green belt development purpose. But, the lessee didn't carried out any quarry operation, hence there is no waste generated during previous scheme period. At present there is an existing granite waste and Top soil dump - I situated on the Southern side with maximum dimension of (Area) 3033m² x (H)36.03m, existing granite waste dump - II situated on the Southern side with maximum dimension of (Area) 1269m² x (H)33.03m and topsoil bund situated on the around safety area with dimension of (Area)6018m² x (H)5m. Remaining waste was utilized for ramp and road purpose.(Refer Plate No. III).

During the previous scheme period of 33m depth has been envisaged as workable depth for safe and systematic quarrying operations. During the present scheme period 33m (3m Topsoil + 30m Grey granite) depth has been considered an economically safe and scientific quarrying at present market scenario. Now the quarry attained a maximum depth of 28m below from the existing ground profile. The entire quarry area is an active hence, immediate backfilling does not arise. When the quarry reaches the ultimate pit limit or at the end of life of quarry, quarried out waste will be proposed to backfilled.

1.8 CONTROL OF DUST, NOISE AND VIBRATION:

The quarrying operation was carried out by mechanized means HEMM were deployed. Hence, the effects due to dust, noise and vibration were minimal and well within the prescribed limits during the course of quarry operation besides the Ambient quality of Air. In respect of dust concentration, respirable dust, SO₂, NO₂ were tested periodically for every season around 1km radius for core and buffer zones as per the guidance of TNPCB. The dust prone areas of the quarry are Drilling site, Loading, Hauling and dumping. All such areas were closely monitored as per the guidelines.

The quarry operation has carried out by mechanized method with small dia drilling with mild blasting. Dressing carried out manually with portable compressor and Jack Hammers. Hence, the effects due to dust (only development and bench formation), noise and vibration were minimal.

NOISE:

The ambient Noise Level ranges must be <80dB. As the compressors are, kept at high levels, the impact of noise to the workers is less. Expanding Chemical used for cracking the rough blocks and therefore noise was minimal.

VIBRATION:

Blasting induced ground vibration is the only source of vibration in Mining area. Since chemicals @ 1kg for 3 feet being used for 8 hours retention time for cracking the solid rock along the line of drilling. Minimal vibration has observed in this quarry.

1.9.0 SIGNIFICANT FEATURES:

Being the lessee who is much concerned above the environment, the he closely monitored the environmental factors systematically without degrading the land, water and air. Related tests carried out to show the actual performance of mine on environmental issues which would be complying in the present scheme period.

PART - I**2.0 PROPOSAL UNDER SCHEME OF QUARRYING FOR THE NEXT FIVE YEARS:****2.1 NAME OF THE APPLICANT WITH ADDRESS:**

Name of the Lessee	:	Thiru. Mir Tahar Ali,
Address	:	No.18/16, 3 rd Cross Co-operative colony, Krishnagiri Taluk and District,
State	:	Tamil Nadu.
PIN Code	:	635 001
E-mail	:	msexports.2211@gmail.com
Mobile	:	+91 84895 47086 and 93442 23717
Aadhaar No.	:	2541 6898 6285 (Refer Annexure No. XI)



2.2 NAME AND ADDRESS OF THE QUALIFIED PERSON WHO PREPARED THE SCHEME OF QUARRYING:

Name : Dr. P. THANGARAJU, M.Sc., Ph.D.,
Qualified Person (As per Rule 15(1)(a) and (b) of MCR 2016)

Address : No.17, Advaittha Ashram Road,
Alagapuram,
Salem District,
Tamil Nadu - 636004.

Tele phone No. : 0427- 2431989

Mobile : +91 94422 78601, 94433 56539.

E-mail id : infogeoexploration@gmail.com

(Refer Annexure Nos: XII and XIII)

2.3 DETAIL OF LEASE PARTICULARS ARE GIVEN AS UNDER

Table - 8

GO. No.	Extent (Ha.)	Date of Execution	Lease Period	Valid upto
G.O.(3D) No.79 Dated: 25.10.2007	2.48.0	10.12.2007	20 Years	09.12.2027

The quarry lease was granted vide G.O.(3D)No.79, Industries (MME.2) Department Dated 25.10.2007 for a period of 20 years. The quarry lease has executed on 10.12.2007 and the lease period is valid upto 09.12.2027.

2.4 DETAILS OF THE AREA

- The area is marked in the Geological Survey of India, Topo sheet No. 57-L/07.
- The details of the land covered by the area is given below
- There is no change in the extent as mentioned in the approved mining plan.

Table - 9

District & State	Taluk	Village	S.F.No.	Area in Ha.	Patta No.	Classification
Krishnagiri and Tamil Nadu	Bargur	Chendarapalli	380/1(P)	2.48.0	2338	Patta land

The area lies between the Latitudes 12°29'15.49"N to 12°29'23.98"N and Longitudes of 78°18'17.37"E to 78°18'24.15"E on WGS datum-1984. (Plate No. I & II).

The lease area is a patta Land registered in the name of Thiru. Mir Mazahar Ali and Thiru. Mir Mohammed Fareed Ali vide patta No. 2338 (Refer Annexure Nos. IV to VI). The lessee has obtained consent from the pattadars for the period of 25 years (Refer Annexure No. VII).

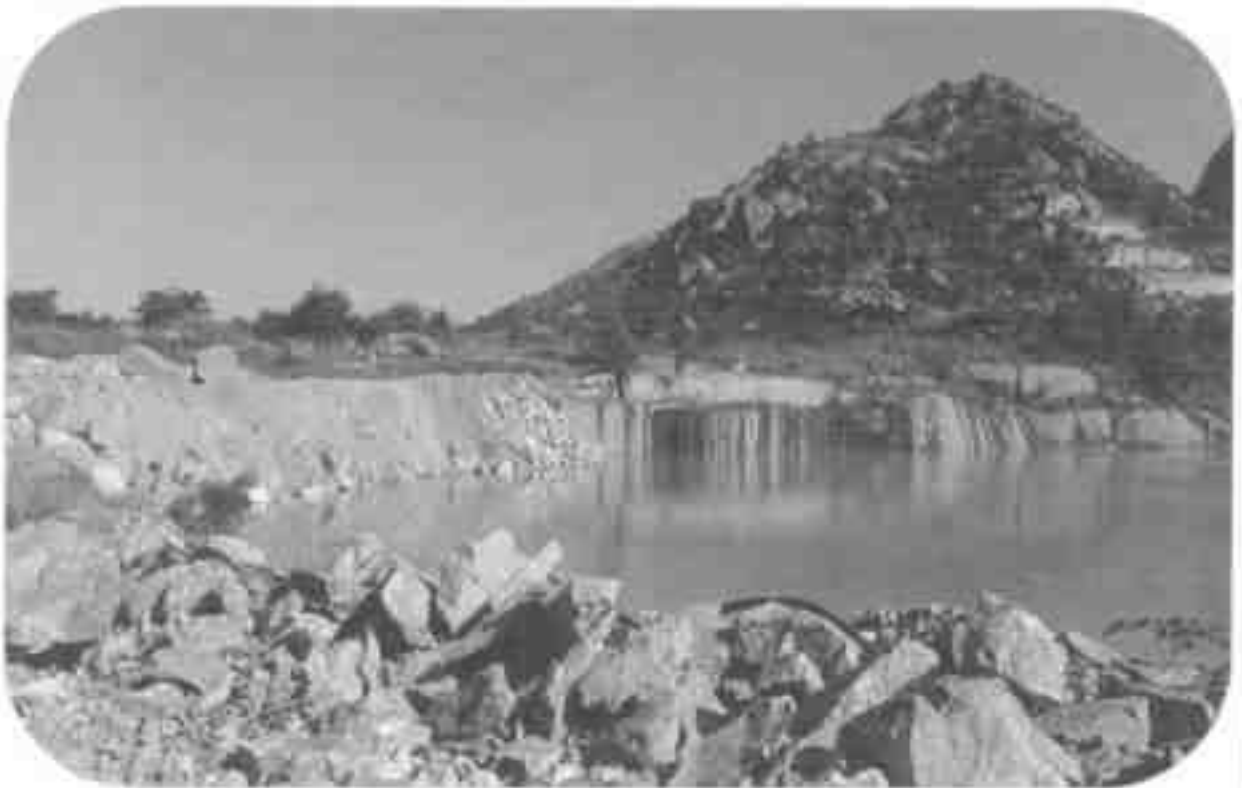
3.0 EXPLORATION AND RESERVES

3.1. Physiography

The area exhibits almost flat terrain and the gradient is gentle towards Northwest. The altitude of the area is 486m above from MSL. The Grey granite is medium to coarse grained with Alkali feldspar and Quartz are the major constituents and Garnet, Biotite, Hornblende and other mafic minerals area accessories. There are few Neem, Mango, Coconut Tree, Grass and Shrubs observed around the area.

Topographical view of Chendarapalli Grey Granite Quarry Lease Area





3.2 REGIONAL GEOLOGY & GEOLOGICAL SUCCESSION

3.2.1 Regional Geology

The Grey Granite is medium to coarse grained with feldspar and quartz is major constituents and garnet and other mafic minerals are accessories. The petrological settings of the area are simple and not a complicated phenomena. There are no major minerals observed in the vicinity of the proposed quarry. A brief description of the regional Geology is discussed below.

This area forms a part of peninsular gneiss the most wide spread group of rocks in many parts of Tamil Nadu. The southern domain of Tamil Nadu is characterized by the khondalite group of rocks (with subordinate amounts of Charnockite) and marked by the absence of BMQ and dolerite dyke systems. The most common varieties of granite are pink, grey and Multi-Coloured ones. In the granites feldspar forms about 50%, quartz a little less and the rest accounted for by amphiboles and pyroxenes. This type occurs in the form of large massive bodies (Batholiths, laccoliths) spreading over hundreds of square kilometers exhibiting variation in colour and texture. Other types occur as lenses and bands within the gneisses and other metamorphic rocks. In these cases, the molten magma of granite has been emplaced into the earlier rocks as narrow, small bodies and partly interacting.

Anorthosites, syenites, porphyries and like that generally considered along with the Grey granites. In these rocks quartz is nearly absent when hornblende or biotite abundant, the rock may be dark green or almost black.

The northern part of Tamil Nadu, north of Noyil – Cauvery River is characterized by the occurrences of a number of Dolerite dykes in contrast to the areas south of Noyil – Cauvery River where the dykes are absent. The dolerite dykes in general trending is in WNW- ESE and NNE – SSE directions and rarely in N-S and NNW – SSE directions.

In central part of Tamil Nadu, ENE – WNW to NE- SW trending dolerite dykes (Black granite) are seen transecting the Charnockite in Kalrayan & Kollu Hills. Palaeo magnetic studies of some of these dykes indicate Mid-Proterozoic age.

Granites were formed from molten rock referred to as "Magma" formed at great depths within the crust of the earth. Such rocks that were formed at great depths during the Archaean age are now exposed at the surface of the earth as a result of the combined actions of wind, air, sun and water and weathering and denudation over the past several million years.

3.2.2 Geology of the area

The Krishnagiri district is underlain by hard Crystalline rocks of Archaean age comprising of various rock types such as Gneiss, Charnockite, etc.,. The Gneissic type of Crystalline formation is found in the North and North Eastern part of the District Shoolagiri, Hosur, Mattur and Soolamalal areas covered by Granitic Gneiss (Migmatite).

The Late Archaean crust of Krishnagiri, Tamil Nadu, consists of tonalitic-trondhjemitic-granodioritic (TTG) gneisses with mafic and sedimentary enclaves, formed between 2.7 and 2.5 Ga and metamorphosed at amphibolite facies in the north to granulite facies in the south close to 2.5 Ga. Migmatization occurred at all grades, and numerous small granite bodies were emplaced near the amphibolite-to-granulite facies horizon. This nearly syn-accretion meta-morphism affected the entire crust and left a chemically differentiated section later exposed by uplift and erosion.

Such rocks that were formed at great depths during the Archaean age are now exposed at the surface of the earth as a result of the combined actions of wind, air, sun, water, weathering and denudation over the past several million years.

The Grey granite has the characteristic pink rythmatic banding by which it can be identified even from a distance. These are seen to the central part and the SE part of the district, more specifically in Rayakottai, Kaveripattinam, Jagadevi and Velampatti. These dimensional blocks are quarried to make a polished stone, slabs, monuments etc.,

The Granite gneiss is leucocratic, euhedral, medium to coarse grained, equigranular and well developed gneissic banding of alternate layers of light and dark colour minerals are the speciality of this area which denotes the indicative of flow pattern of the rock mass in N15°E - S15°W (i.e., the cutting direction of the Grey granite). The colour of the rock is pale pink - pale grey as observed on the surface level, the pink colour may decreased in deep seated condition. The pale pink and grey colour which may find a good market for granite dimensional stones. The lease applied area comprises Granitic gneiss and popularly termed as "**Paradiso**".

Structural settings of Krishnagiri:

The general geological sequence of the rock types in the lease area is:-

ROCK TYPE	-	AGE
↑ Topsoil	-	Pleistocene to Recent
----- Unconformity -----		
Pegmatite and Quartz veins, Dolerites	}	Archaean to Proterozoic
Migmatite Complex	}	
Charnockite group	}	
Peninsular Gneissic Complex-I	-	

The Physical attitude of the Grey Granite deposit of this area is given below:-

Strike Direction	-	N15°E - S15°W
Dip amount and direction	-	80°NW



3.3 DETAILS OF EXPLORATION

3.3.1. ALREADY CARRIED OUT

As far as Grey Granite deposits are concerned, the only practical method is the systematic geological mapping and delineation of commercial Grey Granite bodies within the field and careful evaluation of body luster, physical properties, engineering properties, commercial aspects etc.

Such an exploration study has already been conducted in this area during the course of quarrying operations.

Based on the valuable geological information and by the field experience and the quarry already attained a maximum depth of 28m below from the existing ground profile, the estimation of geological resources and mineable reserves are arrived at considering to waste and market potential.

3.3.2. PROPOSED STUDY TO BE CARRIED OUT

Even though the depth persistence of the Grey Granite stone may be beyond 33m from the Petrogenetic character of the rock, only 33m (3m Topsoil + 30m Grey Granite) depth persistent has been taken as economically viable depth to calculate categories of proved, probable and possible reserves.

The recovery of saleable Grey Granite stones has been taken as about 20% and if the recovery percentage is good, it may enhance.

The commercial granite body is clearly exposed from the outcrops and existing quarry pit, hence no definite programs for future exploration have been drawn. The quarrying activities for the proposed scheme period with deep cut as envisaged in the scheme of quarrying may render additional data as may be required for future planning.

3.4 METHOD OF ESTIMATION OF RESERVES:

The geological plan demarcating the commercially viable Grey granite body has been prepared in 1:1000 scale (Plate No. IV). Totally six sections have been drawn, two cross sections along the strike direction as (X-Y & X1-Y1) length wise and other four cross sections are drawn perpendicular to strike as (A-B, C-D, E-F and G-H) width wise which is suitably chosen to cover the maximum area in the scale of 1:1000 and Hor : 1: 500 (Plate No. IV).

The cross section area for the proved depth persistence of Grey Granite has been worked out for each section. The cross section area multiplied by its length of influence on the longer axis gives the volume (insitu) in the cross sectional area. The sum total of the insitu reserves available within the individual cross sectional area gives the Geological Resources of the lease area. The Grey Granite recovery percentage has been enhanced upto 20% in the present scheme of quarrying period may decrease of joints and fractures in deeper level. High efficient technology machineries, quarry masters, Market demand significantly determine the recovery percentage of granite quarries. The estimated recovery is based on today market scenario and the same recovery has been considered as normative recovery.

When the market demands, the lessee may take necessary steps to deploy a quarry masters with latest innovative machineries technology. So the recovery enhancement may raise to the peak production resulting in 80%. During the operation the method of quarry, deployment of men and machineries will not have any negative impact on the Environment. It is worthening the recovery anticipate the normative production has been scientifically converted into commercial production resulting in the decrease dump of waste inside the quarry. Due to the micro fractures, flaws, patches, xenoliths, required dimension, dressing, etc., the recovery in the granite could not be 100% of the R.O.M.

From the total Geological insitu Reserves, the quantity of saleable Grey Granite stones and quantity of Grey Granite rejects and waste generation are computed by applying recovery factor as 20% by its volume upto 33m depth.

As the salable Grey Granite stone are in terms of cubic meters (Volume) only and not in terms of tonnage as in the case of major industrial mineral, the geological resources, mineable reserves and quantum of waste generated etc, are given only in terms of cubic meters.

The details of estimation of geological resources and mineable reserves with reference to the geological plan & cross section and Conceptual Plan & Section as shown in (Plate No. IV & IX).

3.5 GEOLOGICAL RESOURCES AND GRADE (REASSESSED ON 06.08.2022):

Maximum Length : 189m

Maximum Width : 157m

Maximum Depth : 33m

Table - 10

Geological Resources								
Section	Bench	Length (m)	Width (m)	Depth (m)	ROM (m ³)	Recovery @ 20% (m ³)	Granite Waste @ 80% (m ³)	Topsoil (m ³)
XY-AB	i	8	15.5	2	-	-	-	248.0
	i	16	103	1	-	-	-	1648.0
	ii	16	103	5	8240.0	1648.0	6592.0	-
	iii	66	123	5	40590.0	8118.0	32472.0	-
	iv	66	123	5	40590.0	8118.0	32472.0	-
	v	66	123	5	40590.0	8118.0	32472.0	-
	vi	66	123	5	40590.0	8118.0	32472.0	-
	vii	85	123	5	52275.0	10455.0	41820.0	-
Total					222875.0	44575.0	178300.0	1896.0
XY-CD	i	50	7.5	3	-	-	-	1125.0
	ii	50	15.5	5	3875.0	775.0	3100.0	-
	iii	50	15.5	5	3875.0	775.0	3100.0	-
	iv	50	15.5	5	3875.0	775.0	3100.0	-
	v	50	15.5	5	3875.0	775.0	3100.0	-
	vi	50	70	5	17500.0	3500.0	14000.0	-
	vii	50	70	5	17500.0	3500.0	14000.0	-
	Total					50500.0	10100.0	40400.0

Scheme of Quarrying and PQCP

Chendarapalli Grey Granite Quarry

XY-EF	i	11	22	3	-	-	-	726.0
	ii	11	22	5	1210.0	242.0	968.0	-
	iii	30	66	5	9900.0	1980.0	7920.0	-
	iv	30	66	5	9900.0	1980.0	7920.0	-
	v	30	66	3	5940.0	1188.0	4752.0	-
	vi	46	66	2	6072.0	1214.4	4857.6	-
	vii	46	66	5	15180.0	3036.0	12144.0	-
	Total				63382.0	12676.4	50705.6	726.0
X1Y1-CD	i	17	7.6	2	-	-	-	258.4
	i	87	18.6	1	-	-	-	1618.2
	ii	102	37	5	18870.0	3774.0	15096.0	-
	iii	102	64	5	32640.0	6528.0	26112.0	-
	iv	102	64	3	19584.0	3916.8	15667.2	-
	iv	102	87	2	17748.0	3549.6	14198.4	-
	v	102	87	5	44370.0	8874.0	35496.0	-
	vi	102	87	5	44370.0	8874.0	35496.0	-
	vii	102	87	5	44370.0	8874.0	35496.0	-
Total				221952.0	44390.4	177561.6	1876.6	
X1Y1-EF	i	44	7.5	3	-	-	-	990.0
	ii	44	37.6	3	4963.2	992.6	3970.6	-
	ii	44	65.6	2	5772.8	1154.6	4618.2	-
	iii	44	66	5	14520.0	2904.0	11616.0	-
	iv	44	66	5	14520.0	2904.0	11616.0	-
	v	44	66	5	14520.0	2904.0	11616.0	-
	vi	44	66	5	14520.0	2904.0	11616.0	-
	vii	44	66	5	14520.0	2904.0	11616.0	-
Total				83336.0	16667.2	66668.8	990.0	
X1Y1-GH	i	43	62	3	-	-	-	7998.0
	ii	43	62	5	13330.0	2666.0	10664.0	-
	iii	43	62	5	13330.0	2666.0	10664.0	-
	iv	43	62	5	13330.0	2666.0	10664.0	-
	v	43	62	5	13330.0	2666.0	10664.0	-
	vi	43	62	5	13330.0	2666.0	10664.0	-
	vii	43	62	5	13330.0	2666.0	10664.0	-
	Total				79980.0	15996.0	63984.0	7998.0
Grand Total				722025.0	144405.0	577620.0	14611.6	

Total available Geological Resources in ROM = 7,22,025m³

Total Recoverable Reserves @ 20% = 1,44,405m³

Granite Waste @ 80% = 5,77,620m³

Topsoil = 14,611.6m³

Granite : Waste ratio = 1 : 4

The Geological resources computed based on the geological cross sections upto the economically workable depth of 33m below from the existing ground profile at the rate of 20% recovery yields 1,44,405m³ and 7,22,025m³ of ROM. *The total geological resources has been calculated after depleted the existing quarry pit.

3.6 MINEABLE RESERVES: (REASSESSED ON 06.08.2022)

Maximum Length : 162m

Maximum Width : 137m

Maximum Depth : 33m

Table - 11



Mineable Reserve								
Section	Bench	Length (m)	Width (m)	Depth (m)	ROM (m ³)	Recovery @ 20% (m ³)	Granite Waste @ 80% (m ³)	Topsoil (m ³)
XY-AB	i	8	85	1	-	-	-	680
	ii	8	81	5	3240	648	2592	-
	iii	58	91	5	26390	5278	21112	-
	iv	58	81	5	23490	4698	18792	-
	v	58	71	5	20590	4118	16472	-
	vi	58	61	5	17690	3538	14152	-
	vii	72	51	5	18360	3672	14688	-
	Total					109760	21952	87808
XY-CD	vi	50	50	5	12500	2500	10000	-
	vii	50	45	5	11250	2250	9000	-
	Total					23750	4750	19000
XY-EF	iii	14	39	5	2730	546	2184	-
	iv	9	34	5	1530	306	1224	-
	v	4	29	3	348	70	278	-
	vi	20	29	2	1160	232	928	-
	vii	15	24	5	1800	360	1440	-
	viii	10	19	5	950	190	760	-
	Total					8518	1704	6814
X1Y1-CD	i	67	11	1	-	-	-	737
	ii	79	26	5	10270	2054	8216	-
	iii	74	47	5	17390	3478	13912	-
	iv	69	42	3	8594	1739	6955	-
	v	69	65	2	8970	1794	7176	-
	vi	64	60	5	19200	3840	15360	-
	vii	59	55	5	16225	3245	12980	-
	viii	54	50	5	13500	2700	10800	-
Total					94249	18850	75399	737
X1Y1-EF	ii	44	25	3	3300	660	2640	-
	iii	44	53	2	4664	933	3731	-
	iv	44	49	5	10780	2156	8624	-
	v	44	44	5	9680	1936	7744	-
	vi	44	39	5	8580	1716	6864	-
	vii	39	34	5	6630	1326	5304	-
	viii	34	29	5	4930	986	3944	-
Total					48564	9713	38851	
X1Y1-GH	i	32	38	3	-	-	-	3648
	ii	27	29	5	3915	783	3132	-
	iii	22	19	5	2090	418	1672	-
	iv	17	9	5	765	153	612	-
Total					6770	1354	5416	3648
Grand Total					291611	58323	233288	5065

Total available Mineable Reserves in ROM	=	2,91,611m ³
Total Recoverable Reserves @ 20%	=	58,323m ³
Granite Waste @ 80%	=	2,33,288m ³
Topsoil	=	5,065m ³
Granite : Waste ratio	=	1 : 4



The Mineable reserves have been computed as 58,323m³ at the rate of 20% recovery and 2,91,611m³ of ROM. The mineable reserves are calculated after leaving the mineral locked up area under safety barrier, bench loss and existing quarry pit. Hence the remaining area is taken for calculation of mineable reserves. Proved reserves are considered upto 33m depth below from the existing ground profile.

The Grey granite body occurring in this area exhibits more or less uniform colour and texture. If any variation occurs during mining, such as cracks, joints, patches, colour variations etc., the defective area will be avoided. The formation is uniform and no gradational change is noticed except some shears, cracks and slender pegmatite veins.

4.0 CONCEPTUAL MINING PLAN:

Conceptual Mining plan is prepared with an object of long-term systematic development of benches, lay outs, selection of permanent ultimate pit limit, depth of Mining and ultimate pit, 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. The ultimate pit dimensions of the quarry are given below.

Table - 12

Ultimate Pit Dimensions (Maximum)		
Length (m)	Width (m)	Depth(m)
215	142	33

However, during extraction of blocks each bench will be of 5m height & width, vertical slope for proper dimensional cutting. The quantum of excavation is estimated to be 2,96,676m³ (ROM 2,91,611m³ + Topsoil 5,065m³) to a depth of 33m below from the existing ground profile. The generation of total waste is expected about 2,33,288m³ and marketable Grey Granite as 58,323m³ for remaining lease period.

During this scheme period, excavated waste (58,968m³) will be proposed to dump over the existing waste and Topsoil dump - I situated on the Southern side with dimension of (area)3033m² x (H)49m, and the existing waste dump - II situated on the southern side with dimensions of (area) 1269m² x (H) 48.5m, which will act as temporary waste dump. When the quarry reaches its ultimate pit limit or after expiry of lease period if the mineral reserves available and Market persist, the lessee may apply a renewal of quarry lease as to develop and conserve mineral reserves. If permission is granted for removal of waste (Existing Granite Waste and proposed Granite waste for remaining lease period) from concerned authorities, the waste material will be supplied to the needy crusher for convert to the M-Sand, building and road construction material after paying the seniorage fee and obtained necessary clearance

and approval from concerned department for handling the waste. After obtained permission for disposal of waste, the remaining unsold overburden (Topsoil and weathered rock) only utilized for backfilling. When the entire mineral reserves will be completely exhausted if permission obtained for disposal of waste the quarried out pit will be allowed to collect seepage and rain water which will act as a temporary reservoir, if permission not obtained for handling of waste from the concerned authority, backfilling (Granite Waste and weathered rock) will be carried out nearly existing ground profile and spread out the preserved topsoil to facilitate afforestation in the backfilled area.

The quarry area will be fenced with barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle. (Please refer plate No. IX).

5.0 MINING

No change in the method of Mining. The same open cast mechanized Mining with 5m vertical bench with a bench width of 5m has been followed.

Under the regulation 106 (2) (b) of the Metallurgical Mines Regulation 1961, in all open cast Mining, the bench height should not exceed 5m and bench width should not be less than bench height. The slope of the bench should not exceed 60° from horizontal.

But as far as the Mining of granite dimensional stones are concerned, observance of the provisions of Regulation 106(2) (b) is available with Director General of Mines Safety. If the applicant/lessee intends to modify the dimensions of benches, relaxation and permission are available with Director General of Mines Safety under 106 (2) (b) of Metalliferous Mines Regulations, 1961. 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. This relaxation will be applied and obtained after the execution of lease/Commencement of quarry operation.

The production of grey Granite dimensional stone in this quarry involves the following method typical for Grey granite stone mining in contrast to other major mineral mining.

Splitting of rock mass of considerable volume from the parent sheet rock is carefully removed by avoiding any kind of damage in the form of cracks adopting the method of diamond wire cutting along the horizontal as well as two vertical sides along the width direction and the third vertical face behind the front face.

This liberation of huge volume of granite body from the parent sheet rock is called primary cutting. The Blocks splitted above are toppled and removed from the pit to the dressing yard, by using Excavator.

Removing the defective portion and dressing into the dimensional blocks are done manually using feather, wedges, and chiseling respectively by the labours that are skilled in this work.

The defect free, dimensional stone of different sizes is marketed in domestic and international market by the well experienced marketing personals of the lessee.

The waste material generated during quarry activity includes rock fragments of different sizes and waste chips during dressing of the blocks.

The excavated waste materials are proposed to dump in the respective places earmarked for the purpose (Refer Plate No. VI).

**5.1 YEAR WISE DEVELOPMENT AND PRODUCTION FOR THE NEXT FIVE YEARS:**

Total Length : 58m
 Maximum Width : 100m
 Maximum Depth : 23m

Table - 13

Yearwise Reserve										
Section	Year	Bench	Length (m)	Width (m)	Depth (m)	ROM (m ³)	Recovery @ 20% (m ³)	Granite Waste @ 80% (m ³)	Topsoil (m ³)	
XY-AB	10.12.2022 to 09.12.2023	i	8	85	1	-	-	-	680	
		ii	8	81	5	3240	648	2592	-	
		iii	25	91	5	11375	2275	9100	-	
	Total						14615	2923	11692	680
	10.12.2023 to 09.12.2024	iii	33	91	5	15015	3003	12012	-	
		Total						15015	3003	12012
	10.12.2024 to 09.12.2025	iv	36	81	5	14580	2916	11664	-	
		Total						14580	2916	11664
	10.12.2025 to 09.12.2026	iv	22	81	5	8910	1782	7128	-	
		v	17	71	5	6035	1207	4828	-	
Total						14945	2989	11956	-	
10.12.2026 to 09.12.2027	v	41	71	5	14555	2911	11644	-		
	Total						14555	2911	11644	-
Grand Total						73710	14742	58968	680	

Total Proposed ROM	=	73,710m ³
Total Recoverable Reserves @ 20%	=	14,742m ³
Granite Waste @ 80%	=	58,968m ³
Topsoil	=	680m ³
Granite: waste ratio	=	1:4

Estimated Life of the quarry

Mineable ROM	=	2,91,611m ³
Mineable Reserves @ 20%	=	58,323m ³
Average production per year @ 20%	=	14,742/5 years = 2,948m ³
Estimated Life of the Quarry	=	58,323 / 2,948m ³ = 20 years

The year wise quantum of work proposed and the details of estimation of production quantity and generation of waste are furnished with reference to Year wise Development and Production plan (Plate No. V). The average annual production for the next five years is 2,948m³ at the rate of 20% recovery.

More details of the year wise production parameter explained with bench length, width and height in Plate No. V.

5.2 PROPOSED RATE OF PRODUCTION WHEN THE QUARRY IS FULLY DEVELOPED

The proposed rate of production when the quarry is fully developed is 2,948m³ per annum @ 20% recovery. The production schedule for the subsequent year are drawn mainly in consideration of reserves position, market demand, men, machinery development and the cost of production.

5.3 MINEABLE RESERVES AND ANTICIPATED LIFE OF QUARRY

The Grey granite deep seated in nature as they have formed by basic intrusions from depth as Grey granite. The depth persistence of the Grey granite will be beyond the economically workable depth. The method of extraction of rock mass from Grey granite sheet rock is highly expensive at greater depth.

An optimum depth of 33m has been established as economically viable depth at present scenario. Eventually this depth is the optimum depth for safe and scientific quarrying.

The Mineable Reserves are calculated by excluding the mining loss due to formation of benches with suitable height & width, ultimate depth of quarry, the Mineral Reserve held up within the safety distances all along the lease boundary.

The Mineable Reserves @ 20% for this Grey Granite quarry is thus arrived as 58,323m³ and 2,91,611m³ of ROM for an assumed depth of 33m below from the existing ground profile. The average rate of production of Grey Granite from this quarry is 2,948m³ per year and Mineable recoverable reserves 58,323m³ considering @ 20% recovery for the entire life of the quarry. The details of estimation of year wise development and production plan and sections are shown in the plate No. V.

Based on the above, and taking into consideration of the available Mineable Reserves, **the life of quarry will be about 20 years** at 20% recovery, if the quarry is being worked out continuously with an average annual production of 2,948m³. This calculation is based on the plan approved by Director of Mines Safety leaving Benches and Safety barriers. If the annual production increases considerably and consistently a modified scheme will be prepared under Granite Conservation and Development Rules-1999 the same will be submitted to the relevant authorities for subsequent clearance and approval.

5.4 EXTENT OF MECHANIZATION

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

I. DRILLING MACHINE

Table - 14

S.No.	Type	Nos	Dia Hole mm	Size Capacity	Make	Motive power
1	Compressor	2	-	450/150 psi	Atlas Copco	Diesel Drive
2	Jack hammer	6	32	1.2m to 6m	Atlas Copco	Compressed air
3	Diesel Generator	1	-	125kva	Powerica	Diesel
4	Diamond Wire saw	1	-	20m ³ /day	Optima	Diesel Generator

II. LOADING EQUIPMENT**Table - 15**

S.No.	Type	Nos	Capacity	Make	Motive Power
1	Excavator	1	300	Tata Hitachi	Diesel Drive

III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT

a)

Table - 16

S.No.	Type	Nos	Capacity	Make	Motive Power
1	Tippers	1	20 tonns	Tata	Diesel Drive

b) Transport from the quarry head to destination

Transport from quarry head to destination is done by trucks or trailers.

c) Miscellaneous:

Apart from the above, the following tools and tackles are required for quarry operation.

A. For operation

The operation of granite quarry requires the following loose tools material and have to be kept sufficiently in stock for non - interruption of the quarry work.

1. Drill rods - 0.5 m, 0.75m, 1.65m, 2.25m, 3m, 5.5m, upto 9m.
2. Steel Alloy chains of sufficient length of 12mm, 16mm, 18mm, etc. sizes.
3. 'D' shackles to link the chain lengths.
4. Rubber hose of required length.
5. Hose clamps to link the compressor delivery hoses.
6. Feather and wedges of 6" and 12" dia sizes utilize for splitting the block from the mother rock. This is an important tool in the operation of a quarry.
7. Crow bars.
8. Spades.
9. Sludge Hammer.
10. Iron Pans
11. Pitcher Hammer
12. Chisels.
13. Consumables, such as diesel, Hydraulic oil, grease, abrasive wheels, welding machines etc.
14. Stock of essential spare parts of machinery.
15. Explosive as per the licensed quantity
16. Besides diamond wire saw equipment with accessories are required to liberate the rock from to parent body rapidly with minimum damage.

Splitting the sheet rock by Diamond wire sawing which increases substantial recovery potential. Hence it is proposed to follow "Diamond wire saw cutting" for best recovery.

The above machineries are adequate to meet out the simultaneous development and production schedule drawn out in this scheme period.



6.0 BLASTING

a. Broad Blasting Parameters:

In general for granite quarrying primary (deep hole drill) blasting is not practiced, only secondary blasting is practiced coupled with jackhammer drilling (30-35mm dia). These blasting are carried out for splitting the blocks from parent sheet mass.

The granite industry needs blocks for about 3m x 2m x 2m for International buyers hence small blocks blasting pattern is not followed. The blasting pattern depends upon the texture of the rocks in the case of granite quarrying which in-turn depends upon the bedding plane, presence of fractures, fissures and cracks hence it is difficult to decide the definite particular pattern of holes in each blast.

Now-a-days Diamond wire saws are used for splitting the blocks from parent sheet mass. It is a new innovative Eco-friendly splitting technique without involving blasting. This is increase the recovery percentage of granite blocks and reduces from induce fissures due to blasting.

Hence, it is difficult to pronounce a definite pattern of holes with regard to spacing, burden and depth. Hence, only blasting is deployed for secondary fragmentation for handling the wastes and not for production.

b. Type and use of explosives

In granite quarries, only heaving effect is required and not the shattering effect. The aim is to recovery as large a block as possible.

Hence only low intense explosives like D-Cord and Gelatin sticks are used.

In granite quarrying it is very difficult to prescribe the charge/ hole as it depends upon the various factors like type of rock, texture, planes of weakness, required size of block, etc.

c) Storage of explosives:

Authorized explosive dealers supply the explosive at site as per the day's requirement. Hence question of storage of explosives does not arise at present.

However, the lessee has been advised to install one portable magazine of 'M' type at the earliest possible opportunity.

Splitting within the sheet rock is affected by diamond wire sawing which increases substantial recovery potential. Hence it is proposed to follow diamond wire saw cutting for better recovery of granite dimensional stone.

During future development of quarrying, removal of over burden will be done by blasting with explosives in small dia holes drilled by Jackhammer.

The explosive that will be used are D-Cord and Gelatin sticks that are indicated below.

D Cord 5mg

Gelatin Sticks.

7.0 MINE DRAINAGE

The water table is situated at 64m depth in summer it is observed from nearby Bore wells. The quarry operation confined to well above the water table. If water is encountered at depth due to rain water seepage, the same will be drained out by SHP motor pumps and the drained out water will be utilized for afforestation.

8.0 STACKING OF MINERAL WASTE AND DISPOSAL OF WASTE**a) Topsoil:**

There is generation of topsoil around 680m³ the same will be preserved all along the safety barrier and utilized for construction of bund, haul road and afforestation purpose.

b) Granite waste and Land chosen for disposal of waste:

Total waste produced during this scheme period will be around 58,968m³. The quarried out waste will be proposed to dump over the existing waste and Topsoil dump - I situated on the Southern side with dimension of (area)3033m² x (H)49m, and the existing waste dump - II situated on the southern side with dimensions of (area) 1269m² x (H) 48.5m. (Please refer Plate No.VI & VII).

c) Manner of disposal of waste:

As and when there is accumulation of waste, the same is loaded into the tipper by loading machines and dumped in the respective places ear-marked for the purpose.

The waste management plan with reference to the quantum of waste generated is shown in Quarry layout and Afforestation plan (Plate No.VI).

There is no slurry anticipated in this quarry operations and the granite waste does not produce any toxic effluent in the form of Solid, liquid or gas.

9.0 USE OF THE GRANITE STONE

The quarried out granite blocks are exported as raw blocks and also processed as value added products such as slabs, tiles, fancy items, Monuments, precision surface plates for engineering application.

The export market for Grey Granite blocks are European Countries, North America, Middle East & Far East besides catering domestic demand.

10.0 QUALITY CONTROL

The Grey granite deposit occurring in this mine shows uniform quality throughout and hence mined and marketed as a single variety.

The excavated blocks will be carefully examined for any natural defects such as joints, cracks, xenoliths growth etc and such defects is removed manually using feather and wedges and the blocks are then shaped into perfect rectangular dimensional stone blocks by chiseling. Different price for each quality material has been fixed and the entire production quantity is marketed accordingly.

11.0 SURFACE TRANSPORT

The mode of transport of the Grey granite blocks produced and marketed is by road to various customer destinations and Grey granite processing units located at different parts of the country. The Grey granite blocks approved for export market are shipped from Chennai Port to various countries and if required the blocks may be shifted to Thoothukudi Port which depend upon the exporter's destination from time to time.



12.0 SITE SERVICES

The simple methods adopted and the limited scale of activities involved in Grey granite dimensional stone quarrying does not require high-tension electric power supply or huge workshop facilities. The quarry operation is restricted to one general shift during daytime only. Machinery repair works are attended at Krishnagiri town (10km-Northwest) and Minor repairs are carried out by the lessee's experienced personnel at the quarry site itself.

Packaged drinking water is available from the water vendors in Krishnagiri town also potable water from the Lessee's community wells can be transported to the work site through tanker placed on tippers. The quarry office, first-aid room, store room, rest shed, toilet etc., already constructed as semi - permanent structures the lessee own patta land in the Northwestern side of the lease area (please refer Plate No - III - VII).

13.0 EMPLOYMENT POTENTIAL

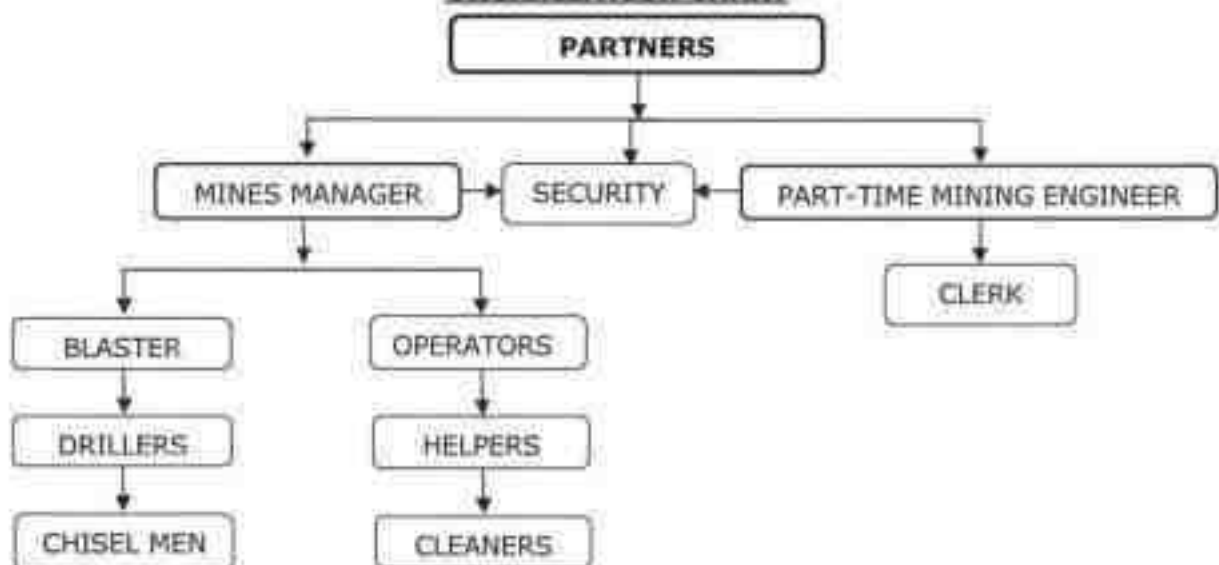
The following manpower is proposed for the Grey granite quarry to carry out the day-to-day quarrying activities aimed at the proposed production target and also to comply with the statutory provisions of the metalliferous mines regulations, 1961.

1.	Mines manager (with valid statutory qualification)	:	1
2.	Mines foreman (with valid statutory qualification)	:	1
3.	Machinery operators (Certified)	:	2

WORKERS:

a.	Skilled labour	:	5
b.	Semi-skilled	:	15
c.	Unskilled	:	8
Total			: 32

ORGANIZATION CHART



The above manpower is adequate to meet out the production schedule and the machinery strength envisaged in the scheme of quarrying and also to comply with the statutory provisions of the Mines Safety Regulations.



14.0 ENVIRONMENTAL MANAGEMENT PLAN

14.1 BASELINE INFORMATION

The following observations are made for environmental management plan.

I. EXISTING LAND USE PATTERNS:

The area exhibits almost flat terrain and the gradient is gentle towards Northwest and the altitude of the area is 486m above from MSL. It is a barren land, except quarry operation the land didn't utilized any other specific purpose:

Existing Land use pattern

Table - 17

Description	Present Area (Ha.)	Area utilized in %
Area under Quarry	1.83.0	73.8
Waste dump	0.63.0	25.4
Infrastructure	Nil	-
Roads	0.02.0	0.8
Green Belt	*Nil (0.03.0)	-
Stocking Blocks	Nil	-
Grand Total	2.48.0	100

* The Green belt has carried out on the top soil preserved area hence, area utilization has been calculated in the waste dump area

II. WATER REGIME:

Ground water occurrence in this area is about 64m depth at summer. The quarry operation confined to well above the water table; hence the quarry operation will not affected by the ground water in any manner. There is no major water body like lake, river or reservoir situated within 50m radius of the area.

III. FLORA AND FAUNA:

Main Floras like Mango, Manihot esculenta (Maravalli), Grass, Neem, Cocos nucifera trees, Prosopis juliflora and shrubs are found around the area and Cat, Rat, Rabbit, Squirrel, Cow, Goat, Dog, Hen and Crow faunas are found around the area. No plants of botanical interest or animals of zoological interest are recorded within 500m radius of the area.

IV. CLIMATIC CONDITIONS:

The prevailing climatic condition experienced in the quarry lease hold, the area is semi arid with maximum temperature up to 42°C in summer and it drops down to 23°C during winter seasons. The area receives 985mm average rainfall per annum.

V. HUMAN SETTLEMENT:

There is no approved habitation/village located within 300m radius of the area and few villages are located within 5km radius of the quarry lease area. The approximate distance, direction and population are given below:

Table - 18

S.No.	Name of the Village	Direction	Approximate Distance	Approximate population
1.	Jagadevipalayam	East	1km	6,800
2.	Chendarapalli	SW	750m	6,500
3.	Modikuppam	SW	3km	2,600
4.	Ballnayanapalli	West	2km	4,800

Basic human welfare amenities such as health center, schools, communication facilities, commercial centers etc., are available at Krishnagiri located at a distance of 10km on the Northwest side.

VI. PUBLIC BUILDINGS, MONUMENTS AND PLACES OF WORSHIPS:

There is no Public building, Archaeological, Ancient or National Monument situated within 500m radius and no place of worship situated within 300m radius of the area.

Table - 19

Particulars	Location	Approximate aerial distance and direction from the lease area.
Nearest Post Office	Anchur	2km - West
Nearest School	Chendarapalli	750m - SW
Nearest Dispensary	Jagadevipalayam	1km - East
Nearest Police Station	Kandikuppam	6km - North
Nearest Govt. Hospital	Krishnagiri	10km - NW
Nearest Town	Krishnagiri	10km - NW
Nearest D.S.P. Office	Krishnagiri	10km - NW
Nearest Railway Station	Tirupathur	28km - East
Nearest Airport	Bengaluru	86km - NW
Nearest Seaport	Chennai	226km - NE
District Head Quarters	Krishnagiri	10km - NW

VII. WEATHER THE AREA FALLS UNDER NOTIFIED AREA UNDER WATER ACT, 1974.
The area falls under notified area under water Act, 1974.

14.2 ENVIRONMENT IMPACT ASSESSMENT STATEMENT

The scheme of mining proposed is a production of granite dimensional stone without involving deep hole drilling and blasting. Such limited quarrying activity is not likely to cause any impact adversely on environment as far as pollution of air, water and noise is concerned.

Table - 20

S. No.	Salient Features of the quarry site	Prescribed safety distance	Actual distance and direction from the site																							
1.	Railways, Highways, Tank, Lake, Odai, Canal, Stream, River and Reservoir	50m	There is no above features located within 50m radius (Refer Plate No. II).																							
2.	Village Road	10m	There is no village road situated within 10m radius of the area.																							
3.	Habitation / Village	300m	There is no approved habitation located within 300m radius.																							
4.	Adjacent Land Patta/ Govt.	7.5m / 10m	<table border="1"> <thead> <tr> <th>Direction</th> <th>S.F.No.</th> <th>Classification</th> <th>Safety Distance</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>380/1 (P)</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td>East</td> <td>379</td> <td>Govt. land</td> <td>10m</td> </tr> <tr> <td rowspan="2">South</td> <td>379</td> <td>Govt. land</td> <td>10m</td> </tr> <tr> <td>398</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td>West</td> <td>380/2(P) & 180/1(P)</td> <td>Patta land</td> <td>7.5m</td> </tr> </tbody> </table> <p>(Please Refer Plate No. II).</p>	Direction	S.F.No.	Classification	Safety Distance	North	380/1 (P)	Patta land	7.5m	East	379	Govt. land	10m	South	379	Govt. land	10m	398	Patta land	7.5m	West	380/2(P) & 180/1(P)	Patta land	7.5m
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	398	Patta land	7.5m																							
West	380/2(P) & 180/1(P)	Patta land	7.5m																							
5.	Housing area, EB line (HT & LT Line)	50m	There is no EB(LT/HT) line or Housing area located within 50m radius.																							
6.	Boundaries of the permitted area	7.5m	<p>North - S.F.Nos. 380/1 (part).</p> <p>East - S.F.No. 379.</p> <p>South - S.F.No. 379 and 398.</p> <p>West - S.F.Nos. 380/2 (part) and 180/1(part).</p> <p>(Refer Plate No. II)</p>																							
7.	Archaeological, Ancient or National Monument	500m	There is no Public building, Archaeological, Ancient or National Monument situated within 500m radius of the area.																							
8.	Reserve forest	1km	<p>There is no Reserved Forest situated within 1km radius. The following Reserved Forest situated within 10km radius of the area.</p> <p>1. Thogarapalli R.F. - 3.33km - SE</p> <p>2. Varatanapalli R.F. - 6.93km - NE</p> <p>3. Bargur R.F. - 9.22km - NE</p>																							
9.	protected area / ECO sensitive area/State or International border	10Km	There is no protected area of Wild life sanctuary / ECO sensitive area/ Critically polluted area/ HACA/ CRZ/ State border located within 10km radius of the area (Refer Plate No. IA).																							

The Financial Estimation for Quarry operations and Environment Management Plan (EMP).

Table - 21

A. Project Cost		
S.No.	Description	Approximate Cost (Rs.)
1.	Land Cost (As per Govt, Guideline value at present) 2.48.0.0Ha x Rs. 5,14,000/Ha = Rs. 12,74,720/-	12,75,000
2.	Labour Shed (Already Constructed)	1,00,000
3.	Sanitary Facility (Already Constructed)	50,000
4.	First aid Room and Accessories	50,000
5.	Excavator (1 No.)	55,00,000
6.	Diesel Generator (1 No.)	3,00,000
7.	Tipper (1 No.)	25,00,000
8.	Wire Saw (1 No.)	4,00,000
9.	Compressor with loose tools (2 Nos.)	9,00,000
10.	Jack Hammer (6 Nos.)	5,40,000
11.	Drinking Water Facility	1,00,000
12.	Safety Kits	50,000
13.	Fencing Cost (750m length x Rs. 300/- per meter)	2,25,000
14.	Garland drain (550m length x Rs. 300/- per meter)	1,65,000
15.	Tree saplings under safety zone during this scheme period (170 Tree saplings x Rs. 200/- per sapling)	34,000
16.	Water sprinkling	1,00,000
Total Project Cost		1,22,89,000

B. Proposed financial estimate / budget for (EMP) Environmental Management Plan:

Budget Provision for this Scheme period

S. No.	Monitory and Analysis Description	Rate per location	No. of location	Total Charges/ six months	Total Charges/ year	Total Charges For this scheme period
1	Ambient air quality monitoring	6500	4	26000	52000	2,60,000
2	Noise level monitoring	250	4	1000	2000	10,000
3	Ground vibration monitoring	1000	2	2000	4000	20,000
4	Water sampling and analysis	9000	1	9000	18000	90,000
Total EMP Cost/ year					76,000	3,80,000

The EMP cost for this scheme period would be around **Rs. 3,80,000/-**.



Total Cost of the Project including EMP Cost	
Description	Amount (Rs)
A. Project Cost	1,22,89,000
B. EMP Cost	3,80,000
Total Project Cost (A+B)	1,26,69,000
The lessee intends to involve corporate Environment responsibilities (CER) activity like Water purifier, Fan and Sanitary facility to the Chendarapalli Govt. School at 2.0% from the total project cost. The cost would be around Rs. 2,54,000/- .	2,54,000
Total Cost	1,29,23,000

The total project cost would be around one crore twenty nine lakhs and twenty three thousand only.

14.3 PROPOSAL FOR WASTE MANAGEMENT

The waste in the quarry includes rock fragments, rubbles generated as waste during production work.

The total waste to be produced during this scheme period is around 58,968m³. The quarried out waste will be proposed to dump over the existing waste and Topsoil dump - I situated on the Southern side with dimension of (area)3033m² x (H)49m, and the existing waste dump - II situated on the southern side with dimensions of (area) 1269m² x (H) 48.5m. The waste management plan with reference to the quantum of waste generated is shown in quarry layout and afforestation plan (Please refer Plate No.VI & VII).

14.4 PROPOSAL FOR RECLAMATION OF LAND AFFECTED BY MINING ACTIVITIES DURING & AT THE END OF MINING

Due to nature of occurrence of Grey granite, the depth persistence of the granite body in this quarry is beyond the workable limit. In the proposed scheme of quarrying only 44m depth has been envisaged as workable depth for safe & economic quarrying. After expiry of lease period if the mineral reserves available and Market persist, the lessee may apply a renewal of quarry lease as to develop and conserve mineral reserves. If permission is granted for removal of waste, the waste material will be supplied to the needy crusher for convert to the M-Sand, building and road construction material after paying the seniorage fee and obtained necessary clearance and approval from concerned department for handling the waste. After completion of quarry operation if permission obtained for disposal of waste the quarried out pit will be allowed to collect seepage and rain water which will act as a temporary reservoir, if permission not obtained for disposal of waste from the concerned authority, the quarried out waste will be backfilled nearly existing ground profile and spread out the preserved topsoil also tree saplings carried out in the backfilled area (Please refer plate.No. VII & IX).

14.5 PHASED PROGRAMME OF PLANTING TREES

The safety distance along the Southern side lease boundary has been identified to be utilized for subsequent Afforestation. Appropriate species of Neem, pongamia pinnata, Manjanathi, Mango, etc., tree saplings will be planted in a phased manner as described below.

Table – 22

Year	No. of trees proposed to be planted	Area to be covered in m ²	Name of the species to be plant	Survival rate expected in %	No. of trees expected to be grown
2022-23	34	310	Neem, Mango, Manjanathi, Pongamia pinnata, etc., trees.	80	27
2023-24	34	310		80	27
2024-25	34	310		80	27
2025-26	34	310		80	27
2026-27	34	310		80	27

Nearly 1,550m² area is proposed for afforestation by planting 170 Nos. of tree saplings during every year and expected growth is around 27 Nos. of trees at a survival rate of 80%. The afforestation plan is shown in Plate No.VI.

14.6 MEASURES FOR DUST SUPPRESSION:

As the Grey granite stones are mined as undamaged dimensional stones without involving deep hole drilling and blasting, fragmentation and generation of lumps, fines or dust is very limited. This quantum of Mining activity will not cause the dust detrimental to the health of the persons employed. Nevertheless, water will be sprinkle for the suppression air borne dust from mine approach roads, waste dumps on regular intervals using water tankers. Drilling of blast holes of 32mm dia will be always under wet conditions to prevent flying of dusts. In the unloading points, water will be sprinkle through tippers to suppress dust. The drillers are provided with respirators in accordance with the Mines Safety Regulations.

14.7 MEASURES TO MINIMIZE GROUND VIBRATION DUE TO BLASTING AND CHECK NOISE POLLUTION

Shallow holes of 32 mm diameter will be drilled and conventional low explosives such as D-Cord and Gelatin stick will be used for removal of over burden. Hence, ground vibration and noise pollution will be minimal and restricted with the quarry workings. The blasting will be taken up at appointed timing and with sufficient caution to the public under the advice of qualified and competent personnel. The noise produced by diamond wire saw cutting will be negligible.

14.8 STABILIZATION AND VEGETATION OF DUMPS

As the waste generation in the mine includes hard rock fragments of considerable size and irregular shape with varying angularity, the temporary waste dump will be stable on its own even at higher slopes of the sides. However, excavated and preserved topsoil will be spread out over and sides of the inactive waste dump also tree saplings will be carried out for increasing the stability and to prevent erosion during rainy season.



15.0 PROGRESSIVE QUARRY CLOSURE PLAN

15.1 Introduction

The Progressive Quarry Closure Plan for Chendarapalli Grey Granite quarry lease over an extent of 2.48.0 Hectares of Patta land in S.F.No. 380/1(Part) of Chendarapalli Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State has been prepared for **Thiru. Mir Tahar Ali**, residing office at No.18/16, 3rd Cross Co-operative Colony, Krishnagiri Taluk and District, Tamil Nadu – 635 001.

15.2 Present Land use pattern:

Land Use Table – 23

Description	Present area in (Ha)
Area under Quarry	1.83.0
Dumps	0.63.0
Infrastructure	Nil
Roads	0.02.0
Green Belt	*Nil (0.03.0)
Stocking Blocks	Nil
Grand Total	2.48.0

*The Green belt has carried out on the top soil preserved area hence, area utilization has been calculated in the waste dump area.

15.3 Mineral Processing Operations:

The quarried out Rough granite blocks are marketed by road to various customer destinations and granite processing units located at different parts of the country. The Grey Granite blocks approved for export market are shipped from Chennai Port to various countries and if required the blocks may be shifted from Thoothukudi Port which depend upon the exporter's destination from time to time. No Mineral processing is involved within the quarry lease area.

15.4 Reasons for closure:

The mineral is not going to be exhausted during the proposed scheme period hence, immediate closure does not planned due to sufficient reserves are available for the entire life of quarry. Hence, the reason for closure will be discussed an ensuing scheme period or in Final Mine Closure Plan.

15.5 Statutory obligations:

All the conditions stipulated in the G.O. and lease deed was fulfilled and maintained during the course of quarry operations.

**15.6 Progressive quarry closure plan preparation:**

Name and address of the Qualified Person who prepared the progressive closure plan and name and address of the executing agency who is involved in the Preparation of progressive quarry closure plan.

Dr. P. THANGARAJU, M.Sc., Ph.D.,

Qualified Person

No.17, Advaita Ashram Road,

Alagapuram,

Salem District,

Tamil Nadu - 636004.

94422 78601, 94433 56539.

The lessee will himself implement the closure plan; no outside agency will be involved.

15.7 Review of Implementation of Mining Plan including Progressive Closure Plan upto the Final Closure Plan:

In the approved mining plan is discussed only when the working area reaches its ultimate pit limit or at the end of life of quarry, the Reclamation and Rehabilitation will be carried out. The Grey granite mineral reserves are available for the entire life of quarry. The entire quarry area is an active, so the lessee has not taken any action for progressive quarry closure. Hence, review of implementation of progressive quarry closure does not arise at present. However, if any work done for progressive quarry closure during this scheme period, it will be discuss an ensuing Scheme period.

15.8 Closure Plan:**(i) Mined Out Land:**

At the end of this scheme period the quarry operation to be carried out only 1.83.0ha to a depth of 23m out of 2.25.4ha of total mineable area upto a depth of 33m. When the remaining reserves will be completely exhausted, the mine closure plan will be prepared and submitted to the competent authority to obtain approval and the same will be implemented. The quarry area will be fenced with barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle.

Land use pattern

Table - 24

Description	Present Area (Ha.)	Area to be required during this present scheme period(ha)	Area at the end of life of quarry (ha)
Area under Quarry	1.83.0	Nil	2.25.4
Waste dump	0.63.0	Nil	Backfilled#
Infrastructure	Nil@	Nil@	Nil@
Roads	0.02.0	Nil	Nil
Green Belt	Nil* (0.03.0)	Nil * (0.15.5)	Nil * (0.18.5)
Stocking Blocks	Nil	Nil	0.22.6
Total	2.48.0	Nil	2.48.0

@Infrastructures are already constructed in the lessee's own patta land situated on the Northwestern side of the lease area (Refer plate Nos. III to VII)

*Green Belt will be carried out (Proposed area 0.15.5) over the existing Topsoil Bund.

#If permission is granted for disposal of waste from the State Government, the existing topsoil dumps and excavated topsoil will be utilized for backfilling. If permission not obtained for disposal of waste, backfilling will be carried out with waste and spread out the preserved topsoil to facilitate afforestation in the backfilled area.



(ii) Water quality management:

Following control measures will be adopted for controlling water pollution:-

- Garland drain will be constructed around the quarry area to prevent surface run off rain water entering to the pit.
- Construction of check dams / gully plugs at strategic places to arrest silt wash off from broken up area.
- Collection of surface run-off from broken up area in mine pits for settling and only properly settled excess water from mine pit will be discharged to nearby users. The storm water/ mine water will be used for dust suppression, greenbelt development, etc.
- Periodic analysis of mine pit water and ground water quality in nearby villages.
- Domestic sewage from site office & urinals/latrines provided in QL is discharged in septic tank followed by soak pits.

(iii) Air Quality Management:

The proposed quarrying method is not likely to produce much of dust and fugitive emissions to cause damage to ambient air quality of the area. All personnel protective equipment like Nose-mask, earplug/ muffs will be provided to the Workers. For air pollution management at the progressive quarry closure plan, greenbelt will be developed to prevent and control air pollution.

(iv) Top Soil and Waste Management:

There is 580m³ of topsoil will be generated during this scheme period, the same will be preserved all along the safety zone and utilized for construction of bund and afforestation purpose.

During this scheme period, the quarried out waste (58,968m³) will be proposed to dump over the existing waste and Topsoil dump - I situated on the Southern side with dimension of (area)3033m² x (H)49m, and the existing waste dump - II situated on the southern side with dimensions of (area) 1269m² x (H) 48.5m. If permission is granted for removal of waste (Existing Granite Waste and proposed Granite waste for remaining lease period) from concerned authorities, the waste material will be supplied to the needy crusher for convert to the M-Sand, building and road construction material after paying the seniorage fee and obtained necessary clearance and approval from concerned department for handling the waste. After obtained permission for disposal of waste, the remaining unsold overburden (Topsoil and weathered rock) only utilized for backfilling. When the entire mineral reserves will be completely exhausted if permission obtained for disposal of waste the quarried out pit will be allowed to collect seepage and rain water which will act as a temporary reservoir, if permission not obtained for handling of waste from the concerned authority, backfilling (Granite Waste and weathered rock) will be carried out nearly existing ground profile and spread out the preserved topsoil to facilitate afforestation in the backfilled area.

(v) Disposal of mining machinery:

Some Machineries own and Some are rental, Own machineries are purchased by fresh condition and the same has been maintained in good condition during entire life of quarry. After completion of quarry operation own machineries will be utilized in another quarry area or sold out to the second hand. Hence, disposal or decommissioning of mining machinery does not arise.

(vi) Safety & Security:

Safety measures will be implemented to prevent access in the excavation area an unauthorized persons as per Mine Act 1952, MMR 1961.

- Safety measures will be implemented as per Mine Act 1952, MMR 1961, and Mines Rules 1955.
- Provisions of MMR 1961 shall be strictly followed and all roads shall be wider than the height of the bench or equal to the height of the bench and have a gradient of not more than 1 in 16.
- The bench height will be 5.0m.
- Width of working bench will be kept about 5.0m for ease of operations and provide sufficient room for the movement of equipments.
- Protective equipment like dust masks, ear-plugs/ muffs and other equipments shall be provided for use by the working personnel.
- Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries. Sufficient caution and sign boards will be kept in and around the quarry to induct public for awareness.
- Blasting will be carried out in a specific time after giving sufficient caution to the public such as danger signs shall be displayed near the excavations and siren alarm signal will be provide before small amount of blasting time for precautionary action of accident. (blasting is carried out only for secondary fragments and not to liberate the Granite body from the parent rock mass).
- Security guards will be posted to prevent inadvertent entry of public.
- In the event of temporary closer, approaches will be fenced off and notice displayed.

(vii) Disaster Management and Risk Assessment:

This should deal with action plan for high risk accidents like landslides, subsidence, flood, fire, seismic activities, tailing dam failures etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of Company 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.
- 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.

(viii) Care and Maintenance during Temporary Discontinuance:

In case of any temporary discontinuance due to court order or due to statutory requirement or any other unforeseen circumstance following measures shall be taken for care, maintenance and monitoring of conditions.

- Notice of temporary discontinuance of work in mine shall be given to the DGMS as per the MMR 1961.
- All the mining machinery shall be shifted to a safe place.
- Entrance to the mine or part of the mine, to be discontinued shall be fenced off. Fencing shall be as per the circular 11/1959 from DGMS.
- Security Guards shall be posted for the safety and to prevent an inadvertent entry to the lease 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,

Mine 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 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 quarry shall be discussed daily.

In case of discontinuance due to any natural calamities/abnormal conditions, quarry operation will be restarted as early as possible after completing rescue work, restoring safety and security, repairs of roads etc.,

**(ix) Economic Repercussion of Closure of Quarry and manpower****Retrenchments:**

The quarry lease is granted for a period of twenty years only. As per the production Programme envisaged, there will be no effect on the man power as the majority of persons belong to nearby villages and will have an option either to be available for employment for the next contract / lease or do the agriculture in their fields.

(x) Time Scheduling For Abandonment:

The lease area has enormous potential for continuance of operations even after the expiry of the lease period. The details of time schedule of all abandonment will be given at the time of final quarry closure plan.

(xi) Abandonment Cost:

As at present mining is not going to be closed so abandonment cost could not be assessed. However based on the progressive quarry closure activities during this scheme period, the cost is assessed as given below:

Table - 25

ACTIVITY	YEAR					RATE	AMOUNT (Rs.)	
	2022-23	2023-24	2024-25	2025-26	2026-27			
Plantation (In Nos.)	34	34	34	34	34	@200 Rs Per sapling	34,000 /-	
Plantation and Maintenance Cost	6,800	6,800	6,800	6,800	6,800			
Barbed wire fencing (In Mtrs) 750 Mtrs (Already Fenced)	2,25,000	-	-	-	-	@300 Rs Per Meter	2,25,000/-	
Garland drain (In Mtrs) 550 Mtrs	1,65,000	-	-	-	-	@300 Rs Per Meter	1,65,000/-	
TOTAL								4,24,000/-

16.0 MINERAL CONSERVATION AND DEVELOPMENT

The scheme of quarrying proposed has fully covered the aspects of granite conservation and Development Rules, 1999 with a future plan to extend the proposed working of the quarry to the maximum possible workable depth of the deposit. Extreme care is taken to ensure proper supervision of quality control of the granite dimensional stone aimed at the recovery of the maximum saleable quality and quantity of Grey granite dimensional stones suitable for full utilization of the consumers.

Care is been taken for each process just to safeguard the material quarried in an economical and efficient manner by adopting systematic and scientific quarrying with consultation and supervision of well experienced quarry persons.

**17.0 STATUTORY PROVISIONS**

The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied with, so that the safety of the mine, machinery and person will be ensured. Permission, relaxation or exemption wherever required for the safe and scientific Mining of the deposit will be obtained from the Department of Mines Safety, Chennai. Any violation pointed out by the inspecting authorities shall be rectifying as per the guidelines of the department.

Certified that this Scheme of Mining has been prepared in accordance with the Mines Act, Rules & Regulations and orders made there under and in conformity with the provisions sub rule (13) of Rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959 and Rule 12, 13 & 16 of Granite Conservation and Development rules June 1999.

Prepared By

P. Thangaraju
Dr. P. THANGARAJU, M.Sc., Ph.D.,
Qualified Person

Place: Salem

Date: 06.08.2022

DONATE RED

SPREAD GREEN

SAVE BLUE

P. Thangaraju
COMMISSIONER
GEOLOGY AND MINING
GUINDY, CHENNAI-600 032

This Scheme of Mining Plan is approved
Subject to the Conditions / Stipulations Indicate.
in the Scheme of Mining Plan Approval

Letter No. 1193/MMH/2023 Dated: 14/08/2023

**ABSTRACT**

Mines and Quarries – Minor Minerals – Krishnagiri District, Krishnagiri Taluk, Chendarapalli Village Grant of lease to quarry grey Granite — Over an extent of 2.48.0 hectares in S.F. No.380/1 (part) – Quarry lease application of Thiru. Mir Tahar Ali, Co-operative Colony, Krishnagiri District – Sanctioned - Orders – Issued.

INDUSTRIES (MME-2) DEPARTMENT

G.O. 3(D) No.79

Dated 25.10.2007

Read:

- 1) From Thiru. Mir Tahar Ali, Co-operative Colony, Krishnagiri Quarry lease application dated 24.1.2007.
- 2) From the Collector of Krishnagiri District Letter No. Roc. 29/2007 (Mines-I) dated 12.2.2007.
- 3) From the Commissioner and Director of Geology and Mining, Guindy, Chennai, Letter Rc.No.2046/MM5/2007, dated 8.3.2007.
- 4) Government Letter No.5024/MME2/2007-1, Industries Department, dated 10.9.2007.
- 5) From the Commissioner and Director of Geology and Mining, Letter No.2046 /MM5/2007, dated 10.10.2007.

ORDER:

Thiru. Mir Tahar Ali, Co-operative Colony, Krishnagiri District has applied for grant of lease to quarry grey granite over an extent of 2.48.0 hectares in S.F. No. 380/1 (part) of Chendarapalli Village, Krishnagiri Taluk and District for a period of 20 years under rule 19A of the Tamil Nadu Minor Mineral Concession Rules, 1959.

2. The Collector of Krishnagiri District has forwarded the application of Thiru. Mir Tahar Ali, Co-operative Colony, Krishnagiri to the Government for passing orders.

3. Based on the reports of the District Collector, Krishnagiri and Commissioner and Director of Geology and Mining, the Government have examined the quarry lease application of the individual and communicated the area recommended by the Commissioner and Director of Geology and Mining as precise area and requested the applicant in the reference 4th read above to furnish the approved mining plan as per sub-rule 13 of rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959 through the Commissioner and Director of Geology and Mining. Accordingly, the mining plan as approved by the Commissioner and Director of Geology and Mining has been received by the Government as per sub-rule 13 of rule 19A of Tamil Nadu Minor Mineral Concession Rules 1959.



4. The Government after careful examination have decided to grant lease to quarry grey granite to Thiru. Mir Tahar Ali, Co-operative Colony, Krishnagiri in patta lands.

5. In exercise of powers conferred under Rule 19A of the Tamil Nadu Minor Mineral Concession Rules, 1959 the Governor of Tamil Nadu hereby grants quarry lease to Thiru. Mir Tahar Ali, Co-operative Colony, Krishnagiri District for quarrying grey granite over an extent of 2.48.0 hectares of patta lands in S.F. No. 380/1 (part) of Chondarapalli Village, Krishnagiri Taluk and District for a period of 20 (twenty) years subject to the conditions specified in the annexure to this order and also subject to the following conditions:-

- (i) The applicant should provide 7.5 metres safety distance to the adjacent patta lands.
- (ii) The applicant should provide 10 metres safety distance to the Government poramboke land and should erect a wire fence all along the boundary between the area applied for lease and Government land situated in S.F. No. 379.
- (iii) The District Collector, Krishnagiri shall obtain a sworn-in affidavit from the applicant containing the above conditions before execution of lease deed and also ensure that the instructions issued in Government Letter No.12789/MMB2/2002-7, Industries Department dated 9.1.2003 are complied with.

6. The Collector of Krishnagiri District is requested to take necessary further action for the execution of agreement in the prescribed form and communicate the date of execution of agreement to the Government and Commissioner and Director of Geology and Mining.

7. The District Collector is also directed to verify and to furnish a certificate to the effect that all lease deed conditions and other conditions mentioned in paragraph 5 above have been complied with and duly incorporated in the lease agreement and sent it to the Government. A copy of the above certificate should also be added to the lease granting file /lease deed.

(BY ORDER OF THE GOVERNOR)

SHAKTIKANTA DAS
SECRETARY TO GOVERNMENT

To

The Collector of Krishnagiri District.

✓ Thiru. Mir. Tahar Ali, 18/16 3rd Cross, Co-operative Colony, Krishnagiri District

The Commissioner and Director of Geology and Mining,
Guindy, Chennai 32.

Copy to:

The Senior P A to Hon'ble Minister (Higher Education), Chennai-9,
Industries (OP-II) Department, Chennai 600 009.

SF/SC

//Forwarded by order//


Section Officer



G.O. (S) No. 79, Industries (MME 2) Department, dt. 25-10-20

ANNEXURE to

1. The applicant shall execute an agreement within one month from the date of receipt of the Government order.
2. The date of commencement of the period of lease shall be the date on which the lease deed is executed.
3. The applicant shall pay seigniorage or dead rent whichever is more in respect of the actual quantity of granite removed at the rate prescribed from time to time in Appendix - II of the Tamil Nadu Minor Mineral Concession Rules, 1959.
4. The applicant should keep correct accounts showing the quantities and other particulars of all minerals obtained from the lands permitted to quarry.
5. The applicant should also allow any officer authorized by the District Collector or any Officer authorized by him in this behalf or any other officer authorized by the State Government in this behalf to inspect the area and verify records and accounts and furnish such information under the terms as may be required by them.
6. The applicant shall carry out the quarrying operations in a skilful, scientific systematic manner keeping in view the proper safety of the labourers conservation of minerals and preservation of environment and ecology.
7. The applicant shall allow any officer authorized by the District Collector and Director of Geology and Mining to enter upon the area and inspect for the purpose mentioned in conditions 4 and 6 above and also carry out the directions issued to the satisfaction of the above said authorities.
8. No quarrying activities connected thereto shall be done before the execution of the agreement and its registration at the cost of the applicant.
9. No hindrance shall be caused to the adjoining pattadars or public.
10. The applicant should restrict his mining operation strictly within the leasehold area as defined in the sketch.
11. The terms and conditions are also subject to any such further modifications, deletion and additional alteration as may be ordered by the Government to be included in the lease deed to be executed for this purpose.



12. The applicant should maintain at his cost proper sign boards indicating the survey numbers, year of the lease, name of the lessee and the lease period to the satisfaction of the District Collector/Director of Geology and Mining and maintain it at all times at the quarry site.
13. No working shall be made within a distance of 7.5 metres of the boundaries of the lease area.
14. The applicant should make his own arrangement to form the approach road from the public road to the place of his quarry.
15. The lessee shall strictly adhere to the statutory and safety requirements.
16. The waste materials generated during quarrying operation shall be dumped only in the area granted under lease.
17. That the mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such law or made by the Central Government, State Government or any other authority.
18. That the approval of the mining plan does not in any way imply the approval of the Government in terms of any other provision, Mines and Minerals (Development and Regulation) Act, 1957, or any other connected law including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1986, Indian Explosives Act 1884, (Central Act IV of 1884) and the Rules made there under the Tamil Nadu Minor Minerals Concession Rules 1959.
19. That the mining plan is approved is without prejudice to any other order or direction from any court of competent jurisdiction.

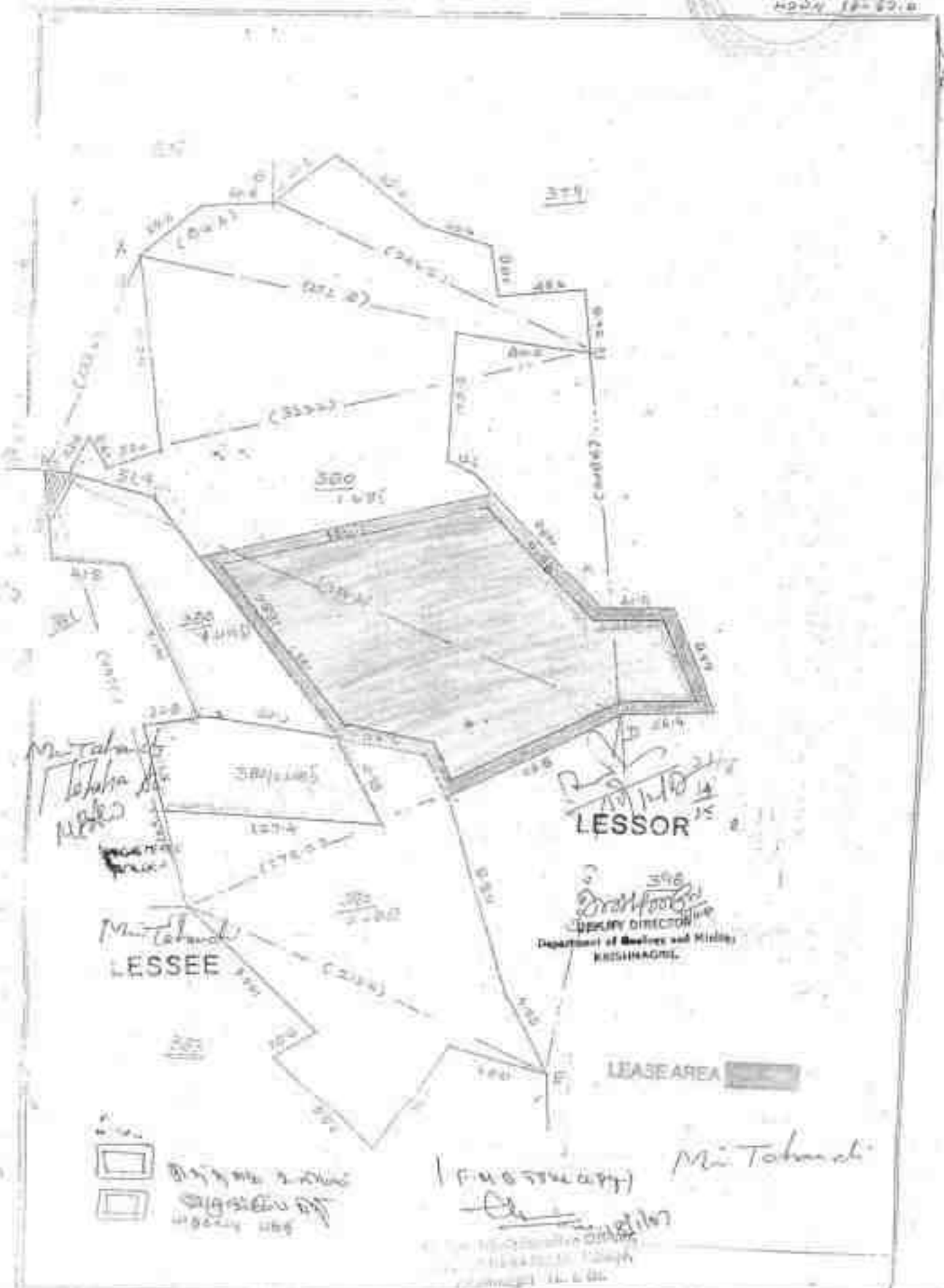
(True copy)

SHAKTIKANTA DAS
SECRETARY TO GOVERNMENT

[Signature]
SECTION OFFICER
[Date]

ಕರ್ನಾಟಕ ಸರ್ಕಾರ
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ಸಂಖ್ಯೆ 386



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(ಮುಖ್ಯಸ್ಥರು)

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 ಬೆಂಗಳೂರು

M. T. ...



No.	Name	Age	Sex	Religion	Occupation	Income	Assets	Liabilities	Remarks
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[Signature]
Village Administrative Officer
SENDAPAPALLI Village
Khandwa, Khandwa District

ANNEXURE III



24, 100
CHINCHOLI
VILLAGE PANCHAYAT
MANGALURU TALUK
MANGALURU DISTRICT

Scale: 1:10,000
Date: 10/10/2018



Srinivas Rao
Village Administrative Officer
12, SENNAPALLE VILLAGE
BANGALORE DISTRICT

24, 100
CHINCHOLI
VILLAGE

Sl. No.	Area (Acres)	Area (Sq. Meters)
1	0.00	0.00
2	0.00	0.00
3	0.00	0.00
4	0.00	0.00
5	0.00	0.00
6	0.00	0.00
7	0.00	0.00
8	0.00	0.00
9	0.00	0.00
10	0.00	0.00
11	0.00	0.00
12	0.00	0.00
13	0.00	0.00
14	0.00	0.00
15	0.00	0.00
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27	0.00	0.00
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59	0.00	0.00
60	0.00	0.00
61	0.00	0.00
62	0.00	0.00
63	0.00	0.00
64	0.00	0.00
65	0.00	0.00
66	0.00	0.00
67	0.00	0.00
68	0.00	0.00
69	0.00	0.00
70	0.00	0.00
71	0.00	0.00
72	0.00	0.00
73	0.00	0.00
74	0.00	0.00
75	0.00	0.00
76	0.00	0.00
77	0.00	0.00
78	0.00	0.00
79	0.00	0.00
80	0.00	0.00
81	0.00	0.00
82	0.00	0.00
83	0.00	0.00
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89	0.00	0.00
90	0.00	0.00
91	0.00	0.00
92	0.00	0.00
93	0.00	0.00
94	0.00	0.00
95	0.00	0.00
96	0.00	0.00
97	0.00	0.00
98	0.00	0.00
99	0.00	0.00
100	0.00	0.00

1. The area shown in the map is the lease area of the Government of Karnataka.

2. The area shown in the map is the lease area of the Government of Karnataka.

3. The area shown in the map is the lease area of the Government of Karnataka.

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10. The area shown in the map is the lease area of the Government of Karnataka.

LEASE AREA



ANNEXURE IV

தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : கிருஷ்ணகிரி

வட்டம் : பர்கூர்

வருவாய் கிராமம் : செந்தூரப்பள்ளி

பட்டா எண் : 2338

உரிமையாளர்கள் பெயர்

1. மீர் தாஹர் அலி மகன் மீர் மஹாஹர் அலி
2. மீர் தாஹர் அலி மகன் மீர் பரித் அலி (எ) மீர் முகமது பரித் அலி

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - ஸப	ஹெக்ட - ஏர்	ரூ - ஸப	ஹெக்ட - ஏர்	ரூ - ஸப	
380	1	7 - 38.00	20.43	--	--	--	--	2016/0103/31/012990- --- 06-08-2016
		7 - 38.00	20.43					

குறிப்பு 2 :



1. பெற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 31/06/117/02338/30746 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 20-12-2022 அன்று 12:25:38 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. எசுப்பேசி கேமராவின் 2D barcode படப்பாள் மூலம் படத்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.

అధికారి: గవర్నర్, ఆంధ్రప్రదేశ్

విషయం

TOTAL FOR SURVEY NUMBER- 379										
1	2	3	4	5	6	7	8	9	10	
189	200-1	P	పుట్టాపాటి	పుట్టాపాటి	7-3	4	2	27	7-30-20	41
190	200-2	P	పుట్టాపాటి	పుట్టాపాటి	7-3	4	2	27	7-30-20	41
191	200-3	P	పుట్టాపాటి	పుట్టాపాటి	7-3	4	2	27	7-30-20	41
192	200-4	P	పుట్టాపాటి	పుట్టాపాటి	7-3	4	2	27	7-30-20	41

Page Number: 152

S. Subramanyam
 Village Administrative Officer
 13 SENDAPAPALLI-Village
 Margut. Tk. Krishnag. Dist.



అధికారి: గవర్నర్, ఆంధ్రప్రదేశ్



Table 1: Details of the land parcels under the project.

Sl. No.	Area (Acres)	Location	Remarks
1	1.00
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Table 2: Details of the land parcels under the project.

Sl. No.	Area (Acres)	Location	Remarks
1
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19.1.2007
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19.1.2007
 247
 100

குறிப்பு தரப்பட்டது

19.1.2007 திகதிக்கு ஏற்பு வந்த பணம் மூலக் குறிப்புகளால் மீட்டிடு
 கருவிகளின் மானிடம் கருவிகளின் மானிடம் மீட்டிடுவதற்காக
 3rd Cross ஏற்பு மானிடம் 18/16 முன்பின் குறிப்புகளால் கருவிகளின்
 மானிடம் குறிப்புகள் மீட்டிடுவதற்காக-1. மீட்டிடுவதற்காக-2 ஏற்பு.

கருவிகளின் மானிடம் கருவிகளின் மானிடம் மீட்டிடுவதற்காக
 3rd Cross ஏற்பு மானிடம் 18/16 முன்பின் குறிப்புகளால் கருவிகளின்
 மானிடம் குறிப்புகளால்-3 ஏற்பு மானிடம் மீட்டிடுவதற்காக மானிடம்
 மீட்டிடுவதற்காக குறிப்புகள் மானிடம் மீட்டிடுவதற்காக மானிடம்

- 1) மீட்டிடுவதற்காக
- 2) மீட்டிடுவதற்காக
- 3) மீட்டிடுவதற்காக



19.1.2007
 247
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செய்தல்கள்

அறிவுரை எழுதி மூலக் கட்டுரை பதிவு செய்தல்

செலு முடி எண் 380/1 -ல் முக்க 2.48.0 ஆக மு.6.13
என்பது

பி. தரவு அளி செய்தல்	1428
முடிமீயாக செய்தல்	4000
முடி எண் 380/2, 398ஆக	1428
முடி முடி எண் 380/1-ல் செய்தல்	1428



தான் பதிவு செய்தல் மு.6.13 முடி முடி எண் 380/1-ல் செய்தல்
முடிமீயாக செய்தல் செய்தல் செய்தல் செய்தல் செய்தல் செய்தல்
1.2முடிமுடி செய்தல் செய்தல் செய்தல் செய்தல் செய்தல்

முடிமுடி செய்தல் செய்தல் செய்தல் செய்தல் செய்தல் செய்தல்
செலு 1.2முடிமுடி செய்தல் செய்தல் செய்தல் செய்தல் செய்தல் செய்தல்
செலு செய்தல் செய்தல் செய்தல் செய்தல் செய்தல் செய்தல்

- 1) 3/2/20
- 2) 4/2/20
- 3) 5/2/20

செய்தல்கள் செய்தல் செய்தல் செய்தல் செய்தல்

செய்தல்கள் செய்தல் செய்தல் செய்தல் செய்தல்



DEPARTMENT OF GEOLOGY AND MINING

From
 Thiru E. Dasarathan, I.A.S.,
 Commissioner & Director,
 Department of Geology and Mining,
 Guindy Industrial Estate Post, Chennai-32.

To
 The Secretary to Government
 Industries Department,
 Secretariat Post,
 Chennai-600 009



Ir.No.2046/MM5/2007, dated 10.10.2007

Sir,

Sub: Approval of mining plan for quarry lease submitted by Tahar Ali for patta land - over an extent of 2.48.0 he SF.No.380/1(P) of Chendarapalli Village - Krishnagiri T District - Regarding

- Ref: 1. Government letter No.5024/MME2/2007-1, dated 10
 2. Mining Plan submitted by Thiru Mir Tahar A
 14.9.2007
 3. Letter No.29/2007 (Mines-1) dated 27.09.2007
 Deputy Director, Krishnagiri

In exercise of the power conferred by Rules, 12,13 and 14 Conservation and Development Rules, 1999 read with G.O.Ms.No.87 (MMC1) Department Dated 22.2.2001, I hereby approve the above plan. This approval is subject to the following conditions:

- (i) That the mining plan is approved without prejudice to any applicable to the quarry lease from time to time whether such made by the Central Government, State Government or a authority.
- (ii) This approval of the mining plan does not in any way imply the of the Government in terms of any other provisions of the M Minerals (Development and Regulation) Act 1957, or as connected laws including Forest (Conservation) Act, 1980 Conservation Rules, 1981, Environment Protection Act, 1986 Explosives Act, 1884 (Central Act IV of 1984) and the rules made under and the Tamil Nadu Minor Mineral Concession Rules, 1957
- (iii) That the mining plan is approved without prejudice to any other direction from any court of competent jurisdiction.

Encl: Approved mining plan.

Sd/E.Das
 Commissioner

For Commissioner
 of Geology

- Copy to: 1) Thiru Mir Tahar Ali,
 18/18, 3rd Cross, Co-Operative Colony,
 Krishnagiri - 635 001.
- 2) District Collector, Krishnagiri District. (with AMP)
 With a request to ensure that the quarrying operation undertaken as per the approved mining plan.
- 3) The Directorate of Mines Safety, Chennai-40 (with AM)



ASST. TITHE SURVY OFFICER
Soil - Revenue, Krishnagiri



14-762
02-11-07

15,000/-
Mr Taharali
Krishnagiri

01BB 954375
D. N. Raj.
B.N. MUNIRAJ
S.V.No: 7353/83
Krishnagiri, Tamilnada.

APPENDIX V

FORM OF JOINT AGREEMENT FOR QUARRYING AND CARRYING AWAY MINOR MINERALS BY LESSEES IN RYOTWARI LANDS IN WHICH THE MINERALS BELONG TO GOVERNMENT.

G.O (DI) No. 79 Ind. (MMS.2) Department dated 25.10.2007.

THIS AGREEMENT MADE THE 10th day of December 2007 between 1) Thiru Mir Tahar Ali, S/o Mir Ahamed Ali 18/16,3rd cross, Co-operative Colony, Krishnagiri District. 2) Mir Mazhar Ali, S/o Mir Tahar Ali, 18/16,3rd cross, Co-operative Colony, Krishnagiri District. 3) Mir Fareeth Ali, S/o Mir Tahar Ali, 18/16,3rd cross, Co-operative Colony, Krishnagiri District. (hereinafter referred to as "the registered holders" which expression shall where the context so admits include his heirs, executors, administrators, legal representatives and assigns) of the first part and Thiru Mir Tahar Ali, S/o Mir Ahamed Ali 18/16,3rd cross, Co-operative Colony, Krishnagiri District (hereinafter referred to as "the lessee" which expression shall where the context so admits shall include his heirs, executors, administrators, legal representatives and assigns) of the second part and the Governor of Tamil Nadu (hereinafter referred to as the Government which expression shall where the context so admits shall include his successors in office and assigns) of the third part.

[Signature]
LESSOR

[Signature]
LESSEE
[Signature]
REGISTERED HOLDER



14-763
02-11-07

15,000/-
Mr. Tahar ali
Krishnagiri

01BB 954376

D. Muniraj
B.N. MUNIRAJ
S.V.Lc: 7353/83
Krishnagiri, Tamilnadu.

WHEREAS the registered holder holds the lands described in the schedule hereto and intended to leased out to the lessee of the said lands for the purpose of quarrying GREY GRANITE in the said lands and to deposit mining waste in the said lands and has lodged with Collector the lease and accurate map or sketch of the said lands.

AND WHEREAS the lessee or tenant of the registered holder has made application to the Government through the Collector of the district of Krishnagiri (hereinafter referred to as "the Collector") seeking grant of quarrying lease for quarrying GREY GRANITE in the said lands and to deposit mining waste in the said lands and has lodged with the Collector an accurate map or sketch of the said lands.

AND WHEREAS, the Government have granted a quarrying lease to the lessee allowed him to commence quarrying operations for GREY GRANITE in the said lands and to deposit mining waste thereon by the lessee in the G.O. (3D) No. 79 Industries (MME.2) Department dated 25.10.2007.

[Signature]
LESSOR

Mr. Tahar ali
Mr. Tahar ali
LESSEE
MBK

REGISTERED
HOLDER



தமிழ்நாடு தமில்நாடு TAMILNADU

Latha
 LATHA, B.Com.,
 55/41A 1st Cross, Madras Road
 KRISHNAGIRI-638001.
 S.V.L No. 3236/51/2000

state: 1/261
 date: 3.11.07 B 113968
 name: *Mri Tahar Ali*
 name: *Krishnagiri*

WHEREAS the registered holder holds the lands described in the schedule hereto and intended to leased out to the lessee of the said lands for the purpose of quarrying GREY GRANITE in the said lands and to deposit mining waste in the said lands and has lodged with Collector the lease and accurate map or sketch of the said lands.

AND WHEREAS the lessee or tenant of the registered holder has made application to the Government through the Collector of the district of Krishnagiri (hereinafter referred to as "the Collector") seeking grant of quarrying lease for quarrying GREY GRANITE in the said lands and to deposit mining waste in the said lands and has lodged with the Collector an accurate map or sketch of the said lands

AND WHEREAS, the Government have granted a quarrying lease to the lessee allowed him to commence quarrying operations for GREY GRANAITE in the said lands and to deposit mining waste thereon by the lessee in the G.O. (32) No. 79 Industries (MME-2) Department dated 25.10.2007;

Mri Tahar Ali
 LESSOR

Mri Tahar Ali
 REGISTERED HOLDER

Mri Tahar
 LESSEE



தமிழ்நாடு தமிழ்நாடு TAMILNADU. LATHA, B.Com.,
 85/41A 1st Cross, Madras Road, KRISHNAGIRI-635001.
 S.V.L. No. 3036/B1/2000
 No. 11262
 Date: 3.11.07 B 113969
 Name: Sri. Taha Thi
 Name: Krishnagiri

AND WHEREAS, the Collector is prepared to allow the said registered holder or lessee to commence mining operations and to deposit mining waste in or on the said lands described in the schedule for a term of 20 years beginning on 10th day of December 2007 upon the registered holder and the lessee entering into the agreement here in contained.

AND WHEREAS, the lessee has deposited with the collector, the sum of Rs. 20,000/- (Rupees twenty thousand only) as security for the due performance of the covenants, agreements and provisos or damage which may be incurred to the Government by reason of any of the said lands described in the schedule hereto being rendered unfit for cultivation by the mining operations therein or by the deposit of mining waste thereon by either the registered holder or the lessee.

LESSOR

Mri Taha Thi

LESSEE

Mri Taha Thi
Taha Thi
MPTO

REGISTERED
HOLDER



தமிழ்நாடு தமில்நாடு TAMILNADU LATHA & Co., 11263
 65/41A 1st Cross, Madras Road, 3.11.07 B 113970
 KRISHNAGIRI-635001, 11/263
 S.V.L. No. 2936/31/2000, 11/263
 கி.த.ஹ.ஹி
 Krishnagiri

AND WHEREAS, the lessee has at the request of the registered holder and in consideration of such approval by the Collector of the mining operations as herein before recited agreed to join in these presents for the purpose of entering into covenants, agreements and provisos hereinafter contained as surety for the registered holder.

NOW THESE PRESENTS WITNESS and registered holder and the lessee do hereby jointly and severally and each of them both individually hereby covenant and agree with the Government as follows:-

1. To carry on mining operations during the said term in a proper and workman like manner and to deposit mining waste on the lands described in the schedule here to and to answer and to account at all reasonable times to Government for all acts and defaults committed by any servants, agents or workmen employed by the registered holder or lessee in carrying on such operations or in making such deposits.

LESSOR

Latha & Co.
NPS

M. Tahar Ali
LESSEE

REGISTERED
HOLDERS



தமிழ்நாடு தமிழ்நாடு TAMILNADU

G. Latha
 G. LATHA, B.Com.,
 65/41A (1st Cross, Madras Road)
 KRISHNAGIRI-635001.
 S.V.L. No. 3936/51/2000
 Date: 11.24.07 113971
 Date: 3-11-07
 Count: *His Tahas Ali*
 Sect: *Krishnagiri*

such accounts and any such plans and to supply and furnish when so required all such information and returns regarding all or any of the matters aforesaid as the Government may from time to time required and direct.

2. To pay to the credit of the Government in addition to the land assessment for the time being payable in respect of the said lands, seigniorage on the minerals mined or dead rent which ever is higher for every year at the rates prescribed by the Government from time to time in the Appendix II of the Tamil Nadu Minor Mineral Concession rules, 1959.

3. To abide by the rules prescribed by the Government from time to time regarding quarrying of minor minerals.

LESSOR

LESSEE

LESSEE

REGISTERED
FOLDER



4. To keep correct accounts in such form as the collector shall from time to time required and direct showing the quantities and other particulars of all minerals obtained by the registered holder or the lessee from the said lands and also the number of persons employed in carrying on the said mining operations therein and to prepare and maintain from time to time when so directed by the said collector complete and correct plans of all mines and workings in the said lands and to allow any officer thereto authorised by the Commissioner/Director of Geology and Mining, Tamil Nadu, from time to time and at all times to examine such accounts and any such plans and to supply and furnish when so required all such information and returns regarding all or any of the matters aforesaid as the Government may from time to time required and direct.

5. To allow any officer authorised by the Commissioner/Director of Geology and Mining, Tamil Nadu in that behalf from time to time and at all times to enter upon any part of the said lands where mining operations may be carried on for the purpose of inspecting the same.

6. To forthwith send to the Collector a report of any accident which may occur at or in the said land and also of the discovery therein of any minerals other than GREY GRANITE.

7. Not to claim any remission of assessment in respect of any of the said lands which shall be rendered unfit for surface cultivation by carrying on of any mining operations or by the deposit of mining waste unless thirty times of the assessment thereon has been deducted under proviso 2 here under.

PROVIDED ALWAYS and it is hereby further agreed by and between the parties as follows:-

1. That it shall be lawful for the registered holder or lessee as the case may be at any time to cease mining operations under these presents provided the registered holder or lessee shall pay the Government or the Collector the land assessment, cess and seigniorage payable by the registered holder or the lessee under these presents upto to the end of the year in which the registered holder or the lessee shall cease such mining operations and shall restore the said lands fence or fill in abandoned pits and excavations therein if required by the collector as next hereinafter provided and upon, the registered holder or the lessee so doing these presents shall cease and terminate.

[Signature]
LESSOR

[Signature]
REGISTERED
M.P.O.

[Signature]
LESSEE



2. That in case the registered holder shall relinquish the whole or part of the said lands in case of the expiry or sooner determination of this agreement then and in any such case, the registered holder in the case of relinquishment and the registered holder and the lessee in other cases shall restore said lands or the area relinquished or so much thereof as the collector shall require to be restored to a state fit for cultivation and shall securely and permanently fence or fill in all abandoned pits and excavation therein as the Collector shall require to be so fenced or filled in and in case the registered holder or the lessee shall fail, or neglect any such lands with the registered holder or the lessee be required to restore to a state fit for cultivation or to so fence or fill in any such abandoned pit or excavation which the registered holder or the lessee shall be required to so fence or fill them and in any such case, it shall be lawful for the collector to so restore any such lands, or as the case may be so fence or fill in any pit or excavation at the expense of the registered holder or lessee and to apply the said sum of Rs 20,000/- (Rupees twenty thousand only) so deposited in or towards the cost of so doing and to deduct from the amount of the said deposit and retain on behalf of the Government a sum equal to thirty times the assessment of the said lands which shall have been rendered unfit for cultivation. If, however the amount of deposit is not sufficient to cover the cost of such restoration or fencing or filling as the case may be or to meet thirty times the assessment of the area rendered uncultivable, it shall be lawful for the Government to recover the balance by resort to Civil Court.

3. That all land assessment, cess and seigniorage payable under these presents shall be recoverable under the provisions of the Tamil nadu Revenue Recovery Act, 1854, or any subsisting statutory modification thereof, as if the same were arrear of land revenue.

4. That in the event of any breach of the registered holder/ lessee of any of the conditions of these presents, it shall be lawful for the Government to levy enhanced seigniorage subject to the maximum of five times the normal rate or for the Collector to give notice in writing to the registered holder/ lessee of his intention to cancel these presents whereupon the same shall stand cancelled but without prejudice to any rights which the Government may have against the registered holder/ lessee in respect of any antecedent claim or breach of covenant or condition.

5. That any notice to be given to registered holder/lessee may be addressed to his last known place of abode and where a notice has been so addressed it shall be deemed to have been duly served for the purpose of these presents.

[Handwritten signature]
LESSEE

Mitghand
Tabandh
NRAS

Mitghand
LESSEE

REGISTERED
HOLDER



6. Should any question or dispute arise regarding an agreement executed in pursuance of these rules or any matter or thing connected therewith or the powers of the registered holder/lessee thereunder, the amount or payment of the seigniorage fee or dead rent or area assessment made payable thereby, the matter in issue shall be decided by the Commissioner / Director of Geology and Mining. In case the registered holder / lessee/ is not satisfied with decision of the Commissioner/Director of Geology and Mining, the matter shall be referred to the State Government.

7. The registered holder/ lessee shall abide by the conditions laid down in the payment of wages Act, 1936 (central Act IV of 1936), Minimum Wages Act 1948 and Rules 1950, the Mines Act, 1952 (Central XXX V of 1952) the Indian Explosive Act, 1884. (Central Act IV) and Mines and Mineral (Development and Regulation) Act 1957 and the Rules and Regulations made thereunder.

8) The lessee shall comply with the provisions of the labour laws applicable to quarrying. Any contravention of the provisions shall attract legal proceedings of the appropriate authorities.

9) No hindrance shall be caused to the adjoining pattadars or the public.

10) The date of commencement of the period of lease shall be the date on which the agreement is executed.

11. The lessee should restrict his mining operations strictly within the permitted area as defined in the sketch.

12) No quarrying shall be made within a distance of 7.5 mts of the boundaries of the permitted area.

13) No quarrying activities connected thereto shall be done before the execution of the agreement and the registration at the cost of the applicant/ lessee.

14) The terms and conditions are also subject to such further modifications, deletion and additions alteration as may be ordered by the Government to be included in the agreement to be executed for this purpose.

15) The lessee should maintain, at his cost, proper sign boards indicating the survey numbers, years of lease, name of the lessee and period of lease, to the satisfaction of the Collector and Commissioner/ Director of Geology and Mining, TamilNadu and maintain it at all times at the quarry site.

LESSOR

M. S. S. S. S.
M. S. S. S. S.

M. S. S. S. S.
 LESSEE

REGISTERED
 DOCUMENT



15) The lessee should make his own arrangement to form the approach road from the public road to the place of his quarry.

16) The lessee shall strictly adhere to the statutory and safety requirements as per Act and Rules in force from time to time.

17) To put up boundary pillars and to effectively fence off the same demised pieces of land from the adjoining lands and to keep the fences in good repairs and condition during the period of lease.

18) The lessee shall not assign lease or part with the possession of the said lands or any part thereof for the whole or any part of the said term without previous permission in writing to the Government.

19) The lessee should not engage child labour in the quarrying activities.

20) The waste materials generated during quarrying operation shall be dumped only in the area granted under lease.

21) That this lease may be terminated in respect of whole or any part of the premises by six months notice in writing on either side.

22) The lessee shall erected fence at his own cost in between the adjacent patta lands and the leased out area and if any fault occur the lessee must hold responsible for that and abide by the action taken by the Government.

23) Anticipated seigniorage for the minerals to be quarried from the demised land is Rs. 31,50,000/- (Rupees thirty one lakhs and fifty thousand only) area assessment of Rs. 9,920/- (Rupees nine thousand and nine hundred twenty only) and security deposit amount of Rs. 20,000/- were taken into account for the purpose of calculation of stamp duty.

24) The lease period starts from the 10th day of December, 2007 and ends on the 10th day of December, 2027.

Special Conditions:

1. The lessee should provide 7.5 metres safety distance to the adjacent patta lands.

2. The lessee should provide 10 metres safety distance to the Government patta land and should erect a wire fence all along the boundary between the area applied for lease and Government land situated in S.F No. 379.

3. The lessee should not encroach or do illicit mining in the Government patta land as per the instruction issued in the Government letter No. 12789/MMB2/2003-7 Industries Department dated 09/1/2003 as furnished in the affidavit.

LESSOR

M. T. J. J.
M. T. J. J.
M. T. J. J.
M. T. J. J.

M. T. J. J.
LESSEE

THE SCHEDULE

Taluk : KRISHNAGIRI
 Village : CHENDARAPALLE



Sl. No	Survey Field Number	Extent Leased Out in hectares	Boundary			
			North S.F. No.	East S.F. No.	South S.F. No.	West S.F. No.
1.	380/1(part)	2.48.0	380/1,379	379	379,398	380/1, 380/2
Total		2.48.0				

IN WITNESS WHERE OF 1) Thiru Mir Tahar Ali, S/o Mir Ahamed Ali 18/16,3rd cross, Co-operative Colony, Krishnagiri District. 2) Mir Mazhar Ali, S/o Mir Tahar Ali, 18/16,3rd cross, Co-operative Colony, Krishnagiri District. 3) Mir Fareeth Ali, S/o Mir Tahar Ali, 18/16,3rd cross, Co-operative Colony, Krishnagiri District. and the registered holder Thiru Mir Tahar Ali, S/o Mir Ahamed Ali 18/16,3rd cross, Co-operative Colony, Krishnagiri District the lessee and **Dr. Santhosh Babu, I.A.S.**, Collector of Krishnagiri District acting for and on behalf of and by the order and direction of the Governor of TamilNadu have hereunto set their hands.

M. Tahar Ali
 NDAO
 REGISTERED
 N.A.N. 2
 M. Tahar Ali
 LESSEE

[Signature]
 LESSOR & COLLECTOR
 KRISHNAGIRI DISTRICT
 KRISHNAGIRI.

Signed by the above named in the presence of

Signed by the above named in the presence of

[Signature] (D. LOCHANATHAN) 1.
 3/6 M. DURAISWAMY
 38. IIIrd CROSS POONAI HEALC COLONY
 KRISHNAGIRI

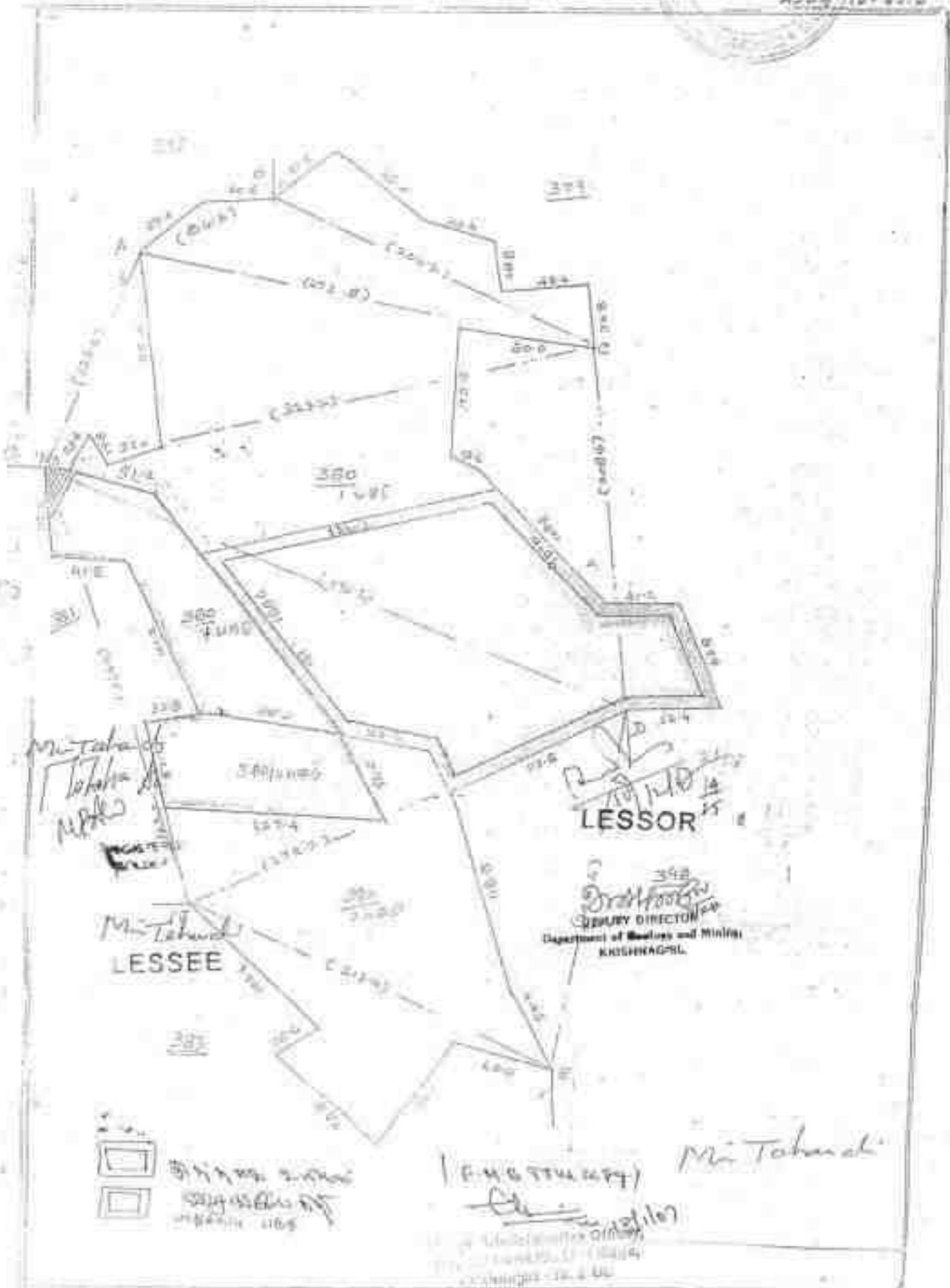
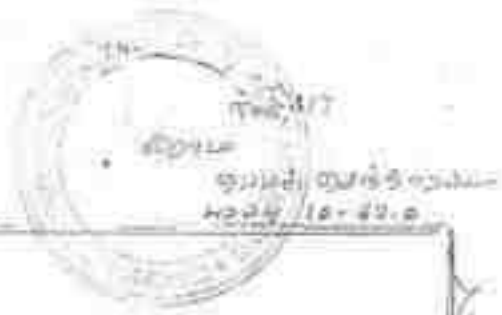
[Signature]
 DEPUTY DIRECTOR
 Department of Geology and Mines,
 KRISHNAGIRI.

[Signature] (MIR NAZIM ALI) 2.
 S/O. M. FARUK ALI
 1/111 Jagadave road
 Krishnagiri D.O. - 635 203

[Signature]
 SPECIAL DEPUTY TANKILAN
 MINES
 KRISHNAGIRI.

ಶಾಸನದಡಿ: ಕುಟುಂಬದ
 ಸ್ವಾಮ್ಯದ ವಿತರಣೆ

110ನೇ 350



ಶಿವರಾಜ್ ಸಾಹು
 ಸುಬ್ರಹ್ಮಣ್ಯ ಸಾಹು
 110ನೇ 350

(110ನೇ 350)
 Mr. Tahand
 DEPUTY DIRECTOR
 Department of Revenue and Mines
 KUSHNAGAL





இந்திய அரசாங்கம்
 Unique Identification Authority of India
Government of India
 Unique ID web/Enrollment No: 0000/00257/00502




தகவல்

- உடல் அடையாளத்திற்கான சான்று முறையாகும் அல்ல.
- அடையாள சான்று சமூகவாழ்வு முக்கிய உறுதிப்படுத்தல் கருவியாகும்.

Mr Taher Ali (பி அஹ் அலி)
 S/O Mr Ahamed Ali, 15/15, Co - Operative Colony,
 Third Cross, Krishnagiri, Krishnagiri,
 Tamil Nadu - 635001

INFORMATION

- Aadhaar is proof of identity, not of citizenship.
- To establish identity, authenticate online.



உங்கள் ஆதார் எண் / Your Aadhaar No. :
2541 6898 6285
ஆதார் - சாதாரண மனிதனின் அதிகாரம்

• உடல் உடல் முறையாகும் சான்று முறையாகும்.

• உறுதிப்படுத்தல் அல்ல மறுப்பும் அல்ல அடையாள முக்கிய உறுதிப்படுத்தல் கருவியாகும்.

• Aadhaar is valid throughout the country .

• Aadhaar will be helpful in availing Government and Non-Government services in future .



உடல் அடையாளம்



பி அஹ் அலி
 Mr Taher Ali
 (பி அஹ் அலி) DOB: 25/08/1950
 ஆண் / MALE

2541 6898 6285






இந்திய அரசாங்கம்
 GOVERNMENT OF INDIA

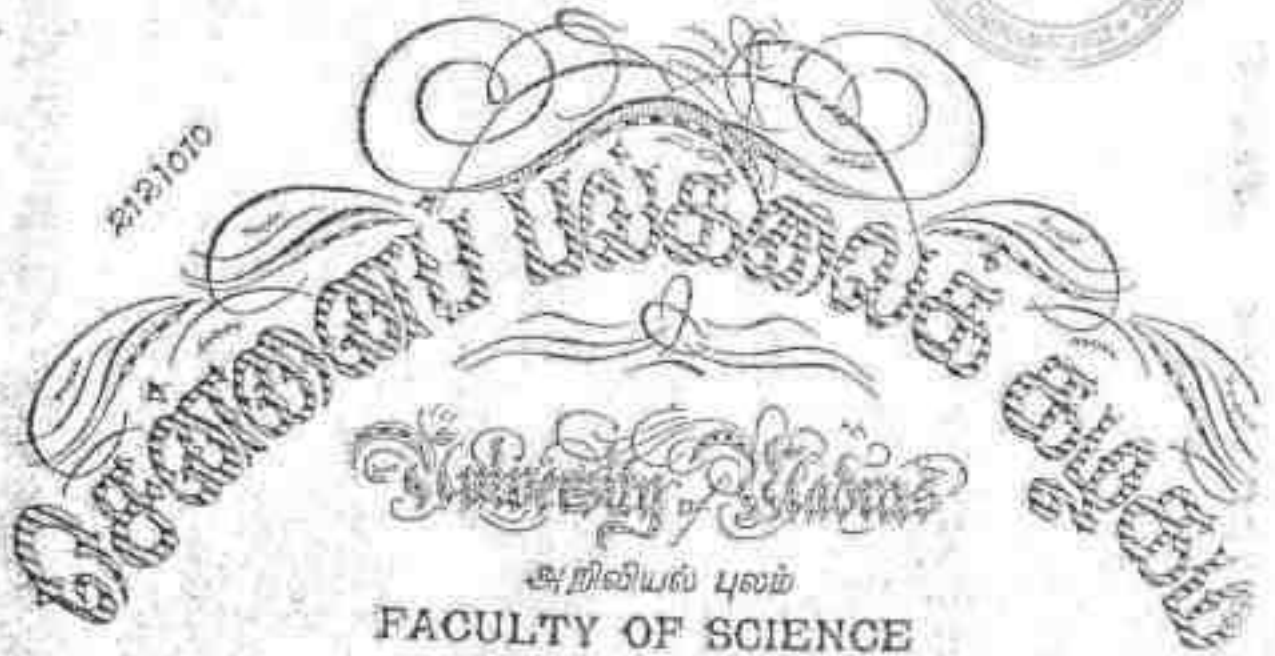
ஆதார்:
 பி அஹ் அலி, 15/15,
 கோ-ஆபரேட்டிவ் காலனி, 3
 க்ரீஸ்னா க்ரீஸ்னா,
 தமில் நாடு - 635001

Address:
 S/O Mr Ahamed Ali, 15/15 Co-
 Operative Colony, Third Cross,
 Krishnagiri, Krishnagiri,
 Tamil Nadu - 635001

2541 6898 6285

ஆதார் - சாதாரண மனிதனின் அதிகாரம்



சென்னைப் பல்கலைக் கழகம் *Madras* 1994

சென்னை பல்கலைக் கழகம் உத்தரவு எண் 1070/1994
பெரிய செய்தி
சென்னை பல்கலைக் கழகம் உத்தரவு எண் 1070/1994
சென்னை பல்கலைக் கழகம் உத்தரவு எண் 1070/1994

The Senate of the UNIVERSITY OF MADRAS hereby makes known that *P. Thangaraja* has been admitted to the Degree of Master of Science, he/she having been certified by duly appointed Examiners to be qualified to receive the same in *Geology* and was placed in the *First* Class, at the Examination held in April 1994.



Given under the seal of the University

Secretary, Chennai
சென்னை

P. Thangaraja



GOVERNMENT OF INDIA
 MINISTRY OF LABOUR AND REHABILITATION
 OFFICE OF THE DIRECTOR GENERAL OF MINES SAFETY

Certificate of Practical experience granted by the Manager to a candidate for a Manager's / Surveyor's / Foreman's / Over man's / Sinda's / Mate's / Short fire's / Blaster's Certificate of competency (Restricted) examination under the Metalliferous Mines Regulations 1961.

I, T.VENKATARAJAGOPALAN being the Mines Agent of M/S.LIMENAPH CHEMICALS, RAJAPALAYAM OF LIMESTONE PRODUCTS (Thenmali Limestone Mine) do hereby certify that Thiru. P.THANGARAJU, son of S.PERIASAMY (whose signature is appended) worked as a Geologist in the above mine from 02.05.1994 to 30.12.1999. During his term of work aforesaid, he has obtained practical experience as detailed overleaf. The duties connected with his work have involved continuous attendance at the mine and have been efficiently performed by him.

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

THEMMALI LIME STONE MINES
 20/6/96
 (Signature with date and official Seal)
 [T.VENKATARAJAGOPALAN]

Mines Agent:

P.O. : ARUKANGULAM

District : TIRUNELVELI

State : TAMIL NADU


 (Signature of Candidate)

(State name of Mineral) : LIMESTONE



S.No	Particulars of practical Experience (a)	Date of Experience (b)	Period of practical experience (c)		Total Experience (d)		
			From	To	Yr.	Month	Day
01	As a Trainee in Drilling Operation	Semi-Mechanical Opencast working	02.05.1994	15.07.1995	01	02	14
02	As a Trainee in Blasting Operation		16.07.1995	10.12.1998	21	07	25
03	Exploration		11.12.1996	21.01.1998	01	01	20
04	Surveying		01.02.1998	25.06.1998	00	04	25
05	Sampling Quality control and		26.06.1998	20.07.1999	01	01	24
06	Supervision in HEMM Operation		21.07.1999	30.12.1999	00	05	10
GRAND TOTAL					05	07	28
(Five Years Seven Months Twenty Eight Days Daily)							

AVERAGE MONTHLY OUTPUT (d) / AVERAGE DAILY EMPLOYMENT (e) DURING THE ABOVE PERIOD IS GIVEN BELOW :

In below ground workings	In open - cast workings	In all
Nil	35	35
Nil		

[Signature]
Signature of Candidate

HE THROGAL HING STONE MINE
[Signature]
Signature of Manager with (AUTHORISATION)
[T.VENKATARAJAGOPALAN]

Name of the Mine :

Instructions :-

01. State clearly the nature of duties
02. State whether on surface, in open cast workings or below ground.
03. State specifically the period spent by the applicant in different mining operations, or surveying operations, as the case may be. If the employment has not been such as to involve continuous attendance of the applicant at the mine, it must be stated how many days a week he was employed at the mine, whether underground or above ground and in what capacity.
04. Delete if the mine is a Metalliferous mine.
05. Delete if the mine is a Coal mine.

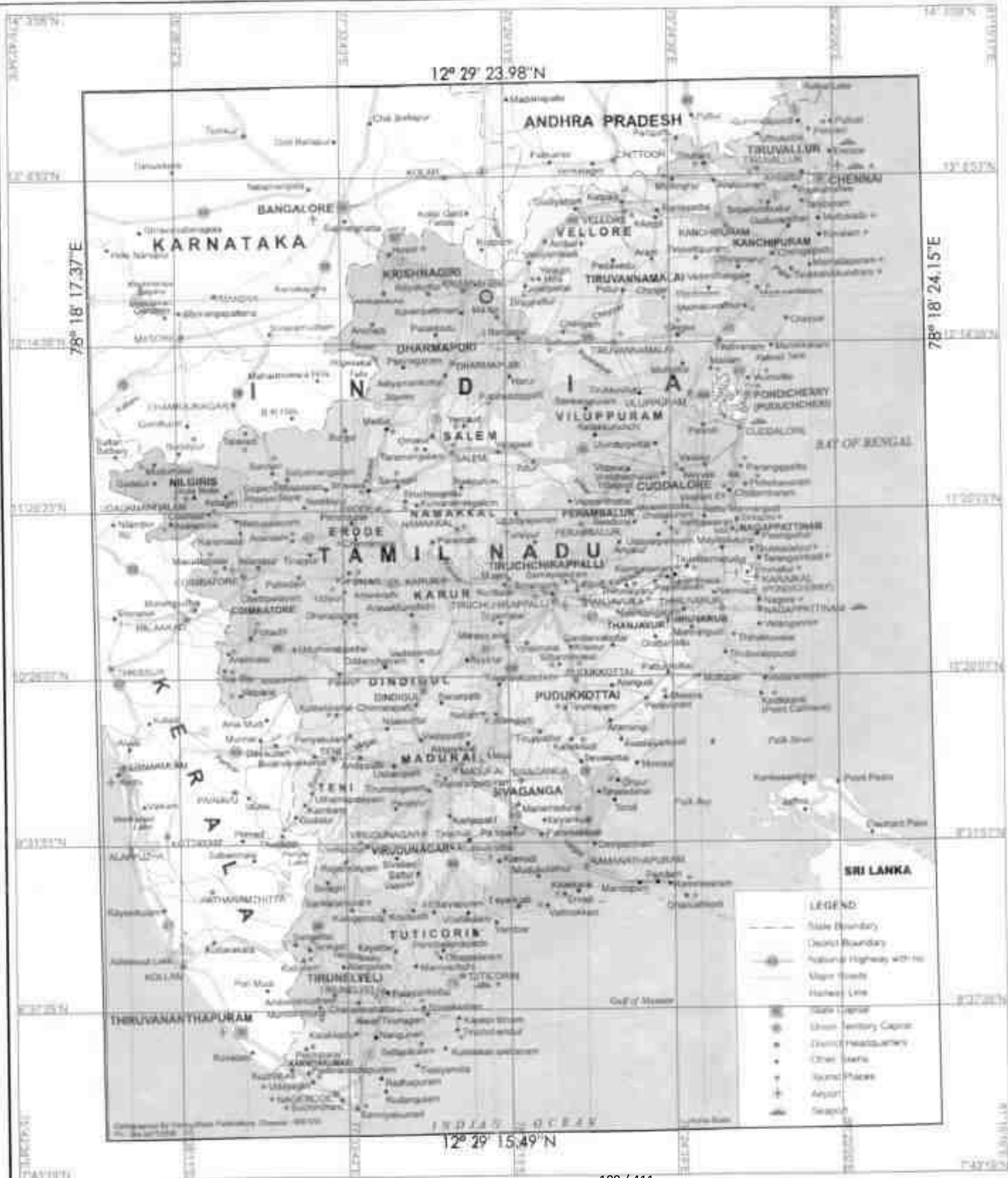



PLATE NO:1

DATE OF SURVEY:03.08.2022

LESSEE:
 THIRU. MIR. TAHAR ALI,
 18/16, 3rd CROSS,
 CO-OPERATIVE COLONY,
 KRISHNAGIRI TALUK & DISTRICT 635 001.

LOCATION OF QUARRY:
 S.F.NO : 380/1(P)
 EXTENT : 2.48.0 HA,
 VILLAGE : CHENDARAPALLI,
 TALUK : BARGUR
 (Formerly Krishnagiri),
 DISTRICT : KRISHNAGIRI.

INDEX

Q. L. AREA : 
 TOPO SHEET NO : 57 L / 07
 LATITUDE : 12° 29' 15.49"N to 12° 29' 23.96"N
 LONGITUDE : 78° 18' 17.37"E to 78° 18' 24.15"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.


 Dr. P. THANGAVELU, Ph.D.,
 QUALIFIED PERSON

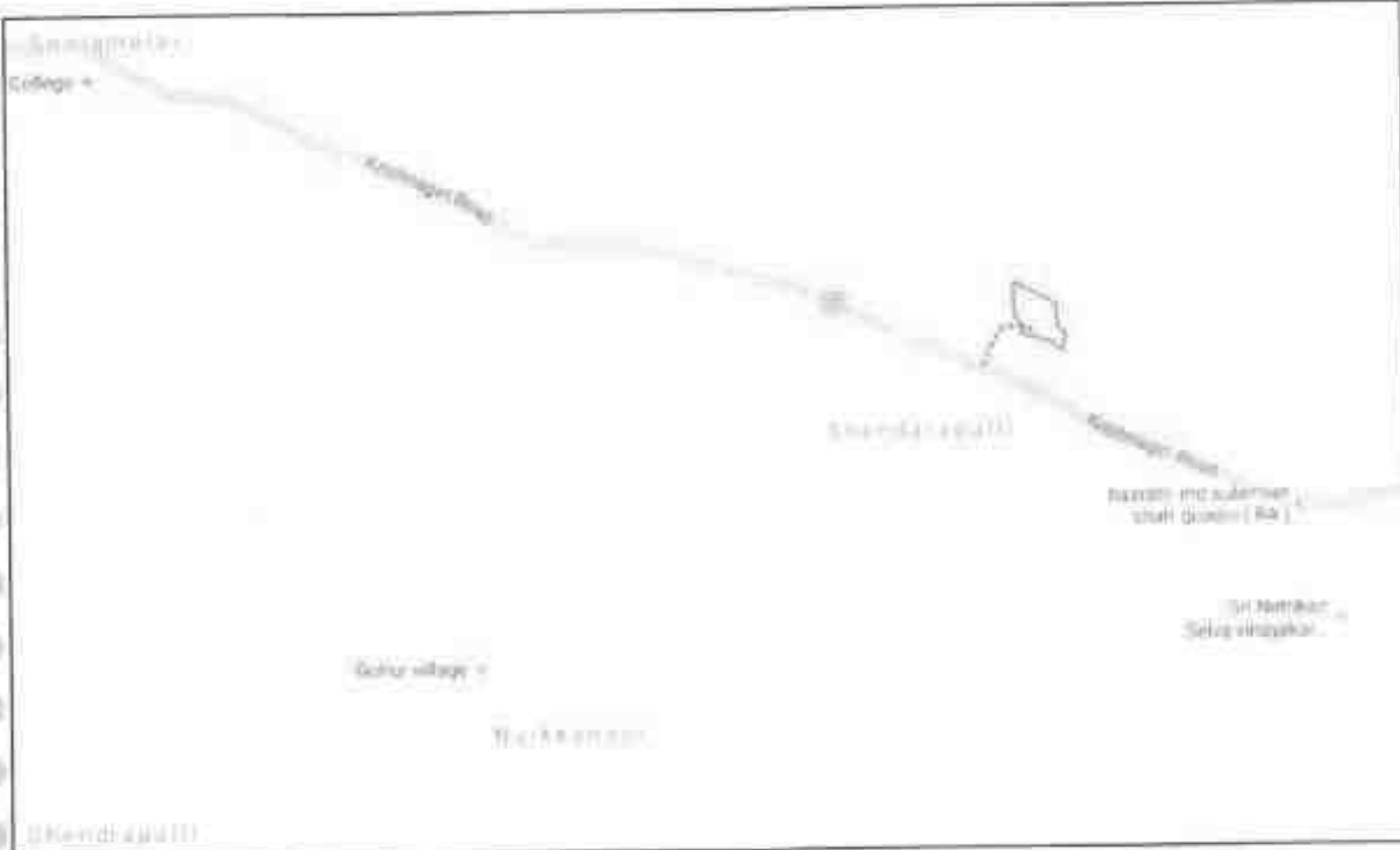
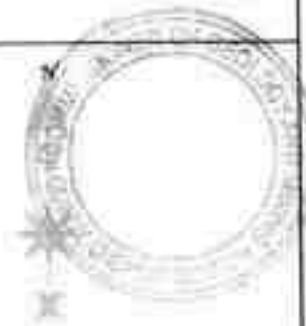


PLATE NO: I-B

DATE OF SURVEY: 03.08.2022

LESSEE:

THIRU. MIR TAHAR ALI,
18/16, 3rd CROSS,
CO-OPERATIVE COLONY,
KRISHNAGIRI TALUK & DISTRICT 635 001.

LOCATION OF QUARRY:

S.F.NO : 380/1(P)
EXTENT : 2.48.0 HA,
VILLAGE : CHENDRAPALLI,
TALUK : BARGUR
(Formerly Krishnagiri),
DISTRICT : KRISHNAGIRI.

INDEX

O.L. BOUNDARY	
APPROACH ROAD	
NATION HIGHWAY	
MAJOR ROAD	
VILLAGE ROAD	

ROUTE MAP NOT TO SCALE

PREPARED BY:

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S.P. THANGARAJULU S.P., P.H.D.,
QUALIFIED PERSON

NOVEMBER TO DECEMBER



PLATE NO. I-C

DATE OF SURVEY: 03.08.2022

LESSEE:
 THIRU. MIR TAHAR ALL,
 18/16, 3rd CROSS,
 CO-OPERATIVE COLONY,
 KRISHNAGIRI TALUK & DISTRICT 635 001.

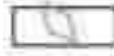









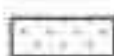





LOCATION OF QUARRY:

S.F. NO : 380/1(F)
 EXTENT : 2.48.0 HA,
 VILLAGE : CHENDARAPALLI,
 TALUK : BARGUR
 (Formerly Krishnagiri),
 DISTRICT : KRISHNAGIRI.

TOPO SHEET NO : 57 L / 07
 LATITUDE : 12° 29' 15.49"N to 12° 29' 23.98"N
 LONGITUDE : 78° 18' 17.57"E to 78° 18' 24.15"E

INDEX

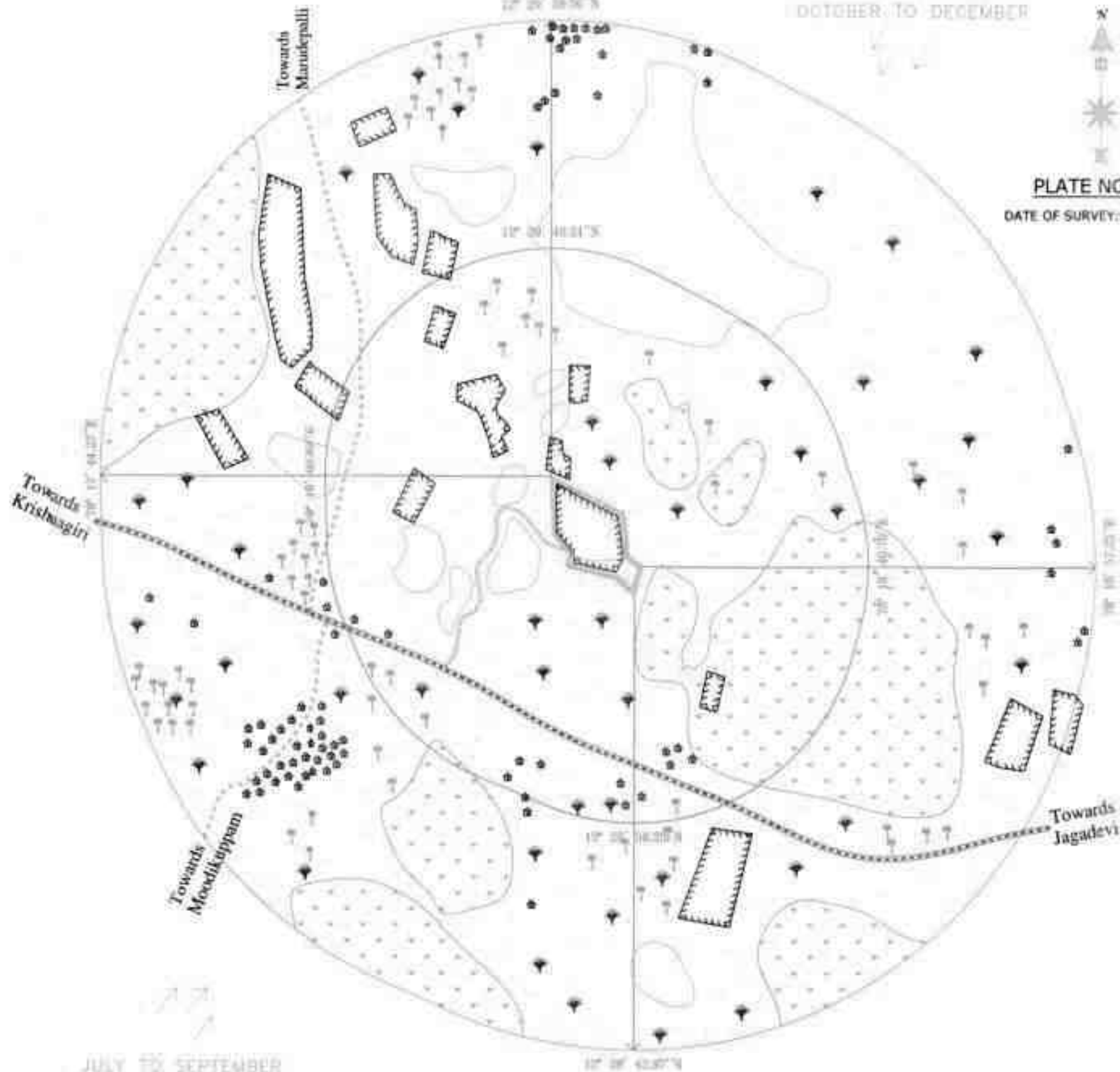
- O.L BOUNDARY 
- 1KM RADIUS 
- 500m RADIUS 
- WIND DIRECTION 
- TREES 
- NATIONAL HIGHWAY-66 
- PANCHAYAT ROAD 
- APPROACH ROAD 
- AGRICULTURAL LAND 
- HABITATION 
- HILLOCK 
- QUARRY PIT 
- TANK 
- DUMP 

ENVIRONMENTAL AND LANDUSE PLAN FOR 1Km RADIUS






SCALE 1:10000

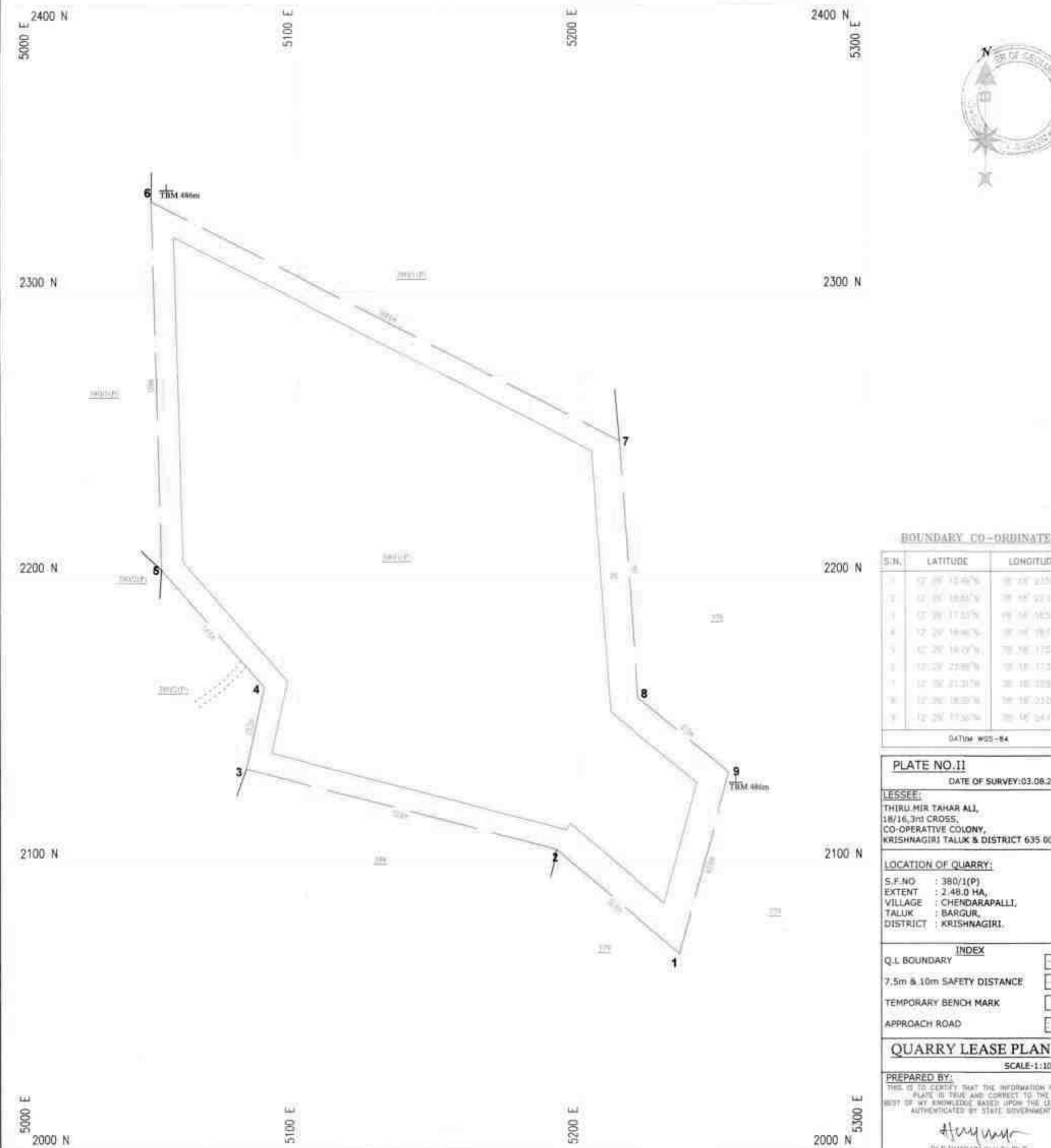
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 PLATE IS TRUE AND CORRECT TO THE
 BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP
 AUTHENTICATED BY STATE GOVERNMENT

H. Jayaram
 D.P. TRANCHIGAL, M.Sc., Ph.D.,
 QUALIFIED PERSON



JULY TO SEPTEMBER

LAND USE PATTERN		
DESCRIPTION	PERCENTAGE	INDEX
ROADS	(5%)	
HABITATION	(10%)	
SEASONAL AGRICULTURAL LAND	(45%)	
TREES	(20%)	
HILL LOCK AREA	(20%)	



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	12° 26' 13.49"N	76° 46' 23.86"E
2	12° 26' 18.55"N	76° 46' 27.52"E
3	12° 26' 17.55"N	76° 46' 18.53"E
4	12° 26' 18.46"N	76° 46' 18.72"E
5	12° 26' 18.07"N	76° 46' 15.77"E
6	12° 26' 27.88"N	76° 46' 12.37"E
7	12° 26' 21.21"N	76° 46' 12.84"E
8	12° 26' 18.37"N	76° 46' 23.26"E
9	12° 26' 17.56"N	76° 46' 24.17"E

DATUM WGS-84

PLATE NO. II

DATE OF SURVEY: 03.08.2022

LESSEE:
 THIRU MIR TAHAR ALI,
 18/16, 3rd CROSS,
 CO-OPERATIVE COLONY,
 KRISHNAGIRI TALUK & DISTRICT 635 001.

LOCATION OF QUARRY:
 S.F.NO : 380/1(P)
 EXTENT : 2.48.0 HA,
 VILLAGE : CHENDARAPALLI,
 TALUK : BARGUR,
 DISTRICT : KRISHNAGIRI.

INDEX

Q.L BOUNDARY	
7.5m & 10m SAFETY DISTANCE	
TEMPORARY BENCH MARK	
APPROACH ROAD	

QUARRY LEASE 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 LEASEMAP
 AUTHENTICATED BY STATE GOVERNMENT

[Signature]
 S.P. THANGARAJU, S.P., P.L.S.,
 QUALIFIED PERSON

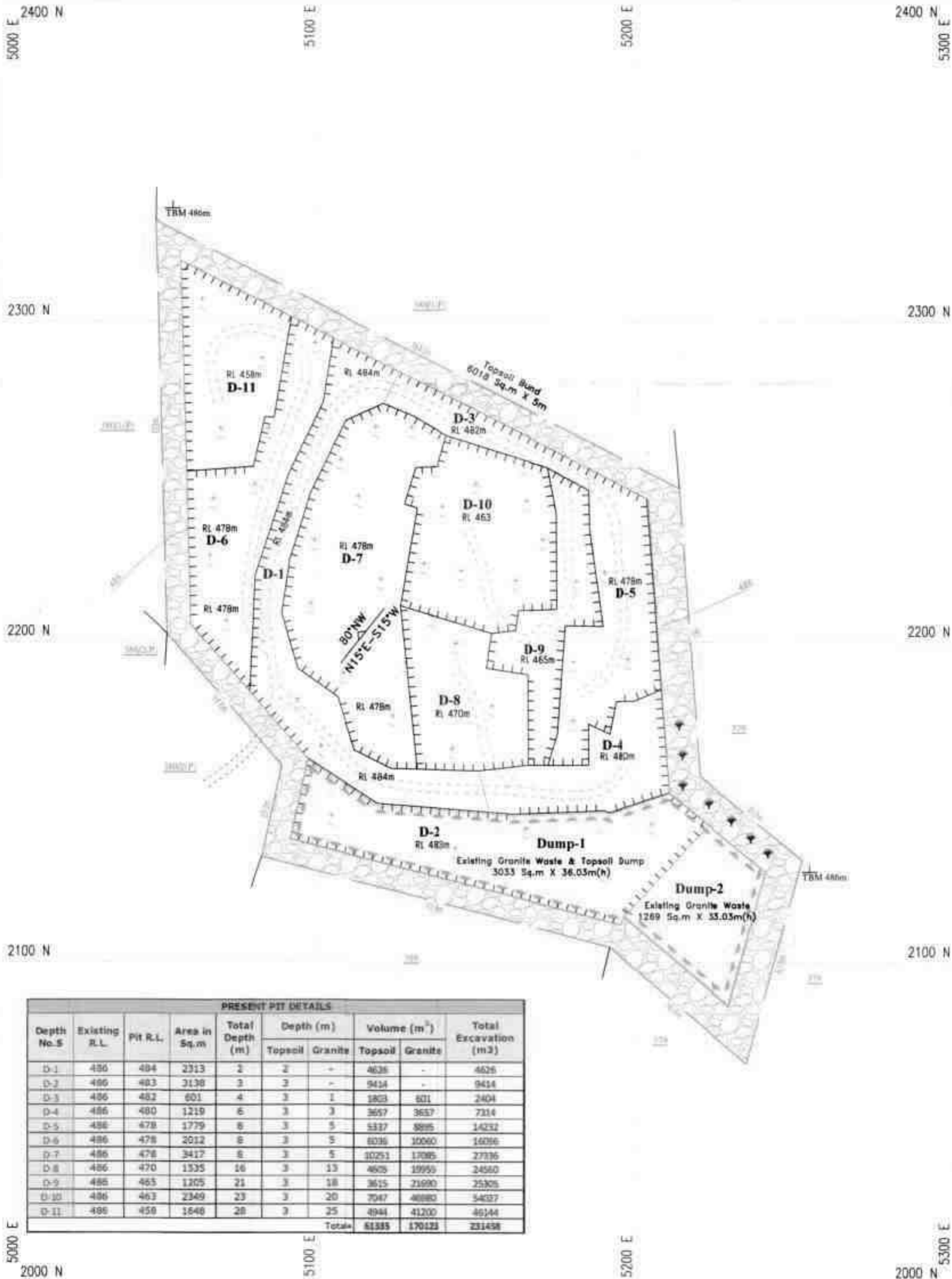


PLATE NO.III

DATE OF SURVEY:03.08.2022

LESSEE:
 THIRU.MIR TAHAR ALI,
 18/16,3rd CROSS,
 CO-OPERATIVE COLONY,
 KRISHNAGIRI TALUK & DISTRICT 635 001.

LOCATION OF QUARRY:
 S.F.NO : 380/1(P)
 EXTENT : 2.48.0 HA,
 VILLAGE : CHENDARAPALLI,
 TALUK : BARGUR,
 DISTRICT : KRISHNAGIRI.

INDEX

- QUARRY LEASE BOUNDARY
- 7.5m & 10m SAFETY DISTANCE
- APPROACH ROAD
- TEMPORARY BENCH MARK
- QUARRY PIT
- QUARRY ROAD
- TOPOGRAPHICAL CONTOUR
- SHRUB
- STRIKE & DIP
- GREY GRANITE
- TOP SOIL DUMP
- EXISTING DUMP

SURFACE PLAN

SCALE:1:1000

PREPARED BY:
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
 PLATE IS TRUE AND CORRECT TO THE
 BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP
 AUTHENTICATED BY STATE GOVERNMENT

(Signature)
 S.P. TRINDARAJU, M.S.P., P.D.
 QUALIFIED PERSON

PRESENT PIT DETAILS									
Depth No.S	Existing R.L.	Pit R.L.	Area in Sq.m	Total Depth (m)	Depth (m)		Volume (m ³)		Total Excavation (m ³)
					Topsoil	Granite	Topsoil	Granite	
D-1	486	484	2313	2	2	-	4626	-	4626
D-2	486	483	3138	3	3	-	9414	-	9414
D-3	486	482	601	4	3	1	1803	601	2404
D-4	486	480	1219	6	3	3	3657	3657	7314
D-5	486	478	1779	8	3	5	5327	8895	14222
D-6	486	478	2012	8	3	5	6036	10060	16096
D-7	486	478	3417	8	3	5	10251	17085	27336
D-8	486	470	1535	16	3	13	4605	19959	24560
D-9	486	465	1205	21	3	18	3615	21690	25305
D-10	486	463	2349	23	3	20	7047	46880	54027
D-11	486	450	1648	28	3	25	4944	41200	46144
					Total*		61385	170123	231458

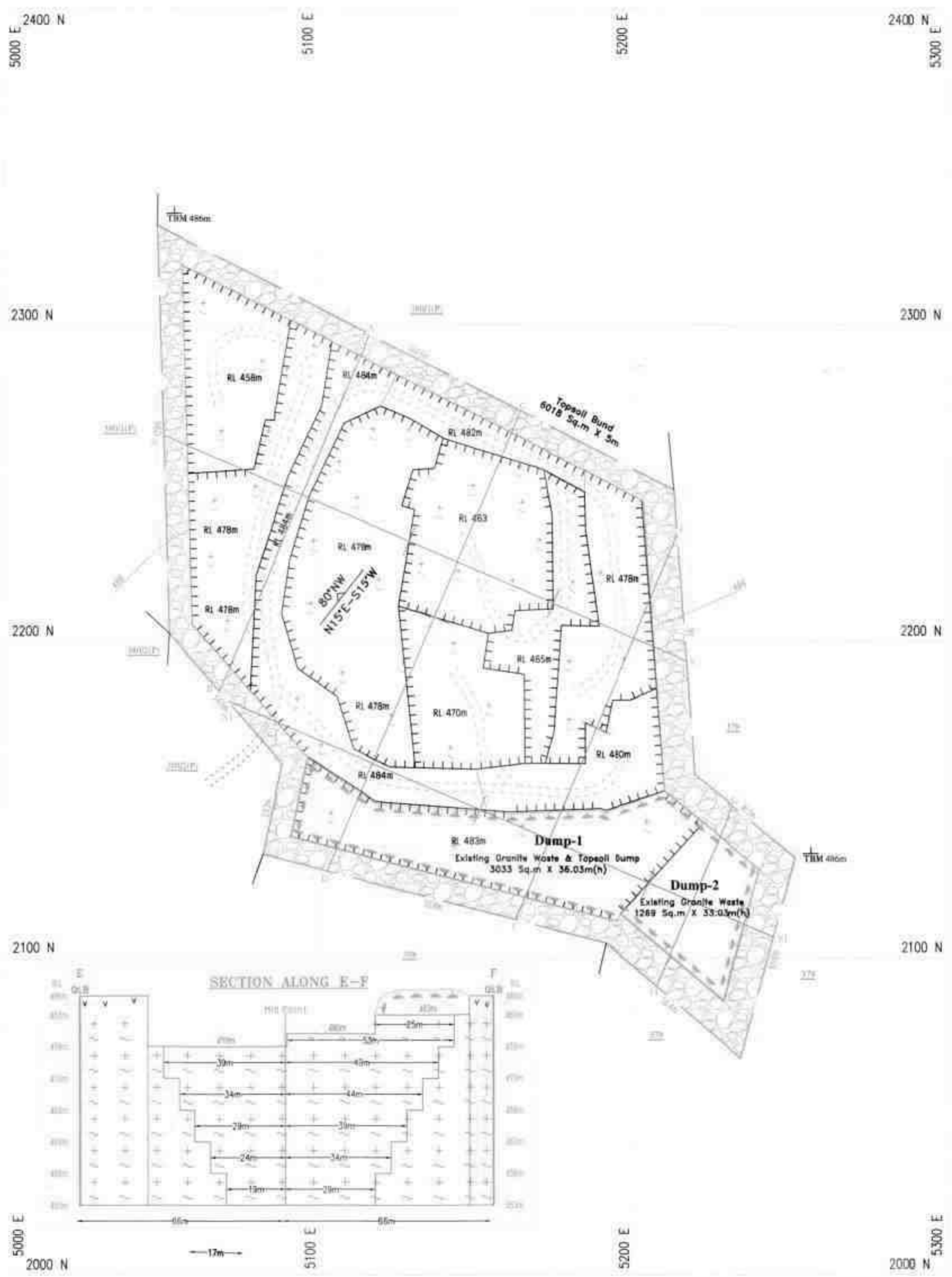
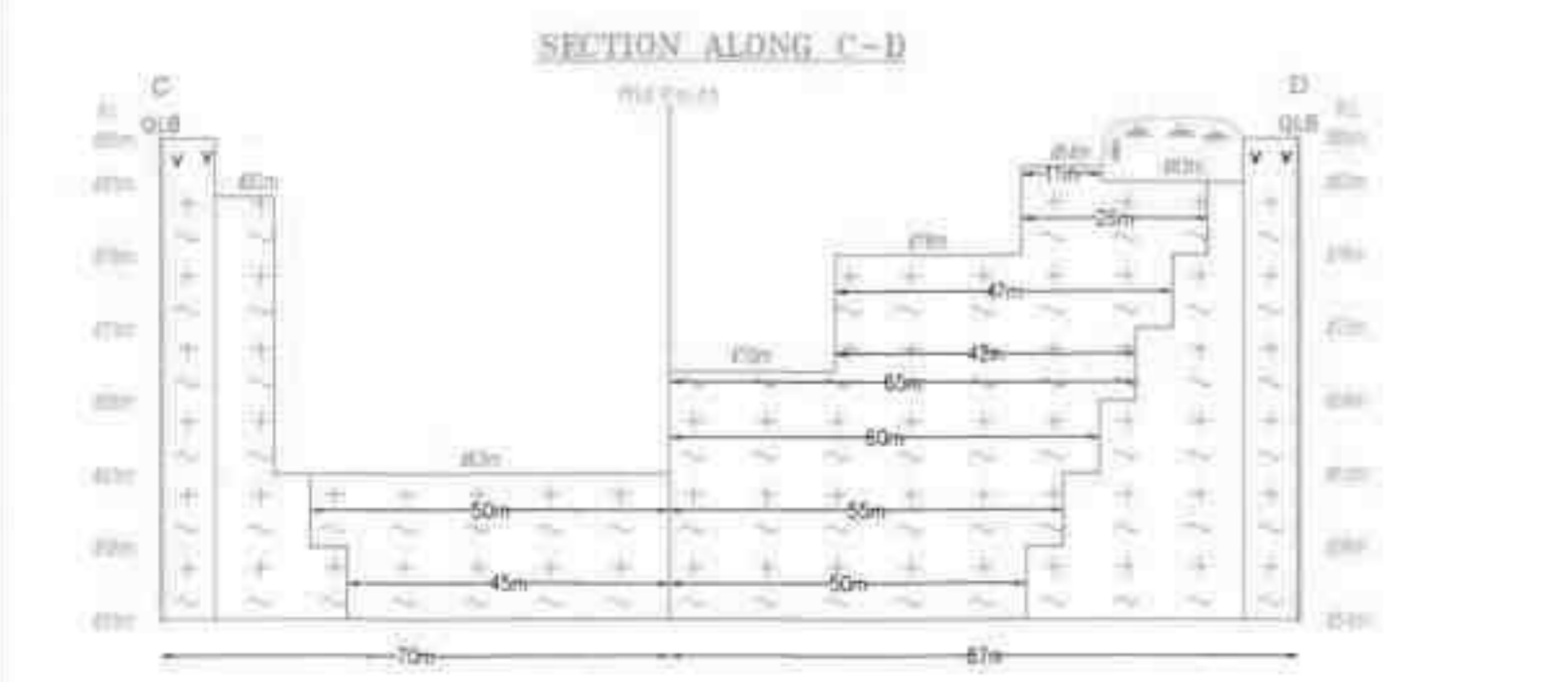
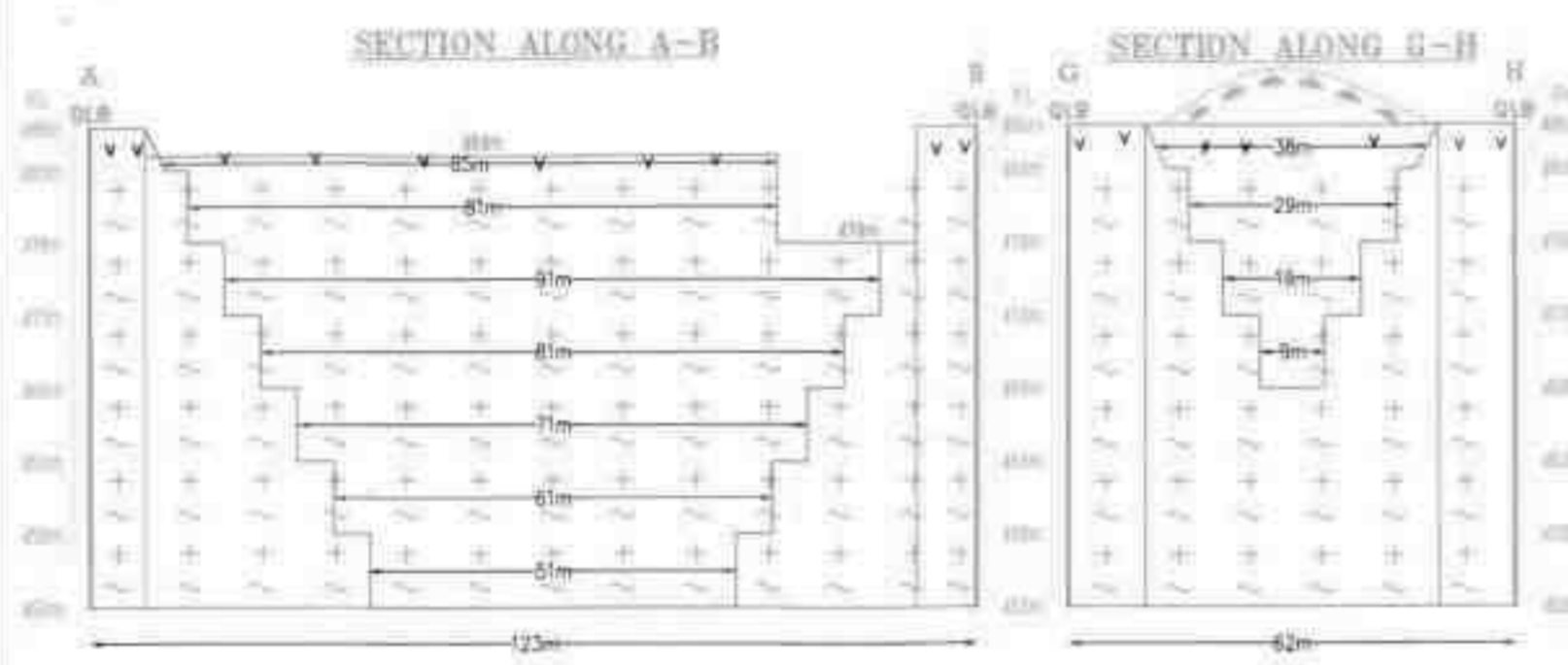
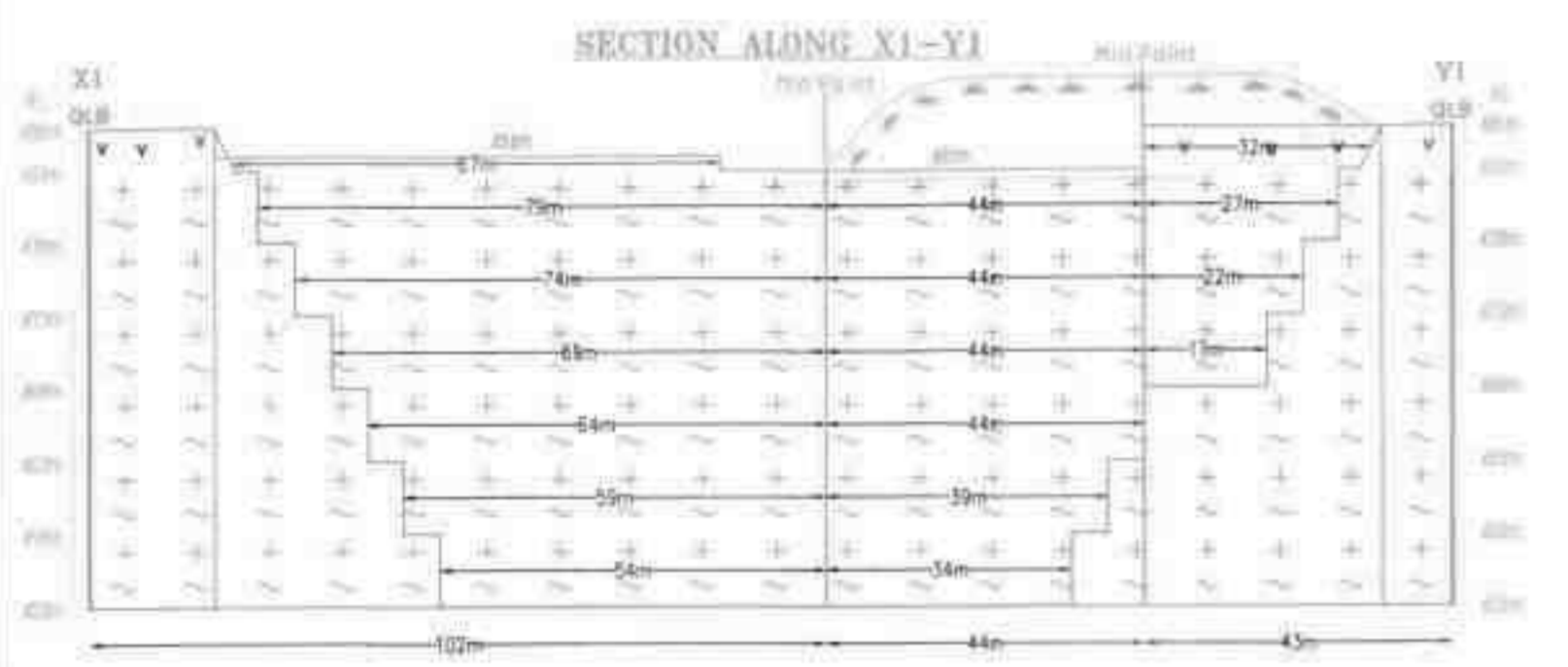
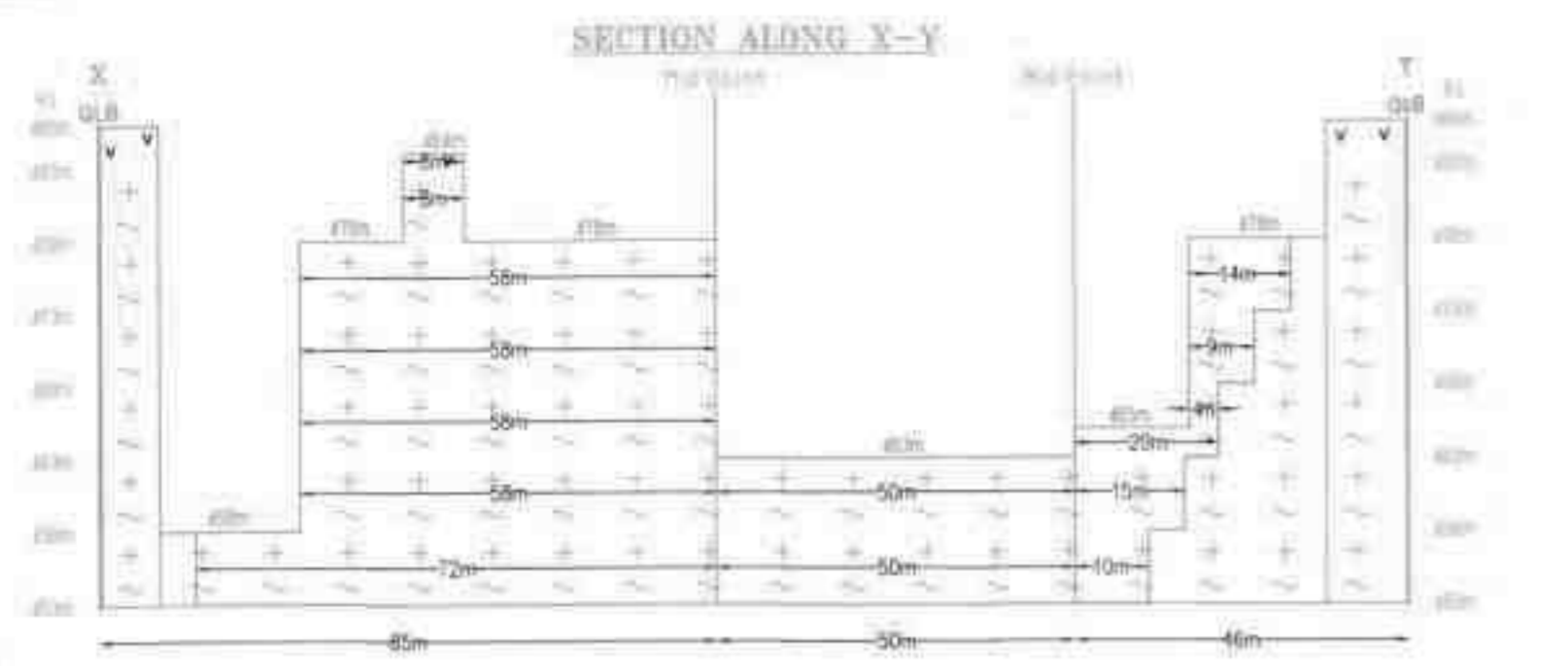


PLATE NO.IV	
DATE OF SURVEY:03.08.2022	
LESSEE:	
THIRU MIR TAHAR ALI, 18/16,3rd CROSS, CO-OPERATIVE COLONY, KRISHNAGIRI TALUK & DISTRICT 635 001.	
LOCATION OF QUARRY:	
S.F.NO	: 380/1(P)
EXTENT	: 2.48.0 HA,
VILLAGE	: CHENDARAPALLI,
TALUK	: BARGUR,
DISTRICT	: KRISHNAGIRI.
INDEX	
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7.5m & 10m SAFETY DISTANCE	
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TEMPORARY BENCH MARK	
QUARRY PIT	
QUARRY ROAD	
TOPOGRAPHICAL CONTOUR	
SHRUB	
STRIKE & DIP	
GREY GRANITE	
TOP SOIL DUMP	
EXISTING DUMP	
GEOLOGICAL PLAN AND SECTIONS	
SCALE: 1:1000 SEC-HOR 1:2000 VER 1:500	
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 LEASHEAN AUTHENTICATED BY STATE GOVERNMENT	
 S.P. SHRIDHARAJU, P.E., QUALIFIED PERSON	

5000 E 2400 N

5100 E

5200 E

2400 N 5300 E



2300 N

2300 N

2200 N

2200 N

2100 N

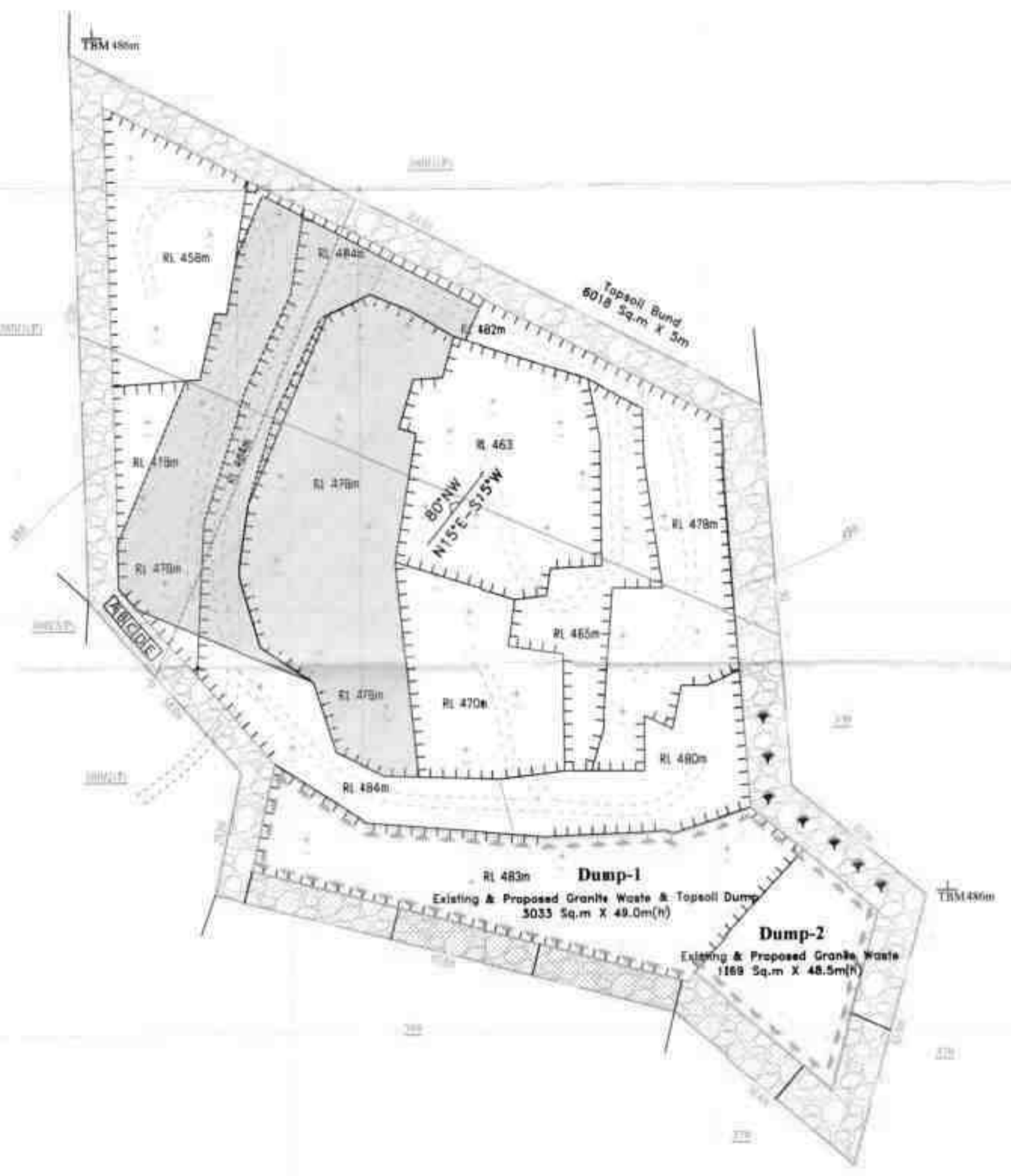
2100 N

5000 E 2000 N

5100 E

5200 E

2000 N 5300 E



SYMBOLS

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4-00000	4-00000
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4-00000	4-00000

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PLATE NO.V
DATE OF SURVEY:03.08.2022

LESSEE:
THIRU. MIR TAHAR ALI,
18/16,3rd CROSS,
CO-OPERATIVE COLONY,
KRISHNAGIRI TALUK & DISTRICT 635 001.

LOCATION OF QUARRY:
S.F.NO : 380/1(P)
EXTENT : 2.48.0 HA,
VILLAGE : CHENDARAPALLI,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI.

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7.5m & 10m SAFETY DISTANCE	---
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QUARRY PIT	TTT
QUARRY ROAD	---
TOPOGRAPHICAL CONTOUR	---
SHRUB	---
STRIKE & DIP	---
GREY GRANITE	---
TOP SOIL DUMP	---
EXISTING DUMP	---

YEARWISE DEVELOPMENT AND PRODUCTION PLAN AND SECTIONS
SCALE-1:1000 SEC.HR 1:1000
VIX 1:500

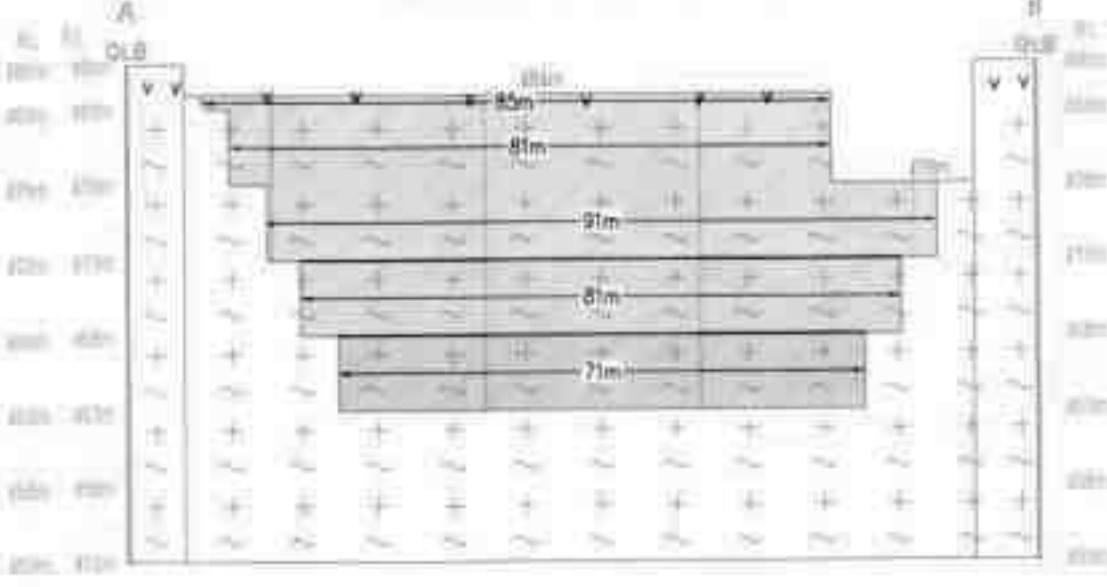
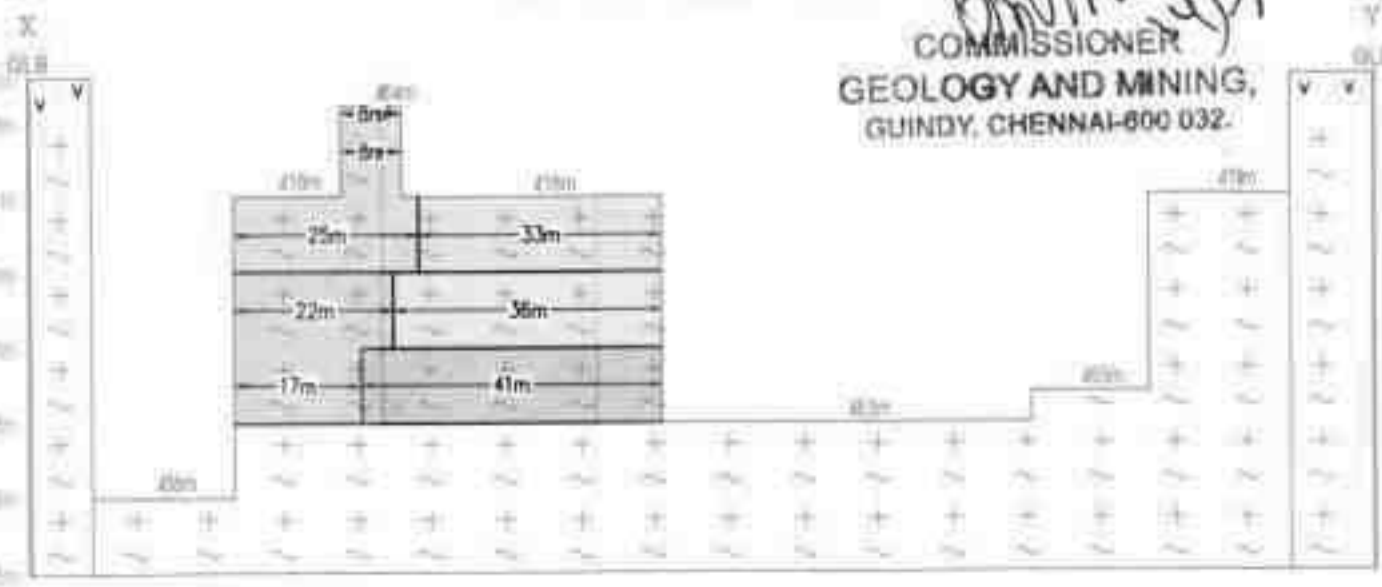
PREPARED BY:
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
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BEST OF MY KNOWLEDGE BASED UPON THE LEASMAP
AUTHENTICATED BY STATE GOVERNMENT

[Signature]
D.P. THIRUDARAJUM.S.P.H.D.
QUALIFIED PERSON

SECTION ALONG X-Y

SECTION ALONG A-B

COMMISSIONER
GEOLOGY AND MINING,
GUINDY, CHENNAI-600 032.



5000 E
2400 N

5100 E

5200 E

2400 N
5300 E



2300 N

2300 N

2200 N

2200 N

2100 N

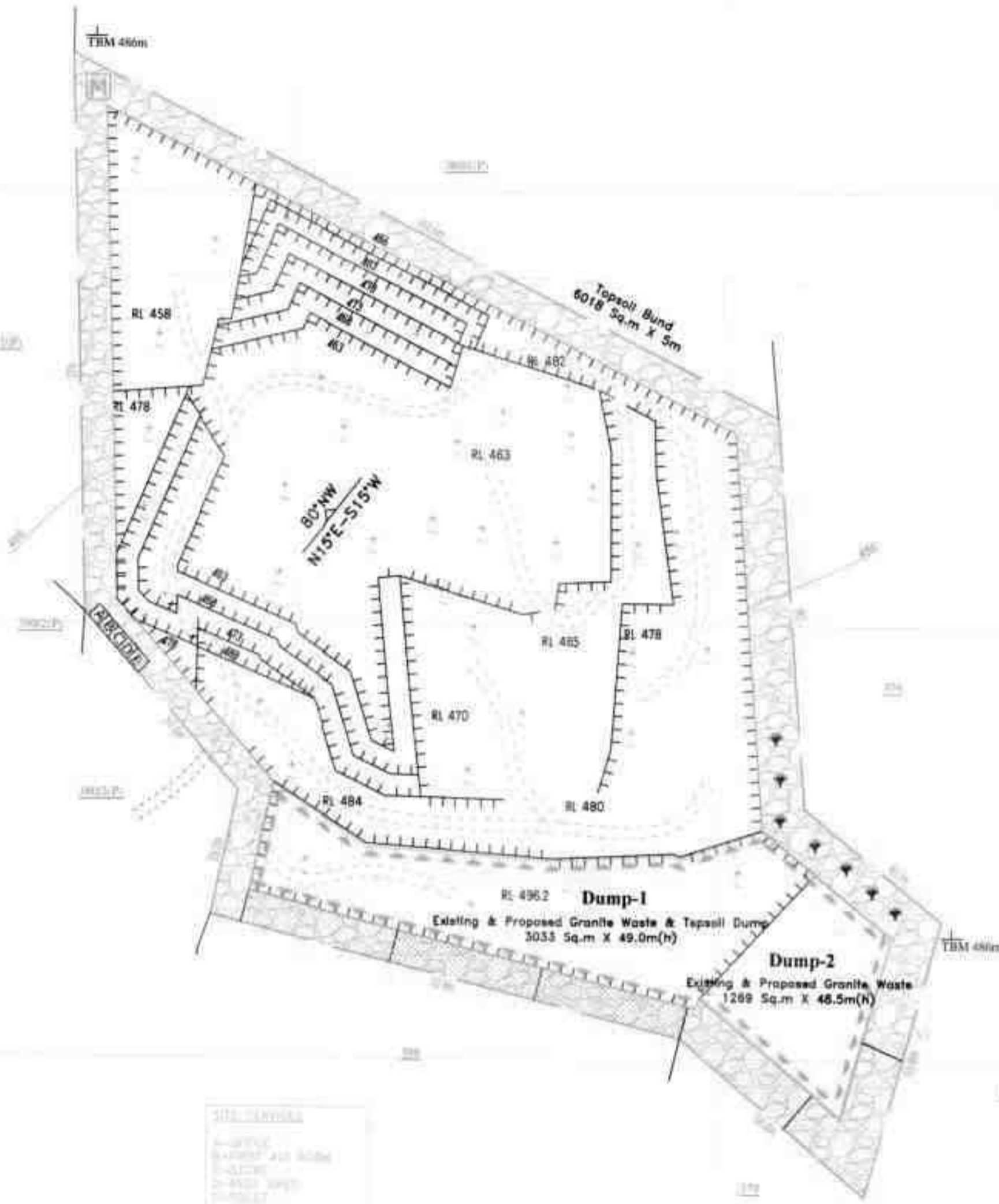
2100 N

5000 E
2000 N

5100 E

5200 E

2000 N
5300 E



SITE SERVICES

WATER
WASTE AND SOIL
WATER
WASTE AND
WATER
WASTE AND

18/16/3rd CROSS, CHENDARAPALLI, BARGUR, KRISHNAGIRI	[Symbol]
18/16/3rd CROSS, CHENDARAPALLI, BARGUR, KRISHNAGIRI	[Symbol]
18/16/3rd CROSS, CHENDARAPALLI, BARGUR, KRISHNAGIRI	[Symbol]
18/16/3rd CROSS, CHENDARAPALLI, BARGUR, KRISHNAGIRI	[Symbol]
18/16/3rd CROSS, CHENDARAPALLI, BARGUR, KRISHNAGIRI	[Symbol]

PLATE NO.VI
DATE OF SURVEY:03.08.2022

LESSEE:
THIRU.MIR TAHAR ALI,
18/16,3rd CROSS,
CO-OPERATIVE COLONY,
KRISHNAGIRI TALUK & DISTRICT 635 001.

LOCATION OF QUARRY:
S.F.NO : 380/1(P)
EXTENT : 2.48.0 HA,
VILLAGE : CHENDARAPALLI,
TALUK : BARGUR
(Formerly Krishnagiri),
DISTRICT : KRISHNAGIRI.

INDEX

QUARRY LEASE BOUNDARY	[Symbol]
7.5m & 10m SAFETY DISTANCE	[Symbol]
APPROACH ROAD	[Symbol]
TEMPORARY BENCH MARK	[Symbol]
QUARRY PIT	[Symbol]
QUARRY ROAD	[Symbol]
TOPOGRAPHICAL CONTOUR	[Symbol]
SHRUB	[Symbol]
STRIKE & DIP	[Symbol]
GREY GRANITE	[Symbol]
TOP SOIL	[Symbol]
EXISTING DUMP	[Symbol]
TOPSOIL DUMP	[Symbol]

QUARRY LAYOUT & AFFORESTATION PLAN SCALE-1:1000

PREPARED BY:
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASAWAY AUTHENTICATED BY STATE GOVERNMENT.

[Signature]
D.P. THANGARAJU, M.S., P.L.D.,
QUALIFIED PERSON

5000 E 2400 N

5100 E

5200 E

2400 N 5300 E



2300 N

2300 N

2200 N

2200 N

2100 N

2100 N

5000 E 2000 N

5100 E

5200 E

2000 N 5300 E



LANDUSE PATTERN				
DESCRIPTION	PRESENT AREA (Ha)	AREA TO BE RECOVERED AT THE END OF LIFE OF QUARRYING PERIOD (Ha)	AREA AT THE END OF LIFE OF QUARRYING PERIOD (Ha)	Color Code
AREA UNDER QUARRY	1.83.0	NIL	2.25.4	[Color Box]
DUMPS	0.85.0	NIL	Back filling	[Color Box]
INFRASTRUCTURE	NIL	NIL	NIL	[Color Box]
ROADS	0.02.0	NIL	NIL	[Color Box]
GREEN BELT	NIL (0.05.0)	NIL (0.15.5)	NIL (0.15.5)	[Color Box]
ENVIRONMENTAL AREA	NIL	NIL	0.22.8	[Color Box]
TOTAL	2.48.0	NIL	2.48.0	[Color Box]



PLATE NO.VII
 DATE OF SURVEY: 03.08.2022

LESSEE:
 THIRU. MIR TAHAR ALI,
 18/16, 3rd CROSS,
 CO-OPERATIVE COLONY,
 KRISHNAGIRI TALUK & DISTRICT 635 001.

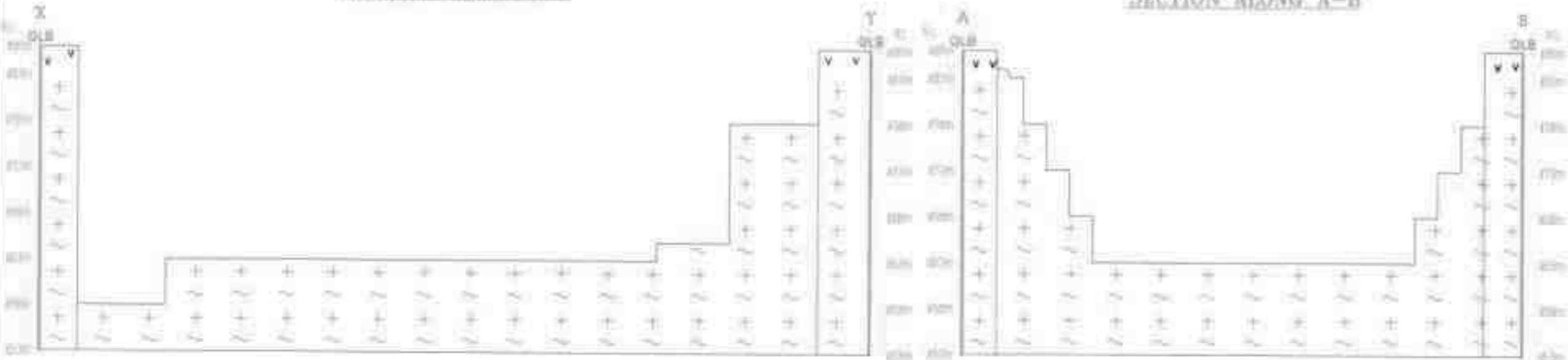
LOCATION OF QUARRY:
 S.F.NO : 380/1(P)
 EXTENT : 2.48.0 HA,
 VILLAGE : CHENDARAPALLI,
 TALUK : BARGUR
 (Formerly Krishnagiri),
 DISTRICT : KRISHNAGIRI.

INDEX

QUARRY LEASE BOUNDARY	[Symbol]
7.5m & 10m SAFETY DISTANCE	[Symbol]
APPROACH ROAD	[Symbol]
TEMPORARY BENCH MARK	[Symbol]
QUARRY PIT	[Symbol]
QUARRY ROAD	[Symbol]
TOPOGRAPHICAL CONTOUR	[Symbol]
SHRUB	[Symbol]
STRIKE & DIP	[Symbol]
GREY GRANITE	[Symbol]
TOP SOIL	[Symbol]
DUMP	[Symbol]
TOPSOIL DUMP	[Symbol]
PROPOSED GARLAND DRAIN	[Symbol]
BUND/FENCING	[Symbol]

SECTION ALONG X-Y

SECTION ALONG A-B



PROGRESSIVE QUARRY CLOSURE PLAN & SECTIONS
 SCALE-1:1000
 SEC-HOR 1:1000
 VER 1:500

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 LEASEWAY AUTHENTICATED BY STATE GOVERNMENT

[Signature]
 D.P. THANGARAJAN, S.P.S.,
 QUALIFIED PERSON

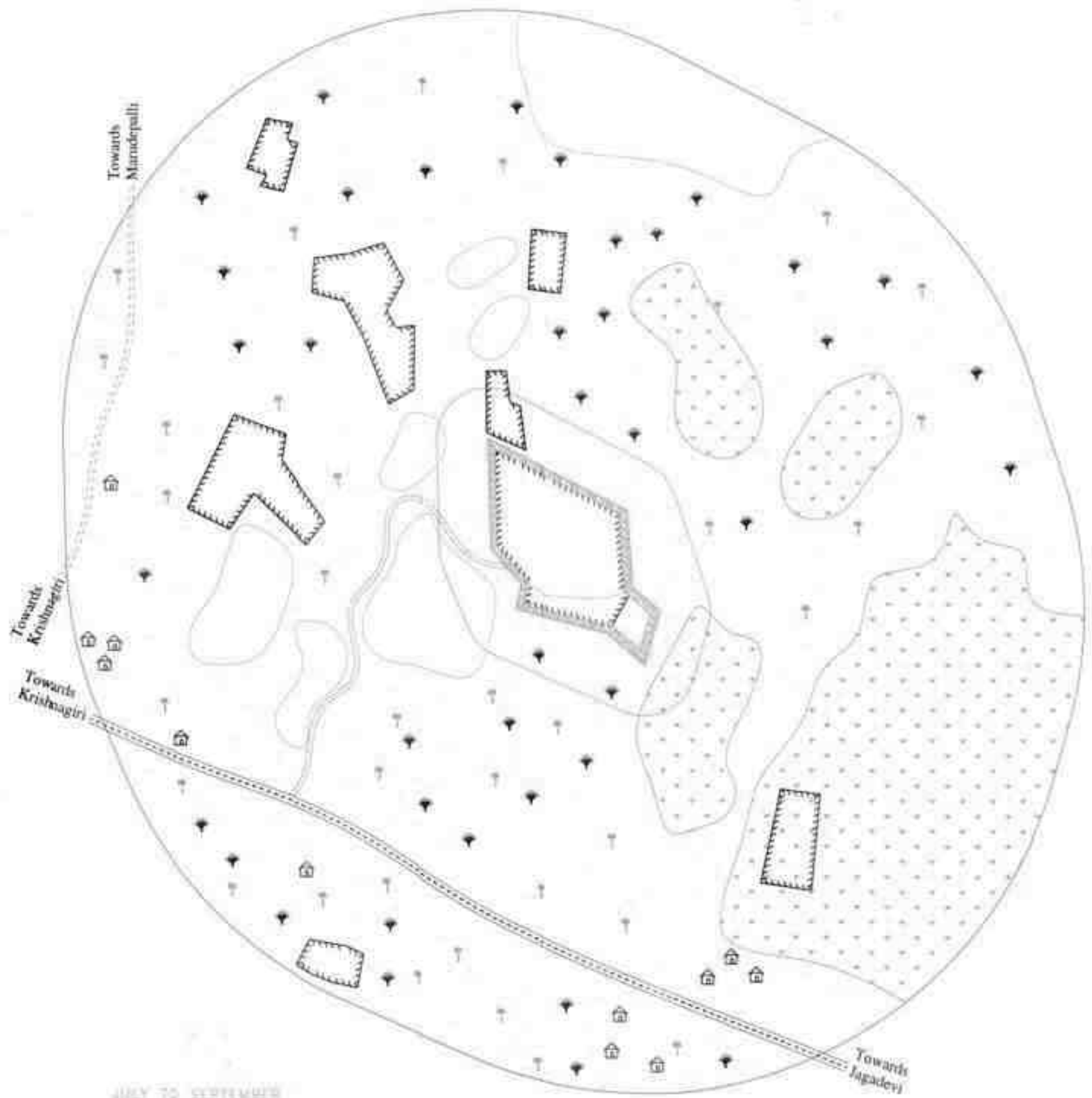


PLATE NO.VIII

DATE OF SURVEY:03.08.2022.

LESSEE:
 THIRU MIR TAHAR ALI,
 18/16,3rd CROSS,
 CO-OPERATIVE COLONY,
 KRISHNAGIRI TALUK & DISTRICT:635 001.

LOCATION OF QUARRY:
 S.F.NO : 380/1(P)
 EXTENT : 2.48.0 HA,
 VILLAGE : CHENDARAPALLI,
 TALUK : BARGUR
 (Formerly Krishnagiri),
 DISTRICT : KRISHNAGIRI.

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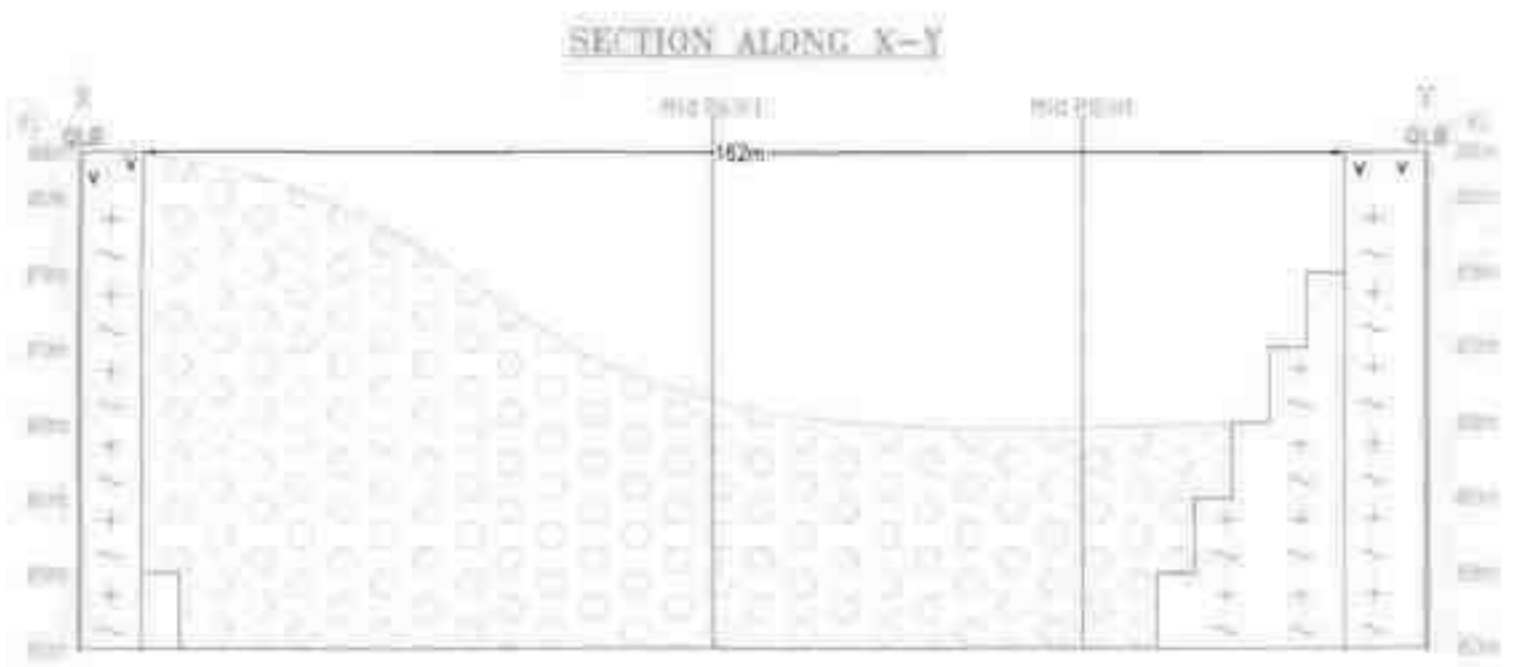
Q.L BOUNDARY	
60M RADIUS	
500m RADIUS	
WIND DIRECTION	
TREES	
PANCHAYAT ROAD	
APPROACH ROAD	
AGRICULTURAL LAND	
HILLOCK	
QUARRY PIT	
HABITATION	
TANK	
DUMP	

ENVIRONMENTAL PLAN

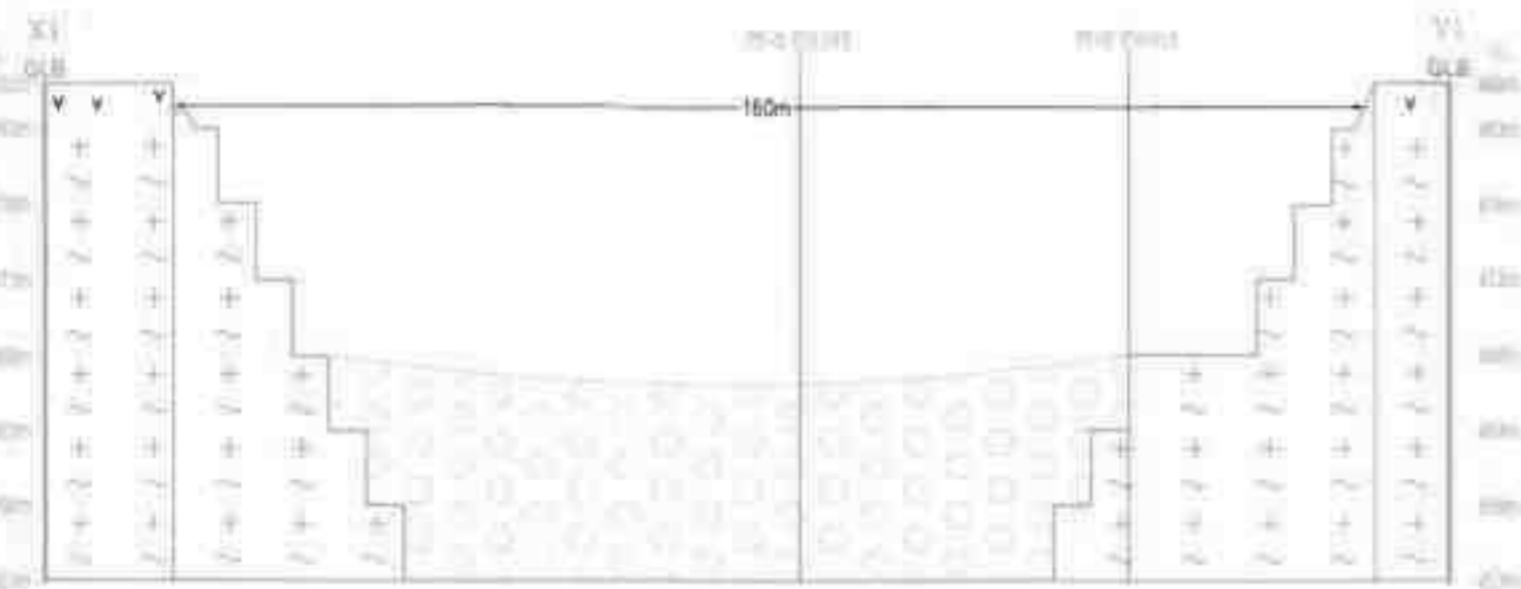
SCALE 1:5000

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 LEASER'S
 AUTHENTICATED BY STATE GOVERNMENT

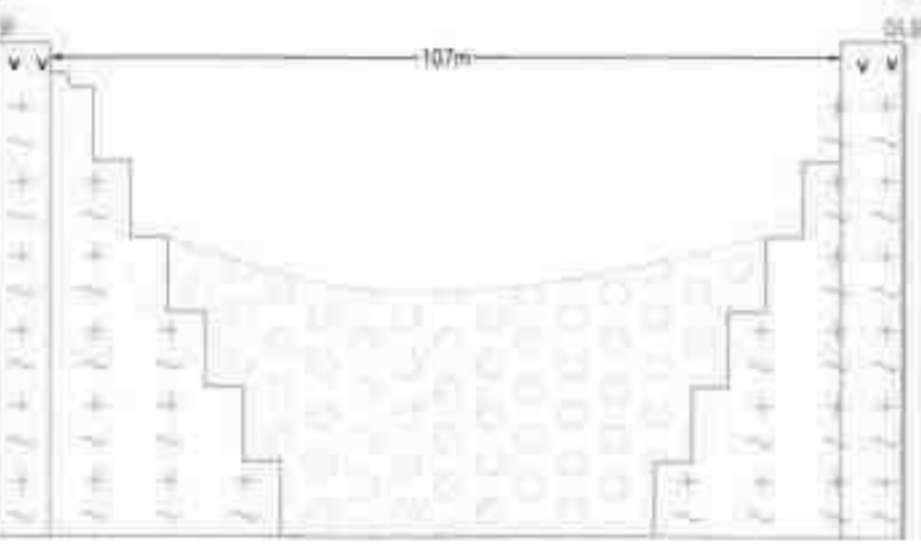
D.P. BHARGAVA, M.S.L.P.N.D.
 QUALIFIED PERSON



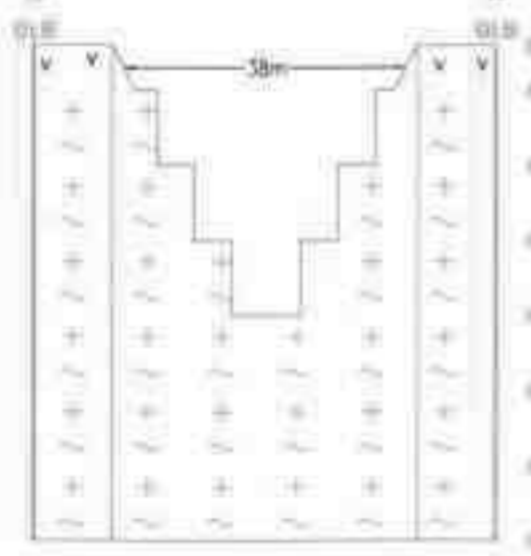
SECTION ALONG X1-Y1



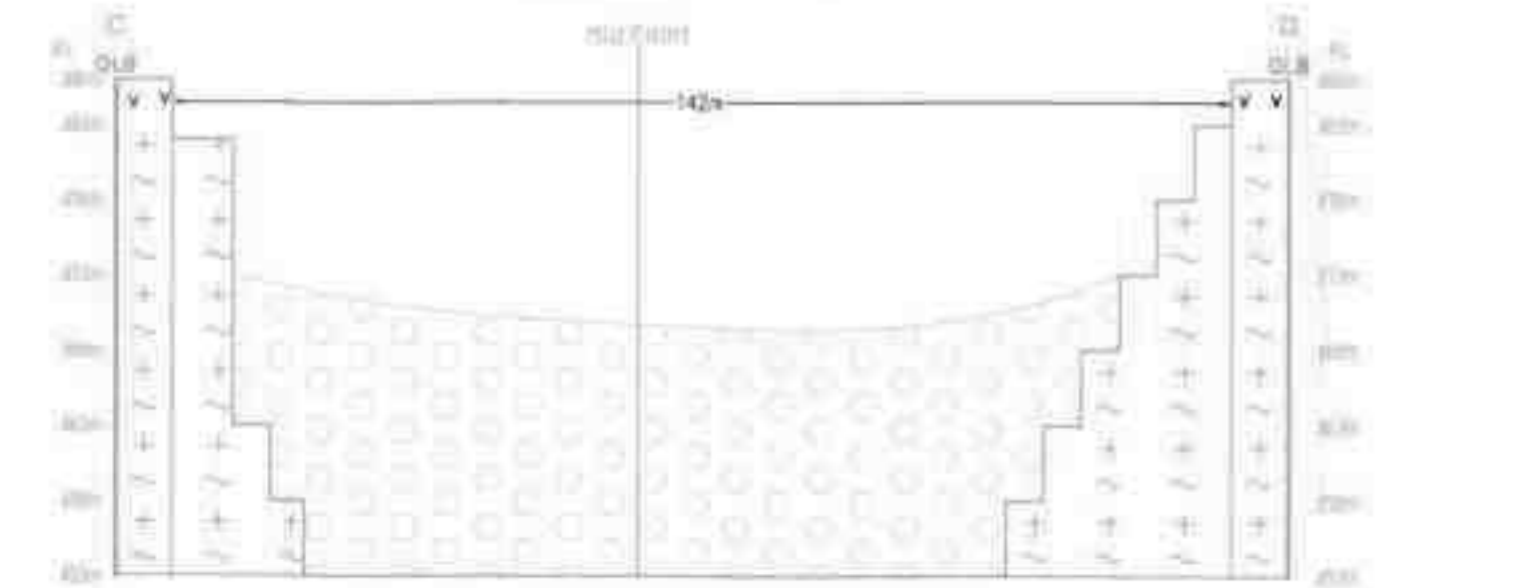
SECTION ALONG A-B



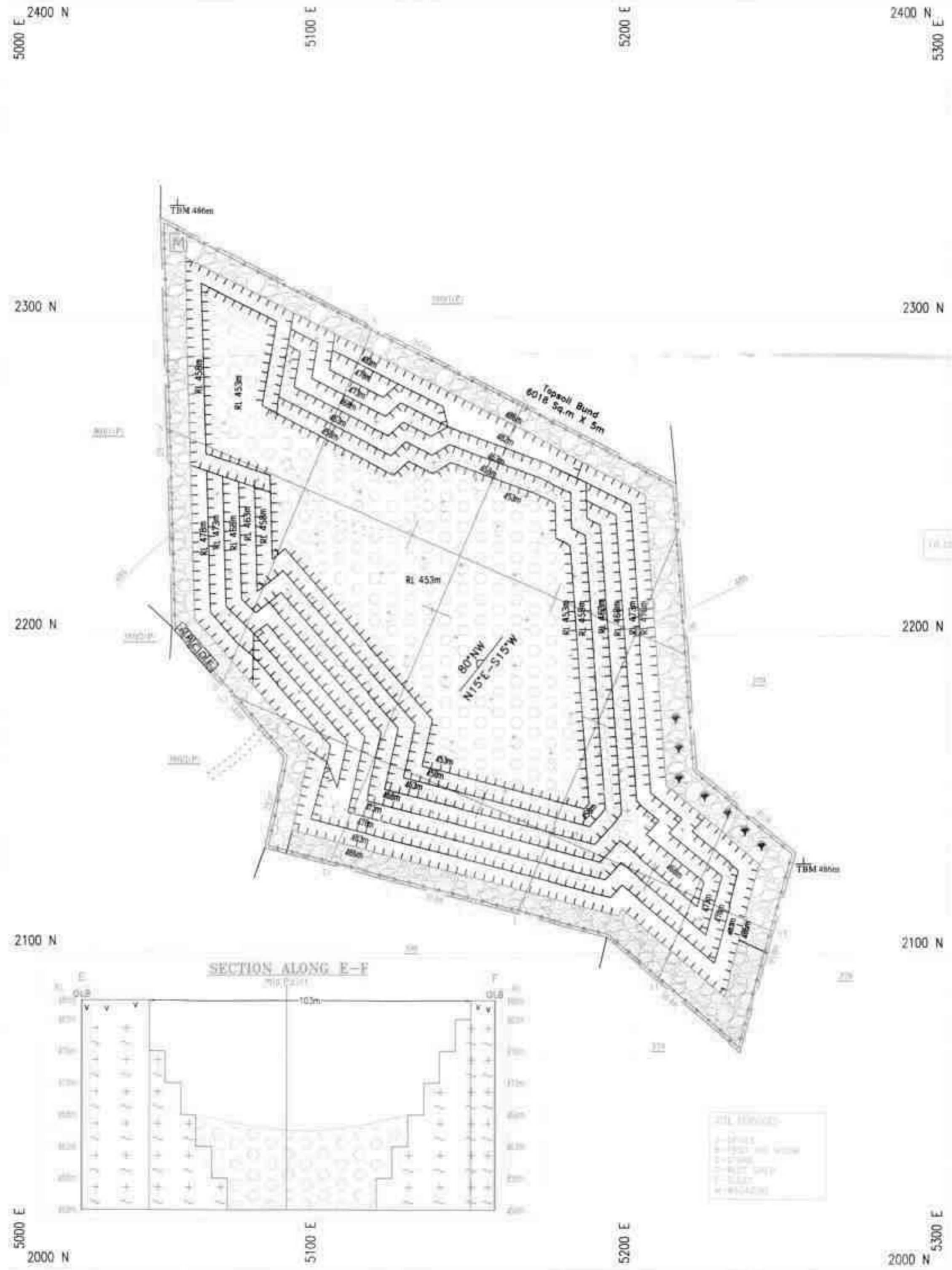
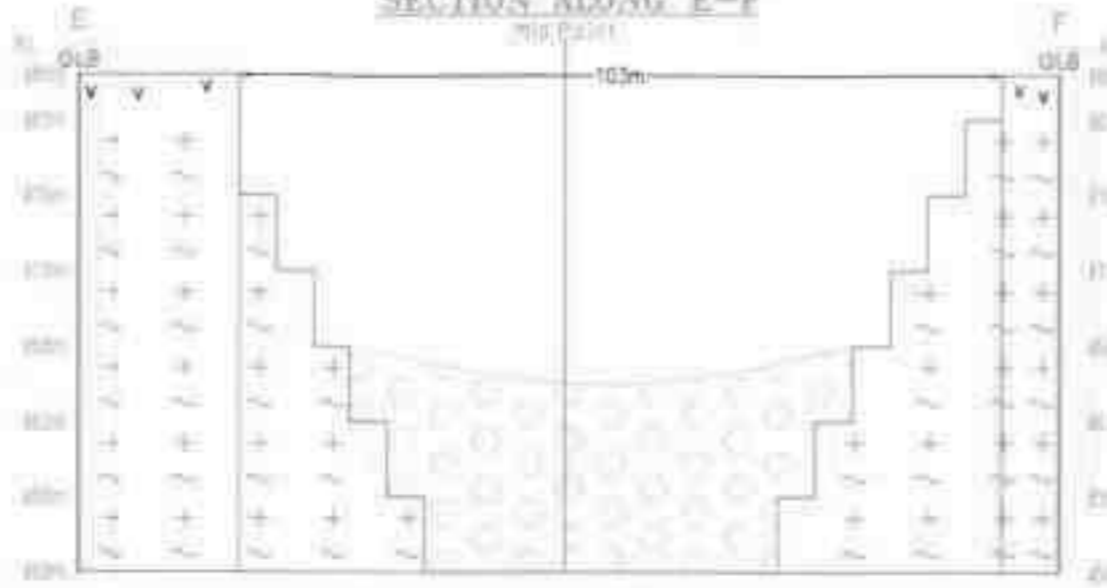
SECTION ALONG C-D



SECTION ALONG C'-D'



SECTION ALONG E-F



U. P. 64871, Mr. Jaganmohan Reddy, Director, Government Engineering College, Tirupur (635025-4)

T.T.T.

V. B. 10.000-10.000000 V. Affirmation

PLATE NO. IX	
DATE OF SURVEY: 03.08.2022	
LESSEE: THIRU MIR TAHAR ALI, 18/16, 3rd CROSS, CO-OPERATIVE COLONY, KRISHNAGIRI TALUK & DISTRICT 635 001.	
LOCATION OF QUARRY: S.F. NO : 380/1(P) EXTENT : 2.48.0 HA. VILLAGE : CHENDARAPALLI, TALUK : BARGUR (Formerly Krishnagiri), DISTRICT : KRISHNAGIRI.	
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QUARRY ROAD	
TOPOGRAPHICAL CONTOUR	
SHRUB	
STRIKE & DIP	
GREY GRANITE	
TOP SOIL	
BUND	
PROPOSED BACK FILLING	
CONCEPTUAL PLAN & SECTIONS	
SCALE-1:1000 SEC-HR 1:1000 VER 1:500	
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 LEASER'S AUTHORITY AUTHENTICATED BY STATE GOVERNMENT.	
 G. P. THAMARAJ, S. P. H. D., QUALIFIED PERSON	



**THIRULDEEPAK S. BILGI, I.F.S.
MEMBER SECRETARY**

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

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

TERMS OF REFERENCE (ToR)

LrNo.SEIAA-TN/E.No.10152/ToR- 1530/2023 Dated: 07.08.2023.

To

M/s Zak Exports,
No.35/13, 2nd Cross Co-operative Colony,
Krishnagiri Taluk,
Krishnagiri District - 635001.

Sir / Madam,

Sub: SEIAA, Tamil Nadu - Terms of Reference with public Hearing (ToR) for the Proposed Grey Granite quarry lease area over an extent of Extent 3.50.0 Ha at S.F. No. 380/1 (Part) of Chendarapalli Village, Bargur Taluk, Krishnagiri District, Tamil Nadu by M/s. Zak Exports - 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/430120/2023, dated: 21.05.2023.
 2. Your application submitted for Terms of Reference dated: 23.06.2023.
 3. Minutes of the 394th SEAC meeting held on 21.07.2023.
 4. Minutes of the 644th Authority meeting held on 07.08.2023.

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


**MEMBER SECRETARY
SEIAA-TN**

The proponent, M/s. Zak Exports has submitted application for Terms of Reference (ToR), for the proposed Grey Granite quarry lease area over an extent of Extent 3.50.0 Ha at S.F. No. 380/1(Part) of Chendarapalli Village, Bargur Taluk, Krishnagiri District, Tamil Nadu.

SEAC Remarks: -

The proposal was placed in 394th SEAC meeting held on 21.07.2023. The details of the project furnished by the proponent are given in the website (parivesh.nic.in).

The SEAC noted the following:

1. The Project Proponent, M/s. Zak Exports has applied for Terms of Reference for the Proposed Grey Granite quarry lease area over an extent of Extent 3.50.0 Ha at S.F. No. 380/1 (Part) of Chendarapalli Village, Bargur Taluk, Krishnagiri District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) "Mining of Minerals Projects" of the Schedule to the EIA Notification, 2006.
3. As per mining plan, the lease period is for 20 years. The mining plan is for 5 years & production should not exceed ROM - 54,539m³, Granite recovery @ 35% - 19,089m³ & Granite waste @ 65% - 35,450m³. The annual peak production 11,250m³ of ROM & 3,938m³ of Granite (@ 35%). The ultimate depth of mining is 39 BGL.

Now, the proposal was placed in the 394th Meeting of SEAC held on 21.07.2023. Based on the presentation made by the proponent SEAC recommended grant of **Terms of Reference (TOR) with Public Hearing** as per **Annexure I** of this minute, subject to the following TORs, in addition to the standard terms of reference for EIA study for non-coal mining projects and details issued by the MOEF & CC to be included in EIA/EMP Report:

1. The PP shall submit the 'Action Taken' report on appropriate mitigating measures carried out (or) proposed for the non-compliance items on the Certified Compliance Report obtained from the office of the concerned DEE/TNPCB (or) IRO, MoEF& CC, Chennai.
2. The PP shall carry out the scientific studies to assess the slope stability of the existing quarry wall and the working benches to be constructed during the proposed operations, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the

stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.

3. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.
4. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.

ANNEXURE-I

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


MEMBER SECRETARY
SEIAA-TN

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


MEMBER SECRETARY
SEIAA-TN

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

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

31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-1 in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner.
34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spell out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.

39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCH.
42. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.
43. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

Appendix -I

List of Native Trees Suggested for Planting

1. *Aegle marmelos*-Vilvam
2. *Atenanthera pavonina*-Manjadi
3. *Albizia lebbek*-Vaagai
4. *Albizia amara*-Udil
5. *Bauhinia purpurea* - Mantharai
6. *Bauhinia racemosa* - Aathi
7. *Bauhinia tomentosa*-Iruvathi
8. *Buchanania obovata*-Kattuma
9. *Borassus flabellifer*-Panai
10. *Butea monosperma* - Murakkamarai
11. *Bougainvillea*- Ilava, Sevvilavu
12. *Calophyllum inophyllum* - Punnai
13. *Cassia fistula*- Sarakondrai
14. *Cassia roxburghii*- Sengondrai
15. *Chloroxylon swietenia* - Purasamarai
16. *Cochlospermum religiosum*- Kongu, Manjailavu.

17. *Cordia dichotoma* - Mookuchalimaram
18. *Cretevadansoni* - Mavalingsam
19. *Dillenia indica* - Uva, Uzha
20. *Dillenia pentagyna* - SiruUva, Sitruzha
21. *Diospyros ebenum* - Karungali
22. *Diospyros chloroxylon* - Vaganai
23. *Ficus amplissima* - Kallichi
24. *Hibiscus illiaceus* - Aatrupoovarasu
25. *Hurdwickia binata* - Aacha
26. *Holoptelia integrifolia* - Aayili
27. *Lannea coromandelica* - Odhiam
28. *Lagerstroemia speciosa* - Poo Marudhu
29. *Lepisanthus tetraphylla* - Neikottaimaram
30. *Limonia acclivissima* - Vila maram
31. *Litsea glutinosa* - Pisinpattai
32. *Madhucalongifolia* - Illappai
33. *Manilkara hexandra* - UlakkaiPaalai
34. *Mimusops elengi* - Magizhamaram
35. *Mitragyna parvifolia* - Kadambu
36. *Morinda pubescens* - Nuna
37. *Morinda citrifolia* - VellaiNuna
38. *Phoenix sylvestris* - Eschal
39. *Pongamia pinnata* - Pingam
40. *Premna mollissima* - Muntai
41. *Premna serratifolia* - Narumunai
42. *Premna tomentosa* - PurangaiNaari, PudangaNaari
43. *Prosopis cinerea* - Vannimaram
44. *Pterocarpus marsupium* - Vengai
45. *Pterospermum canescens* - Vennangu, Tada
46. *Pterospermum xylocarpum* - Polavu
47. *Pathranjiva roxburghii* - Pathranjivi

48. *Salvadorapersica* - Ugaamaram
49. *Sapindusemarginatus*- Manipongam, Soapukal
50. *Saracaasoca* - Asoca
51. *Streblusasper*- Pirayamaram
52. *Strychnosuvomica*-Yeni
53. *Strychnospotaforum* - TherthangKottai
54. *Syzygiumcumini* - Naval
55. *Terminaliabellerica*- Thandri
56. *Terminalia arjuna*- Vennarudhu
57. *Toona ciliate* - Sandhanavembu
58. *Thesepiapopulnea*- Puvarasu
59. *Walsuratrifoliata* - valsura
60. *Wrightiatinctoria*- Vep

SEIAA Remarks:-

The subject was placed in 644th Authority meeting held on 07.08.2023. The authority noted that the subject was appraised in 394th SEAC meeting held on 21.07.2023.

Based on the presentation and documents furnished by the project proponent, SEAC after detailed deliberations, decided to **recommend the proposal for the grant of Terms of Reference (ToR).**

After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions in addition to the following conditions and the conditions mentioned in 'Annexure B' of this minute:

Annexure 'B'

Cluster Management Committee

1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.
2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,


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


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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.

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.


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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.

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


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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/untooward 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 been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
- 2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
- 3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.

- 4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
- 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
- 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land


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- area, distance from mine lease, its land use, R&R issues, if any, should be given.
- 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
 - 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
 - 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
 - 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
 - 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
 - 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/ (existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
 - 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for


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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, HIL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs/STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
- 22) One season (non-monsoon) [i.e., March-May (Summer Season); October-December (post monsoon season); December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- 23) Air quality modeling should be carried out for prediction of impact of the project on the air


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quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.

- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
- 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
- 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
- 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
- 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
- 29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
- 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
- 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of

- plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
- 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
 - 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
 - 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
 - 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
 - 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
 - 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
 - 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
 - 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided


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and also incorporated in the final EIA/EMP Report of the Project.

- 40) Details of litigation pending against the project, if any, with direction/order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- 44) Besides the above, the below mentioned general points are also to be followed: -
 - a) Executive Summary of the EIA/EMP Report
 - b) All documents to be properly referenced with index and continuous page numbering.
 - c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc./using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
 - e) Where the documents provided are in a language other than English, an English translation should be provided.
 - f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
 - g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/4/2006-1A, 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-11011/618/2010-1A, II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the


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existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.

- j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

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

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

1. Project name and location (Village, District, State, Industrial Estate (if applicable).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining stating that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.

14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of its acquisition, nearby (in 2-3 km.) water body, population, within 10km other industries, forest, eco-sensitive zones, accessibility. (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through institutions/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.


MEMBER SECRETARY
SEIAA-TN

1986. In this connection, the project proponent has to furnish the action plan.

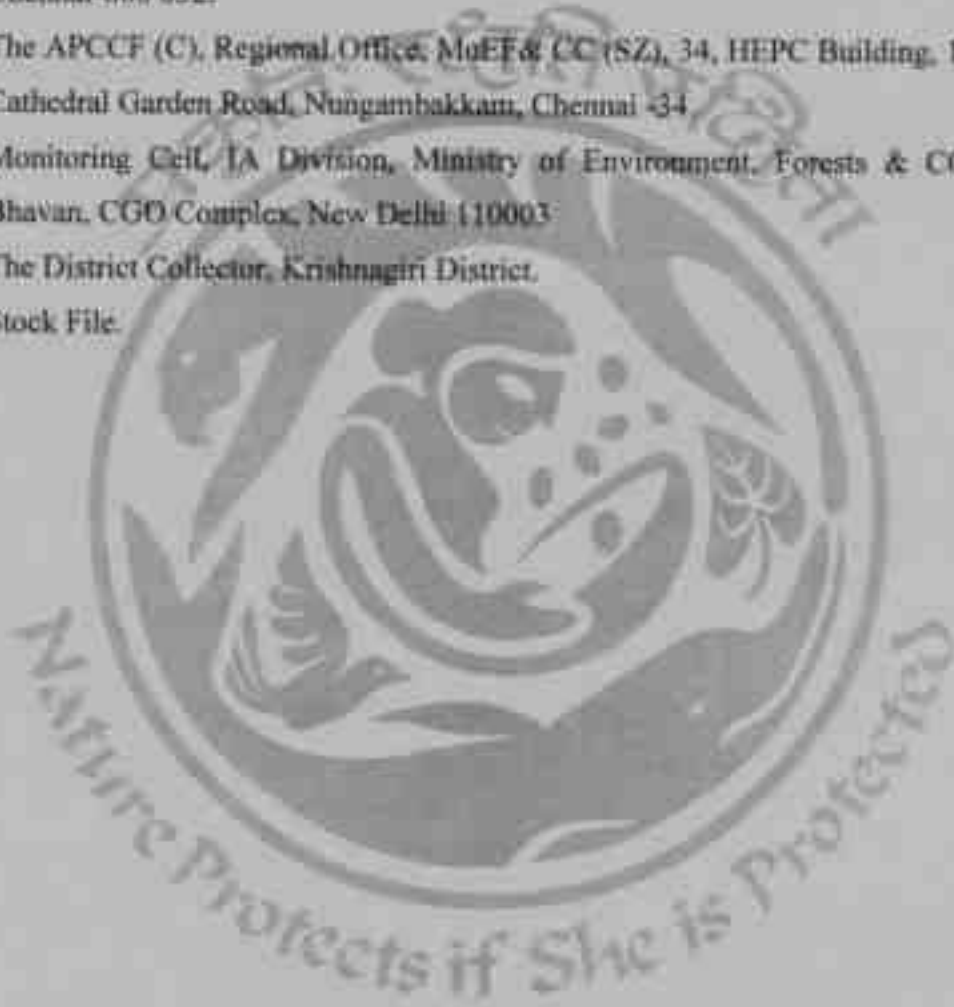
Besides the above, the below mentioned general points should also be followed: -

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF& CC vide O.M. No. J-11013/41/2006-IA. II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F.No.J -11013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website <http://www.moef.nic.in> may be referred.
 - After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
 - The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.
 - The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-(IA-II(I)(part) dated 29th August, 2017.


MEMBER SECRETARY
SEIAA-TN

Copy to:

1. The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
4. 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 110003
6. The District Collector, Krishnagiri District.
7. Stock File.



From
Dr. S.Vediappan, M.Sc.,Phd.,
Deputy Director,
Dept of Geology and Mining,
Krishnagiri.

To
M/s. Zak Exports,
No. 35/13,
2nd cross co-operative Colony,
Krishnagiri Taluk & District - 635 001.

Roc.No.1255/2022 /Mines dated: 21.09.2022.

Sir,

Sub: Mines and Minerals - Krishnagiri District - Grey Granite - Krishnagiri District - Bargur Taluk - Chendarapalli Village in Patta land in S.F.No. 380/1(Part) - Over an extent of 3.50.00 Hect of Grey Granite quarry lease granted to M/s. Zak Exports - Details of quarries situated within 500 mts radial distance - Requested by the lessee - Details furnished - reg.

Ref: 1. G.O.(3D) No. 25, Industries (MME.2) department dated: 21.11.2017.
2. Mining plan approved the Commissioner of Geology and Mining in Lr. No. 6982/MMS/2016 dated: 14.07.2017.
3. 1st Scheme of Mining approved the Commissioner of Geology and Mining letter Rc.No. 4969/MM4/2022 Dated: 21.09.2022.
4. M/s. Zak Exports, letter dated: 26.09.2022.

kind attention is invited to the reference cited.

2) Quarry lease had been granted to M/s. Zak Exports for quarrying Grey Granite over an extent of 3.50.00 Hects in patta lands in S.F.No. 380/1(Part) in Chendarapalli Village, Bargur Taluk, Krishnagiri District for a period of 20 years under the provisions of Rule 19 (A) of Tamil Nadu Minor Mineral Concession Rule 1959 vide G.O. dated 21.11.2017, The lease deed was executed on 06.12.2017 and the lease period is valid upto 05.12.2037.

3. The lessee has submitted 1st Scheme of mining for the 2nd five years which was approved by the Commissioner of Geology and Mining, vide letter dated: 21.09.2022.

4. In this connection, M/s. Zak Exports has requested the details of quarries situated within 500mts for the subject quarry vide letter dated: 26.09.2022.

5. As requested by the lessee the details of quarries situated within 500m radius is furnished as follows:

I. Details of Existing quarries.

Sl No	Name of the lessee	GO.No. & Dated	Village & Taluk	S.F No	Extent in Het	Lease period.
1	M/s. Zak Exports	G.O (3D) No 25 Industries, (MME-2) Department Dated 21.11.2017	Chendarapalli, Bargur	380/1 (part)	3.50.0	06.12.2017 to 05.12.2037 Instant proposal (Applied for 1 st Scheme of mining)
2	Thiru.A.Sathar	G.O (3D) No.48 Ind. (MME-2) Dept. Dated 25.07.2016	Chendarapalli Village, Bargur Taluk	375/2D 375/3 375/2E (p) 377/1A1 (p)	1.78.0	01.9.2016 to 31.8.2036 (Applied for 1 st Scheme of mining)
3	Thiru. Mir Tahar Ali	G.O. 3D No. 79 Ind MME2 Dept dated 25.10.2007	Chendarapalli Village, Bargur Taluk	380/1 (Part)	2.48.0	10.12.2007 to 09.12.2027.
4	Thiru.A.Sathar	G.O. 3D No. 13 Ind MME2. Dept dated 30.09.2013	Chendarapalli Village, Bargur Taluk	375/2A 375/2C1 375/2E (p)	1.03.5	07.10.2013 to 06.10.2033
5	Thiru.A.Ahmed	G.O (3D) No. 25 Ind(MME-2) Dept. dt 15.02.2016	Chendarapalli Village, Bargur Taluk	377/1B 378/2 377/2A 378/1 377/2B 377/1A1B 377/1A2	2.85.5	03.03.2016 to 02.03.2036
6	Thiru B.K. Murali, S/o B.C.Krishnan No. 70/53, Karakuppam Bargur 635 104	OO (3D) No. 34 Ind.(MME-2) Dept. Dt. 25.02.2011	Chendarapalli Krishnagiri Taluk	382/5A 382/5B 382/6A 382/6B 382/6C 382/7A 382/7B 382/8 382/9A 382/9B 382/9C 382/10 382/11	2.78.50	28.02.2011 to 27.02.2031.

7.	Thiru. Venkatesan	G.O (3D) No. 31 Ind(MME-2) Dept. dt 22.2.2016.	Jagadevipalayam Village, Bargur Taluk	9	3.22.0	04.03.2016 to 03.03.2036
8.	Tmt. Mariam Banu	G.O (3D) No. 28 Ind(MME-2) Dept. dt 15.02.2016	Chendarapalli Krishnagiri Taluk	378/3 379/7 379/8	3.90.0	01.03.2016 to 29.02.2036
9.	Tmt.M.Varalakshmi	G.O (3D) No 24 Industries (MME-2) Dept. Dated 16.04.2018	Bargur Taluk Soolamalai	335/4B 341/4	1.08.5	14.06.2018 to 13.06.2038
10	Tmt. D.Rukkammal	GO (3D) No. 34 Ind.(MME-2) Dept. Dt. 03.10.2009	Soolamalai Bargur Taluk	335/4A1	1.20.0	14.12.2009 to 13.12.2029

II. Details of abandoned/Old quarries.


Sl. No.	Name of the lessee	GO.No. & Dated	Village & Taluk	S.F No.	Extent in Het	Lease period.
1.	Tamin	G.O. 3D No. 237 Ind MME2, Dept dated 17.03.1999	Chendarapalli Village, Bargur Taluk	381 368	5.86.5	21.06.1999 to 20.06.2019
2.	M/s. Enterprising Enterprises	G.O. 3D No. 86 Ind MME2, Dept dated 24.06.1995	Chendarapalli Village, Bargur Taluk	401(P)	4.05.0	15.05.1995 to 14.05.2005 (court order Non Operation)

Details of other Proposed/applied quarries

Sl. No.	Name of the lessee	GO.No. & Dated	Village & Taluk	S.F No.	Extent in Het	Lease period.
1.	Thiru. Salman Sathar	-	Soolamalai, Bargur	341/1(P)	1.36.8	Applied area and under process
2.	M/s. Bismillah Exports	-	Soolamalai, Bargur	339/1(P)	1.02.0	Applied area and under process
3.	TAMIN	-	Chendarapalli, Bargur	383/1	6.94.5	Applied area and under process


 Deputy Director,
 Dept of Geology and Mining,
 Krishnagiri.

Copy to :-


 26/10/22

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

COMMISSIONERATE OF GEOLOGY AND MINING

From
Thiru J. Jayakanthan, I.A.S.,
Commissioner,
Department of Geology and Mining,
Guindy, Chennai-32.

To
M/s Zak Exports,
No.35/13, 2nd Cross
Co-operative Colony,
Krishnagiri Taluk,
Krishnagiri - 635001.

Rc.No.4969/MM4/2022 dated: 21.09.2022

Sir,

Sub: Mines and Minerals - Minor mineral - Grey Granite - Krishnagiri district - Bargur taluk - Chendarapalli village - over an extent of 3.50.0 ha of Patta lands - S.F.No.380/1(Part) - Quarry lease granted to M/s. Zak Exports, Krishnagiri - First Scheme of Mining for the period 2022-23 to 2026-27 - Submitted in time - recommended and forwarded by the Deputy Director, Krishnagiri - Approval accorded - Reg.

- Ref: 1. Mining plan approved by the Commissioner of Geology and Mining in letter No. 6982/MM5/2016 dated.14.07.2017.
2. G.O. (3D) No.25, Industries (MME-2) Department dated.21.11.2017.
3. First Scheme of mining submitted by M/s. Zak Exports, Krishnagiri at district office dated.01.08.2022.
4. The Deputy Director, (G&M) Krishnagiri letter in Rc.No.1255/2022/Mines dated 03.08.2022.
5. The Deputy Director, (G&M) Krishnagiri letter in Rc.No.1255/2022/Mines dated 19.09.2022.

Kind attention is invited to the above references cited.

2) The lessee M/s.Zak Exports, Krishnagiri in the reference 3rd cited, has submitted the first Scheme of mining for approval for the quarry lease granted vide G.O. (3D) No.25, Industries (MME-2) Department, dated:21.11.2017 for quarrying Grey Granite over an extent of 3.50.0 ha of patta land in S.F.No.380/1(Part) of Chendarapalli village, Bargur taluk, Krishnagiri district. The period of quarry lease is 20 years from 06.12.2017 to 05.12.2037.

3) The Deputy Director (G&M), Krishnagiri district in the reference 4th cited has recommended and forwarded the first scheme of Mining submitted by the lessee for the period from 2022-23 to 2026-27 and reported as follows:

- i) The mining plan for the subject Grey Granite quarry lease was approved by the Commissioner of Geology and Mining in letter No.6982/MM5/2016 dated:14.07.2017.
- ii) The First scheme of Mining is submitted by the lessee for the period from 2022-23 to 2026-2027 on 01.08.2022 i.e., 120 days before the expiry of the mining plan period.
- iii) The lessee has obtained Environmental Clearance from DEIAA in Lr. No. 13/DEIAA-KGI/EC No. 11/2017 dated: 12.10.2017 for the first five year period. Further, the lessee has not obtained transport permit without Environment Clearance during the violation period i.e 15.01.2016 to 10.01.2017. Hence, 100% cost of the mineral to be remitted does not arise in this area. Quantity approved by DEIAA is 18,025cbm for the first five years period upto 05.12.2022 and the lessee has transported 15,318.770cbm from the lease hold area.
- iv) The Deputy Director (G&M), Krishnagiri has reported that the ROM for the first scheme period is 54,539cbm and the proposed production for the first scheme period is 19,089cbm @ 35% recovery. The proposed production for the five year period is detailed as follows:

Year	ROM (cbm)	Proposed production @ 35% recovery
2022-23	10728	3755
2023-24	10690	3742
2024-25	10871	3804
2025-26	11000	3850
2026-27	11250	3938
Total	54539	19089

- v) The Deputy Director (G&M), Krishnagiri has also stated that, the lessee has complied the terms and conditions stipulated in the lease deed and there is no violations noticed in the subject area. Finally, the Deputy Director (G&M), Krishnagiri has recommended the first Scheme of Mining submitted by M/s. Zak Exports, Krishnagiri for approval.
- vi) Further the Deputy Director, Krishnagiri vide reference 5th cited has reported that during field inspection conducted by the Assistant Geologist, it is verified that there is no archeological monuments situated within 500 m radial distance from the applied area and no reserve forest situated with in the radial distance of 1 km from the subject applied area and satisfies Rule 36 (1-A) (d) (c) of amended Tamil Nadu Minor Mineral Concession Rules, 1959.

4) Based on the recommendations of the Deputy Director(G&M), Krishnagiri district and in exercise of the powers conferred under Rule, 18(4) of Granite Conservation and Development Rules, 1999 read with G.O. (Ms) No.87, Industries (MMC.1) Department dated 22.02.2001, the first Scheme of Mining for the period 2022-23 to 2026-27 submitted by M/s. Zak Exports, Krishnagiri is approved subject to the following conditions in addition to the conditions stipulated in Government Order under reference 2nd cited:

- i. This first Scheme of Mining 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. The approval of the first Scheme of Mining (including progressive mine closure 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 law including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1986, Indian Explosives Act, 1884 [Central Act IV of 1884] and the rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.

- iii. This first Scheme of Mining including progressive mine closure plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- iv. Provisions of the Mines Act, 1952 and the Rules and Regulations made there under including submission of notice of opening, appointment of manager and other statutory officials as required under Mines Act, 1952 shall be complied with.
- v. Provisions made under Mines and Minerals (Development & Regulation) Act, 1957, MMDR Amendment Act, 2015 and Granite Conservation and Development Rules, 1999 made there under shall be complied with.
- vi. This approval of first Scheme of Mining is restricted to the mining lease area only. The mining lease area is as shown on the statutory plan under Granite Conservation and Development Rules, 1999. The Commissionerate of Geology and Mining does not take any responsibility regarding correctness of the boundaries of the lease shown on the ground with reference to the lease map and other plans furnished by the lessee.
- vii. If anything is found to be concealed, in contra to the provisions of the Granite Conservation and Development Rules, 1999 and Tamil Nadu Minor Mineral Concession Rules, 1959 and proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.
- viii. Relaxation to be obtained under Rule 106(2)(b) of Metalliferous Mines Regulations, 1961 from the Director of Mines Safety, if necessary.
- ix. The lessee should obtain environmental clearance from the appropriate authority.
- x. This first Scheme of Mining is approved for the proposal contained therein and is applicable from the date of approval of the document for the quarrying activities to be carried out within the leasehold area.
- xi. The earlier instances of irregular / illegal quarrying, if any, shall not be construed as regularized through the approval of this document.
- xii. The lessee shall remit the penalty / cost of mineral / other dues if any as arrived by the District Collector / Deputy Director (G&M), Krishnagiri district.
- xiii. The quarry labourers shall be registered with the Labour Board and shall be enrolled under the Insurance Scheme.

- xiv. Non adherence to any condition set-out above, the approval shall be deemed to have been withdrawn with immediate effect.
- xv. The applicant should comply with the additional conditions stipulated in the Government of India, Ministry of Mines, Order No.11/02/2020, dated.14.01.2020 issued as per the Order of the Hon'ble Supreme Court of India, dated.08.01.2020 that states, "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."
- xvi. The lessee should remit the Stamp Duty as per the approved Scheme of Mining during the currency of the lease period if any.
- xvii. The applicant company should carry out DGPS survey and erection of RCC boundary pillars as per the norms stipulated in the EOI notification in Rc.No.2921/MM4/2019 dated.01.02.2018 and subsequent corrigendum dated 13.08.2019.

Encl: Approved 1st Scheme of Mining.


Commissioner of Geology and Mining
21/9/22

Copy to:

1. The Additional Chief Secretary to the Government,
Industries, Investment Promotion & Commerce Department,
Secretariat, Chennai-09.
2. The Director of Mines Safety, Lapis Lagoon, AA Block, Shanthy Colony, Anna Nagar, Chennai-40.
3. The District Collector,
Krishnagiri.

Ky
21/9/22



**SCHEME OF QUARRYING ALONG WITH
PROGRESSIVE QUARRY CLOSURE PLAN
FOR CHENDARAPALLI GREY GRANITE QUARRY**

(Under Rule 18 (2) of Granite Conservation and Development Rules, 1999)

Lease Period: 06.12.2017 to 05.12.2037

Patta Land / Scheme Period 2022-23 to 2026-27

IN

LOCATION OF THE QUARRY LEASE AREA

EXTENT : 3.50.0 Ha,
S.F.No. : 380/1(PART)
VILLAGE : CHENDARAPALLI
TALUK : BARGUR
DISTRICT : KRISHNAGIRI
STATE : TAMILNADU.

FOR

APPLICANT / LESSEE

M/s. ZAK EXPORTS,
No.35/13, 2nd Cross Co-operative Colony,
Krishnagiri Taluk and District,
Tamil Nadu - 635 001,

PREPARED BY

Dr. P. THANGARAJU, M.Sc., Ph.D.,
Qualified Person (As per Rule 15(1)(a) and (b) of MCR 2016)

No.17, Advaita Ashram Road,
Alagapuram, Salem District,
Tamil Nadu - 636 004
Mobile No. +91 94422 78601, 94433 56539
E-mail: infogeoexploration@gmail.com



M/s. Zak Exports,
No.35/13, 2nd Cross Co-operative Colony,
Krishnagiri Taluk and District,
Tamil Nadu – 635 001.

CONSENT LETTER FROM LESSEE

The Scheme of Quarrying along with Progressive Quarry Closure Plan in respect of Chendarapalli Grey Granite Quarry over an extent of 3.50.0 Hectares of Patta land in S.F.No. 380/1(Part) of Chendarapalli Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State has been prepared by

Dr. P. THANGARAJU, M.Sc., Ph.D.,
Qualified Person

I request the Commissioner, Department of Geology and Mining, Chennai to make further correspondence regarding the modification of the Scheme of quarrying with the said Qualified Person at his following address.

Dr. P. THANGARAJU, M.Sc., Ph.D.,
No.17, Advaita Ashram Road,
Alagapuram, Salem – 636 004.
Mobile: +91 94422 78601, 94433 56539.

I hereby undertake that all the modifications, if any made in the Scheme of Quarrying by the Qualified Person may be deemed to have been made with my knowledge and consent and shall be acceptable to me and binding on me in all respects.

Signature of the lessee
For M/s. Zak Exports

(Mir Mazahar ali)
Partner

Place: Krishnagiri

Date: 08.07.2022



M/s. Zak Exports,
No.35/13, 2nd Cross Co-operative Colony,
Krishnagiri Taluk and District,
Tamil Nadu – 635 001.

DECLARATION OF MINE OWNER

The Scheme of Quarrying along with Progressive Quarry Closure Plan in respect of Chendarapalli Grey Granite Quarry over an extent of 3.50.0 Hectares of Patta land in S.F.No. 380/1(Part) of Chendarapalli Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State has been prepared in full consultation with me by

Dr. P. THANGARAJU, M.Sc., Ph.D.,
Qualified Person

I have understood its contents and agree to implement the same in accordance with Laws applicable to Mines.

Signature of the lessee
For M/s. Zak Exports


(Mir Mazahar ali)
Partner

Place: Krishnagiri

Date: 18.07.2022

CERTIFICATE FROM THE QUALIFIED PERSON

Certified that I, **Dr. P. Thangaraju, M.Sc., Ph.D.**, having an office at No.17, Advaita Ashram Road, Alagapuram, Salem – 636 004, am a Post Graduate in Geology (Madras University) from Madras University, Chennai and I worked in the field of Geology in a role of Geologist.

Rule 15(I)(a) and (b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016 stipulates the eligibility for preparing Mining plans as "(I)(a) a degree in mining engineering or 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 prepare this Scheme of Quarrying along with Progressive Quarry Closure Plan in respect of Chendarapalli Grey Granite Quarry over an extent of 3.50.0 Hectares of Patta land in S.F.No. 380/1(Part) of Chendarapalli Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State for **M/s. Zak Exports**, having an office at No.35/13, 2nd Cross Co-operative Colony, Krishnagiri Taluk and District, Tamil Nadu – 635 001. Since the Mining Plan is prepared as per the provisions contained in Rule 15(I)(a) and (I)(b) of Minerals (Other than Atomic, Hydro Carbons Energy Minerals) Concession Rules, 2016.

Signature of the Qualified Person


Dr. P. Thangaraju, M.Sc., Ph.D.,

Place : Salem

Date : 18.07.2022

Dr. P. THANGARAJU, M.Sc., Ph.D.,
No.17, Advaita Ashram Road,
Alagapuram,
Salem - 636 004.
Mobile: +91 94422 78601, 94433 56539.



CERTIFICATE FROM THE QUALIFIED PERSON

This is to certify that the Provisions of Granite Conservation and Development Rules, 1999 as amended in Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Scheme of Quarrying along with Progressive Quarry Closure Plan in respect of Chendarapalli Grey Granite Quarry over an extent of 3.50,0 Hectares of Patta land in S.F.No. 380/1(Part) of Chendarapalli Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State has been prepared for

M/s. Zak Exports,
No.35/13, 2nd Cross Co-operative Colony,
Krishnagiri Taluk and District,
Tamil Nadu - 635 001.

Whenever specific permissions/exemptions/ relaxations and approvals are required, the lessee will approach the concerned authorities of Commissioner of Geology and Mining, Government of Tamil Nadu, Guindy, Chennai- 600 032 for such permissions/exemptions/ relaxations and approvals.

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

Signature of the Qualified Person


Dr. P. THANGARAJU, M.Sc., Ph.D.,

Place: Salem

Date: 18.07.2022



Dr. P. THANGARAJU, M.Sc., Ph.D.,
No.17, Advaitha Ashram Road,
Alagapuram,
Salem – 636 004.
Mobile: +91 94422 78601, 94433 56539.

CERTIFICATE FROM THE QUALIFIED PERSON

Certified that the Provisions of Mines Act, Rules and Regulations made there under have been observed in the preparation of Scheme of Quarrying along with Progressive Quarry Closure Plan in respect of Chendarapalli Grey Granite Quarry over an extent of 3.50.0 Hectares of Patta land in S.F.No. 380/1(Part) of Chendarapalli Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State has been prepared for

M/s. Zak Exports,
No.35/13, 2nd Cross Co-operative Colony,
Krishnagiri Taluk and District,
Tamil Nadu – 635 001.

Whenever specific permissions/exemptions/ relaxations and approvals are required, the lessee will approach the concerned authorities of the Director of Mines Safety, No.#5, 17th Main, 100ft Road, 4th Block, Koramangala, Bengaluru, Karnataka – 560 034 for such permissions/ exemptions /relaxations and approvals.

It is also certified that information furnished in the Scheme of Quarrying are true and correct to the best of my knowledge.

Signature of the Qualified Person


Dr. P. THANGARAJU, M.Sc., Ph.D.,

Place: Salem

Date: 18.07.2022



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LIST OF ANNEXURES

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1.	Copy of G.O.	I
2.	Copy of FMB	II
3.	Copy of Village Map	III
4.	Copy of Patta	IV
5.	Copy of "A" Register	V
6.	Copy of Adangal	VI
7.	Copy of Consent Letter from the Pattadars	VII
8.	Copy of Mining Plan Approval Letter	VIII
9.	Copy of Lease deed	IX
10.	Copy of Registration Certificate of Firm and Partnership deed	X and X-A
11.	Copy of Identity Proof	XI
12.	Copy of Educational Certificate of Qualified Person	XII
13.	Copy of Experience Certificate of Qualified Person	XIII
14.	Copy of Existing Environmental Clearance Certificate	XIV



LIST OF PLATES

S.NO.	DESCRIPTION	PLATE Nos.	SCALE
1.	LOCATION PLAN	I	1:24,00,000
2.	KEY PLAN (10km RADIUS)	IA	1:1,00,000
3.	ROUTE MAP	IB	Not to scale
4.	ENVIRONMENTAL AND LAND USE PLAN FOR 1km RADIUS	IC	1:10,000
5.	500m RADIUS SATELLITE IMAGE	ID	1:5,000
6.	QUARRY LEASE PLAN	II	1:1,000
7.	SURFACE PLAN	III	1:1,000
8.	GEOLOGICAL PLAN AND SECTIONS	IV	1:1,000
9.	YEAR WISE DEVELOPMENT AND PRODUCTION PLAN AND SECTIONS	V	1:1,000
10.	QUARRY LAYOUT AND AFFORESTATION PLAN	VI	1:1,000
11.	PROGRESSIVE QUARRY CLOSURE PLAN AND SECTIONS	VII	1:1,000
12.	ENVIRONMENTAL PLAN	VIII	1:5,000
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SCHEME OF QUARRYING ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN FOR CHENDARAPALLI GREY GRANITE QUARRY

Lease Period = 06.12.2017 to 05.12.2037

Scheme Period = 2022-23 to 2026-27

(Prepared Under Rule 18(2) of Granite Conservation and Development Rules, 1999)

1.0 INTRODUCTION:

The present Scheme of quarrying along with Progressive Quarry Closure Plan is prepared in respect of Chendarapalli Grey Granite quarry belongs to **M/s. Zak Exports**, having an office at No.35/13, 2nd Cross Co-operative Colony, Krishnagiri Taluk and District, Tamil Nadu – 635 001 for over an extent of 3.50.0 Hectares of Patta land in S.F.No. 380/1(Part) of Chendarapalli Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State.

This scheme of Quarrying is prepared with a view of optimum exploitation of deposit by systematic quarrying with proper bench dimensions and safety measures, to enable the Grey Granite deposit on a long run with consistent of Grey Granite to waste ratio and with a view to maintain uniform cost of quarrying, profit margin, conservation and proper dumping of waste/rejects with minimum damage to the environment and society.

M/s. Zak Exports is a partnership firm executed on 14.10.2015 and the partnership deed reconstituted on 25.05.2016 with three partners. The list of partners is given table below (Refer Annexure No. X-A).

Table - 1

S.No.	Name	Address	Designation
1.	Thiru. Mir Mazahar Ali, S/o. Mir Tahar Ali.	No. 18/16, Co-operative colony, 3 rd Cross, Krishnagiri – 635001.	Partner
2.	Thiru. Mir Mohammed Fareed ali, S/o. Mir Tahar Ali.	No. 35/13, Co-operative colony, 2 nd Cross, Krishnagiri – 635001.	Partner
3.	Thiru. D. Loganathan, S/o. Duraisamy.	No. 3B, 3 rd Cross, Power house colony, Krishnagiri – 635001.	Partner

Thiru. Mir Mazahar ali is an authorized person for signing all the documents on behalf of this firm (Refer Annexure No. X-A).

The Company for the past five years has vast experience in safe and systematic quarrying, Trading and export of granite blocks.

1.1 Particulars of Approval of Mining Plan and Date of Commencement of Mining Operation:

The mining plan was prepared in respect of Grey granite quarry and the same was approved by the Commissioner, Department of Geology and Mining, Guindy, Chennai vide letter No. **6982/MM5/2016 dated 14.07.2017** (Refer annexure No- VIII).

As per direction issued in the precise area communication letter the company has obtained Environmental Clearance from the District level Environment Impact Assessment Authority, Tamil Nadu vide letter No. **13/DEIAA-KGI/ECNo. 11/2017, dated 12.10.2017** (Annexure No. XIV).

The quarry lease was granted vide **G.O. (3D) No.25, Industries (MME.2) Department Dated: 21.11.2017** for a period of twenty years (Refer Annexure No. I). The lease deed was **executed on 06.12.2017** and the lease period is **valid upto 05.12.2037** (Annexure No. IX). The quarry operation has commenced on 14.12.2017. The mining plan period is valid upto 05.12.2022. Now, the first scheme of quarrying is prepared and submitted to obtain approval for the period of **2022-23 to 2026-27 (Five years)**.

1.2 Detail of lease particulars are given as under:

Table - 2

GO. No.	Extent (Ha.)	Date of Execution	Lease Period	Valid upto
G.O.(3D) No.25 Dated: 21.11.2017	3.50.0	06.12.2017	20 Years	05.12.2037

1.3 Proposed and achieved Production particulars for Mining Plan period is given table below:

Table - 3

Proposed				
Year	ROM (m ³)	Production @ 35% (m ³)	Granite Waste @ 65% (m ³)	Topsoil (m ³)
2017 - 18	10000	3500	6500	14336
2018 - 19	10000	3500	6500	8960
2019 - 20	10500	3675	6825	9408
2020 - 21	10500	3675	6825	9408
2021 - 22	10500	3675	6825	9408
Total	51500	18025	33475	51520

Table - 3A

Achieved							
Year	ROM (A) m ³	Recovery (%)	Production m ³	Despatch m ³	Granite Waste m ³	Topsoil (B) m ³	Total Excavated Volume (A+B) m ³
2017 - 18	9942	26	2564.076	1723.531	7377.924	16384	26326
2018 - 19	9938	33	3288.583	3164.633	6649.417	14308	24246
2019 - 20	10483	33	3506.603	4070.043	6976.397	11022	21505
2020 - 21	10490	33	3478.405	3874.483	7011.595	13670	24160
2021 - 22 (Up to 18.07.2022)	10472	24	2546.197	2486.080	7925.803	13492	23964
Total	51325	30(Avg.)	15383.864	15318.770	35941.136	68876	120201

The recovery anticipated @ 35% but achieved an average recovery of 30% due to weathered joints, fractures and fissures of the top layer of the granite formation. There are about 7 blocks undressed which may have a gross measurement of 65.094m³. These blocks when being approved by the buyer's overseas, the same will be dressed into desired dimensions size and will be despatch for sale, if any defect found during buyer's overseas it can be considered as reject.

1.4.0 REVIEW OF MINING PLAN:

1.4.1 Name of the Quarry :	Chendarapalli Grey Granite Quarry
Name of Lessee :	M/s. Zak Exports,
Address :	No.35/13, 2 nd Cross Co-operative colony, Krishnagiri Taluk and District,
State :	Tamil Nadu.
PIN Code :	635 001
E-mail :	exportszak@gmail.com
Mobile :	+91 93442 23717 and 94432 28596.

1.4.2 REVIEW OF COMPLIANCE POSITION OF SALIENT FEATURES OF MINING PLAN:

All the condition stipulated in the G.O. and lease deed was maintained and mitigated during the course of quarrying operations.

1.5.0 REVIEW OF IMPORTANT CHAPTERS OF MINING PLAN:

1.5.1 EXPLORATION:

The Geological Survey of India and Department of Geology and Mining have already carried out mapping by the well experienced geologists.

No detailed prospecting was carried out by any agencies. The applicant had selected the area by outcrop observation. The RQP and his team members made a detailed geological study of the area and clearly demarcated the Grey granite deposit with a mine surveyor. The granite formation is clearly visible from the Outcrop.

Even though the depth persistence of the Grey Granite stone may be beyond 22m depth from the Petrogenetic character of the rock, only 22m (Topsoil 4m + Grey Granite 18m) depth persistent has been taken as economically viable depth to calculate categories of proved, probable, and possible reserves during the approved mining plan period.

The recovery of saleable Grey Granite stones has been taken as 35% and if the recovery percentage is good the recovery may increase or bad it may decrease.

Based on the valuable geological information from these organizations estimation of geological resources and mineable reserves was arrived at considering the waste and market potentiality. Hence, program for future exploration didn't propose during the mining plan period.

1.5.2 MINE DEVELOPMENT

The quarry development and production has proposed in the approved mining plan and actual production is given table below. During the approved mining plan period the quarry development and production has proposed on the Southwest side and progressed towards Northeast side with total dimensions of (L) 112m x (W) 115m x (Depth) 9m. The production details for the first five years of the approved Mining plan period are given as under.

PROPOSAL GIVEN THE PREVIOUS MINING PLAN:

Table - 4

Proposed				
Year	ROM (m³)	Production @ 35% (m³)	Granite Waste @ 65% (m³)	Topsoil (m³)
2017 - 18	10000	3500	6500	14336
2018 - 19	10000	3500	6500	8960
2019 - 20	10500	3675	6825	9408
2020 - 21	10500	3675	6825	9408
2021 - 22	10500	3675	6825	9408
Total	51500	18025	33475	51520

Table - 4A

Achieved							
Year	ROM (A) m³	Recovery (%)	Production m³	Despatch m³	Granite Waste m³	Topsoil (B) m³	Total Excavated Volume (A+B) m³
2017 - 18	9942	26	2564.076	1723.531	7377.924	16384	26326
2018 - 19	9938	33	3288.583	3164.633	6649.417	14308	24246
2019 - 20	10483	33	3506.603	4070.043	6976.397	11022	21505
2020 - 21	10490	33	3478.405	3874.483	7011.595	13670	24160
2021 - 22 (Up to 18.07.2022)	10472	24	2546.197	2486.080	7925.803	13492	23964
Total	51325	30(Avg.)	15383.864	15318.770	35941.136	68876	120201

The proposed recovery was @ 35%, but achieved an average recovery of 30% due to weathered joints, fractures and fissures of the top layer of the granite formation. The lessee has proposed new innovative machineries and equipment with technically highly qualified personnel for improving the recovery percentage. In deep seated conditions the fissures and fractures got much reduced, which may enhance the recovery percentage due to absence of weathered joints and fractures of the deep seated granite formation. At present the lessee has fully developed the lease area and proposed to work in the sheet rock, the sheet rock is having good recovery due to very hard and massive in the area.

Hence, we have considered an average recovery of 35% during the present scheme period, it may enhance. The lessee invested a huge amount and carried out continuously the developing work to find out the potential area for economical quarrying.

In the interest of quarrying, the lessee worked out continuously and tried his maximum effort to market. The lessee was keen in carrying out the quarrying operations in a scientific and systematic manner to win the Grey Granite in all possible means.

1.5.3 REVIEW OF MINING DEVELOPMENT:

The quarry development and production has proposed on the Southwest side and progressed towards Northeast side with total dimensions of (L) 112m x (W) 115m x (Depth) 9m in the approved mining plan. The quarry development and production has started as proposed in the approved mining plan on the Southern side and progressed towards Northern side. There are four different depth exists in the quarried out pit within the lease area. The maximum dimensions of the present quarry pits are given table below (Refer Plate No. III).

Table - 5

Existing Quarry Pit - Dimensions						
Pit ID.	Existing R.L. (m)	Pit R.L. (m)	Area (m ²)	Depth		
				Topsoil (m)	ROM (m)	Total Depth (m)
Depth-1	484	480	615	4	-	4
Depth-2	483.5	479.5	6339	4	-	4
Depth-3	483.5	474.5	7305	4	5	9
Depth-4	483.5	474.5	2960	4	5	9

Table - 5A

Pit wise excavated Volume							
Pit ID.	Existing R.L. (m)	Pit R.L. (m)	Area (m ²)	Total Depth (m)	Topsoil (m ³)	ROM (m ³)	Total Volume (m ³)
Depth-1	484	480	615	4	2460	-	2460
Depth-2	483.5	479.5	6339	4	25356	-	25356
Depth-3	483.5	474.5	7305	9	29220	36525	65745
Depth-4	483.5	474.5	2960	9	11840	14800	26640
Total					68876	51325	120201

Table - 5B

Excavation Details					
Total Excavation (m ³)	Despatch (m ³)	Stock (m ³)	Topsoil Dump (m ³)	Waste Dump (60m x 60m x 9.9m(H) (m ³))	Waste spillage and utilized for Road and Ramp (m ³)
120201	15318.770	65.094	66,400	35640	2,777.136

The lessee has much conservation of the Grey granite, invested a huge amount and his resources to win the Grey granite from the lease area. The lessee has carried out all possible ways and best effort to develop and exploit the Grey granite consistently.

1.6.0 AFFORESTATION PROGRAMME:

Program of Afforestation as given in the first five years are given as under.

Proposal given in the mining plan:

It is proposed to plant 50 saplings during every year with expecting a survival at the rate of 80% which will work out 35-40 plants. The company ensure to maintaining the plantations not less than 500 plants at the end of life of quarry. The safety distance along the South and Eastern side lease boundary has to be utilized for Green belt development. Appropriate species tree saplings will be planted in a phased manner as described below.

Table - 6

Year	No. of trees proposed to be planted	Name of the species	Area in m ²	Survival rate expected in %	No. of trees expected to be grown
2017 - 18	50	Neem, Mango, Pongaiia pinnata, Casuarina, etc.,	492	80	40
2018 - 19	50		492	80	40
2019 - 20	50		492	80	40
2020 - 21	50		492	80	40
2021 - 22	50		492	80	40

Total number of trees planted during the mining plan period is around 250 numbers around the quarry with the survival rate of 80% (200 trees). The afforestation program carried out during the past five years are affected by the failure of monsoon and water scarcity. The lessee ensures to compensate the afforestation during present scheme period.

1.7. LAND RECLAMATION AND REHABILITATION:

Due to nature of occurrence of the granite body in this quarry is beyond the workable limit. During the mining plan period the quantum of waste is proposed about 33,475m³ the same has proposed to dump on the Northeast side with maximum dimension of (L) 68m x (W) 51m x (H) 9.6m and excavated topsoil (51,520m³) was proposed to preserved all along the safety barrier and utilized for construction of bund and Green belt development purpose. During the first five years of the mining plan period the excavated waste has dumped on the Northwest side and quarried out topsoil has dumped on the safety barrier and south east side. The maximum dimension of the existing waste dump is given table below (Refer plate No. III).

Table - 7

Dump ID	Dump dimensions in meters				Location
	Length	Width	Height	Volume (m ³)	
Existing Waste Dump	60	60	9.9	35,640	NW
Topsoil Dump - 1	2901m ²		11.72	34,000	South and East
Topsoil Dump - 2	8100m ²		4	32,400	Safety barrier

During the approved mining plan period 22m depth has been envisaged as workable depth for safe and systematic quarrying operations. During the present scheme period 44m (4m Topsoil + 40m Grey granite) depth has been considered an economically safe and scientific quarrying at present market scenario. Now the quarry attained a maximum depth of 9m below from the existing ground profile. The entire quarry area is an active hence, immediate backfilling does not arise. When the quarry reaches the ultimate pit limit or at the end of life of quarry, quarried out waste will be proposed to backfilled.



1.8 CONTROL OF DUST, NOISE AND VIBRATION:

The quarrying operation was carried out by mechanized means HEMM were deployed. Hence, the effects due to dust, noise and vibration were minimal and well within the prescribed limits during the course of quarry operation besides the Ambient quality of Air respect of dust concentration, respirable dust, SO₂, NO₂ were tested periodically for every season around 1km radius for core and buffer zones as per the guidance of TNPCB. The dust prone areas of the quarry are Drilling site, Loading, Hauling and dumping. All such areas were closely monitored as per the guidelines.

The quarry operation has carried out by mechanized method with small dia drilling with mild blasting. Dressing carried out manually with portable compressor and Jack Hammers. Hence, the effects due to dust (only development and bench formation), noise and vibration were minimal.

NOISE:

The ambient Noise Level ranges must be <80dB. As the compressors are, keep at high levels, the impact of noise to the workers is less. Expanding Chemical used for cracking the rough blocks and therefore noise was minimal.

VIBRATION:

Blasting induced ground vibration is the only source of vibration in Mining area. Since chemicals @ 1kg for 3 feet being used for 8 hours retention time for cracking the solid rock along the line of drilling. Minimal vibration has observed in this quarry.

1.9.0 SIGNIFICANT FEATURES:

Being the lessee who is much concerned above the environment, the company closely monitored the environmental factors systematically without degrading the land, water and air. Related tests carried out to show the actual performance of mine on environmental issues which would be complying in the present scheme period.

PART - I

2.0 PROPOSAL UNDER SCHEME OF QUARRYING FOR THE NEXT FIVE YEARS:

2.1 NAME OF THE APPLICANT WITH ADDRESS:

Name of the Lessee :	M/s. Zak Exports,
Address :	No.35/13, 2 nd Cross Co-operative colony, Krishnagiri Taluk and District,
State :	Tamil Nadu.
PIN Code :	635 001
E-mail :	exportszak@gmail.com
Mobile :	+91 93442 23717 and 94432 28596
Aadhaar No. :	7136 5533 4402 (Refer Annexure No. XI)

2.2 NAME AND ADDRESS OF THE QUALIFIED PERSON WHO PREPARED THE SCHEME OF QUARRYING:

Name : Dr. P. THANGARAJU, M.Sc., Ph.D.,
Qualified Person (As per Rule 15(I)(a) and (b) of MCR-2016)

Address : No.17, Advaita Ashram Road,
Alagapuram,
Salem District,
Tamil Nadu – 636004.

Tele phone No. : 0427- 2431989

Mobile : +91 94422 78601, 94433 56539,

E-mail id : infogeoexploration@gmail.com

(Refer Annexure Nos. XII and XIII)

2.3 DETAIL OF LEASE PARTICULARS ARE GIVEN AS UNDER

Table – 8

GO. No.	Extent (Ha.)	Date of Execution	Lease Period	Valid upto
G.O.(3D) No.25 Dated: 21.11.2017	3.50.0	06.12.2017	20 Years	05.12.2037

The quarry lease was granted vide G.O.(3D)No.25, Industries (MME.2) Department Dated 21.11.2017 for a period of 20 years. The quarry lease has executed on 06.12.2017 and the lease period is valid upto 05.12.2037.

2.4 DETAILS OF THE AREA

- The area is marked in the Geological Survey of India, Topo sheet No. 57-L/07.
- The details of the land covered by the area is given below
- There is no change in the extent as mentioned in the approved mining plan.

Table – 9

District & State	Taluk	Village	S.F.No.	Area in Ha.	Patta No.	Classification
Krishnagiri and Tamil Nadu	Bargur	Chendarapalli	380/1(P)	3.50.0	2338	Patta land

The area lies between the Latitudes 12°29'21.3975"N to 12°29'29.4083"N and Longitudes of 78°18'18.3081"E to 78°18'26.5027"E on WGS datum-1984. (Plate No. I & II).

The lease area is a patta Land registered in the name of two partners of the company namely Thiru. Mir Mazahar Ali and Thiru. Mir Mohammed Fareed Ali vide patta No. 2338 (Refer Annexure Nos. IV to VI). The company has obtained consent from the pattadars for the period of 25 years from the date of 15.06.2016 to 14.06.2041 (Refer Annexure No. VII).

3.0 EXPLORATION AND RESERVES**3.1. Physiography**

The area exhibits almost flat terrain and the gradient is gentle towards Northwest. The altitude of the area is 482.5 to 484.5m above from MSL. The Grey granite is medium to coarse grained with Alkali feldspar and Quartz are the major constituents and Garnet, Biotite, Hornblende and other mafic minerals area accessories. There are few Neem, Mango, Coconut Tree, Grass and Shrubs observed around the area.

Topographical view of Chendarapalli Grey Granite Quarry Lease Area





Boundary Pillars



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3.2 REGIONAL GEOLOGY & GEOLOGICAL SUCCESSION

3.2.1 Regional Geology

The Grey Granite is medium to coarse grained with feldspar and quartz as major constituents and garnet and other mafic minerals are accessories. The petrological settings of the area are simple and not a complicated phenomena. There are no major minerals observed in the vicinity of the proposed quarry. A brief description of the regional Geology is discussed below.

This area forms a part of peninsular gneiss the most wide spread group of rocks in many parts of Tamil Nadu. The southern domain of Tamil Nadu is characterized by the khondalite group of rocks (with subordinate amounts of Charnockite) and marked by the absence of BMQ and dolerite dyke systems. The most common varieties of granite are pink, grey and Multi-Coloured ones. In the granites feldspar forms about 50%, quartz a little less and the rest accounted for by amphiboles and pyroxenes. This type occurs in the form of large massive bodies (Batholiths, laccoliths) spreading over hundreds of square kilometers exhibiting variation in colour and texture. Other types occur as lenses and bands within the gneisses and other metamorphic rocks. In these cases, the molten magma of granite has been emplaced into the earlier rocks as narrow, small bodies and partly interacting.

Anorthosites, syenites, porphyries and like that generally considered along with the Grey granites. In these rocks quartz is nearly absent when hornblende or biotite abundant, the rock may be dark green or almost black.

The northern part of Tamil Nadu, north of Noyil – Cauvery River is characterized by the occurrences of a number of Dolerite dykes in contrast to the areas south of Noyil – Cauvery River where the dykes are absent. The dolerite dykes in general trending is in WNW- ESE and NNE – SSE directions and rarely in N-S and NNW – SSE directions.

In central part of Tamil Nadu, ENE – WNW to NE- SW trending dolerite dykes (Black granite) are seen transecting the Charnockite in Kalrayan & Kolli Hills. Palaeo magnetic studies of some of these dykes indicate Mid-Proterozoic age.

Granites were formed from molten rock referred to as "Magma" formed at great depths within the crust of the earth. Such rocks that were formed at great depths during the Archaean age are now exposed at the surface of the earth as a result of the combined actions of wind, air, sun and water and weathering and denudation over the past several million years.

3.2.2 Geology of the area

The Krishnagiri district is underlain by hard Crystalline rocks of Archaean age comprising of various rock types such as Gneiss, Charnockite, etc.,. The Gneissic type of Crystalline formation is found in the North and North Eastern part of the District Sholingur, Hosur, Mattur and Soolamalal areas covered by Granitic Gneiss (Migmatite).

The Late Archaean crust of Krishnagiri, Tamil Nadu, consists of tonalitic-trondhjemitic-granodioritic (TTG) gneisses with mafic and sedimentary enclaves, formed between 2.7 and 2.5 Ga and metamorphosed at amphibolite facies in the north to granulite facies in the south close to 2.5 Ga. Migmatization occurred at all grades, and numerous small granite bodies were emplaced near the amphibolite-to-granulite facies horizon. This nearly syn-accretion meta-morphism affected the entire crust and left a chemically differentiated section later exposed by uplift and erosion.

Such rocks that were formed at great depths during the Archaean age are now exposed at the surface of the earth as a result of the combined actions of wind, air, sun, water, weathering and denudation over the past several million years.

The Grey granite has the characteristic pink rythmatic banding by which it can be identified even from a distance. These are seen to the central part and the SE part of the district, more specifically in Rayakottai, Kaveripattinam, Jagadevi and Velampatti. These dimensional blocks are quarried to make a polished stone, slabs, monuments etc.,

The Granite gneiss is leucocratic, euhedral, medium to coarse grained, equigranular and well developed gneissic banding of alternate layers of light and dark colour minerals are the specialty of this area which denotes the indicative of flow pattern of the rock mass in N15°W - S15°E (i.e., the cutting direction of the Grey granite). The colour of the rock is pale pink - pale grey as observed on the surface level, the pink colour may decreased in deep seated condition. The pale pink and grey colour which may find a good market for granite dimensional stones. The lease applied area comprises Granitic gneiss and popularly termed as "Paradiso".

Structural settings of Krishnagiri:

The general geological sequence of the rock types in the lease area is:-

Order of super position:-		
ROCK TYPE		AGE
↑ Topsoil	-	Pleistocene to Recent
	----- Unconformity -----	
Pegmatite and Quartz veins, Dolentos	}	Archaean to Proterozoic
Migmatite Complex		
Charnockite group	}	Archaean
Peninsular Gneissic Complex-1		

The Physical attitude of the Grey Granite deposit of this area is given below:-

Strike Direction	-	N15°W - S15°E
Dip amount and direction	-	Almost Vertical

3.3 DETAILS OF EXPLORATION

3.3.1. ALREADY CARRIED OUT

As far as Grey Granite deposits are concerned, the only practical method is the systematic geological mapping and delineation of commercial Grey Granite bodies within the field and careful evaluation of body luster, physical properties, engineering properties, commercial aspects etc.

Such an exploration study has already been conducted in this area during the course of quarrying operations.

Based on the valuable geological information and by the field experience and the quarry already attained a maximum depth of 9m below from the existing ground profile, the estimation of geological resources and mineable reserves are arrived at considering to waste and market potential.

3.3.2. PROPOSED STUDY TO BE CARRIED OUT

Even though the depth persistence of the Grey Granite stone may be beyond 44m from the Petrogenetic character of the rock, only 44m (4m Topsoil + 40m Grey Granite) depth persistent has been taken as economically viable depth to calculate categories of proved, probable and possible reserves.

The recovery of saleable Grey Granite stones has been taken as about 35% and if the recovery percentage is good, it may enhance.

The commercial granite body is clearly exposed from the outcrops and existing quarry pit, hence no definite programs for future exploration have been drawn. The quarrying activities for the proposed scheme period with deep cut as envisaged in the scheme of quarrying may render additional data as may be required for future planning.

3.4 METHOD OF ESTIMATION OF RESERVES:

The geological plan demarcating the commercially viable Grey granite body has been prepared in 1:1000 scale (Plate No. IV). Totally six sections have been drawn, three along the strike direction as (X-Y, X1-Y1 and X2-Y2) length wise and other three cross sections are drawn perpendicular to strike as (A-B, C-D and E-F) width wise which is suitably chosen to cover the maximum area in the scale of 1:1000 (Refer Plate No. IV).

The cross section area for the proved depth persistence of Grey Granite has been worked out for each section. The cross section area multiplied by its length of influence on the longer axis gives the volume (insitu) in the cross sectional area. The sum total of the insitu reserves available within the individual cross sectional area gives the Geological Resources of the lease area.

The Grey Granite recovery percentage has been enhanced upto 35% in the present scheme of quarrying period may decrease of joints and fractures in deeper level. High efficient technology machineries, quarry masters, Market demand significantly determine the recovery percentage of granite quarries. The estimated recovery is based on today market scenario and the same recovery has been considered as normative recovery. When the market demands, the lessee may take necessary steps to deploy a quarry masters with latest innovative machineries technology. So the recovery enhancement may raise to the peak

production resulting in 80%. During the operation the method of quarry, deployment of men and machineries will not have any negative impact on the Environment. It is worthening the recovery anticipate the normative production has been scientifically converted into commercial production resulting in the decrease dump of waste inside the quarry. Due to the micro fractures, flaws, patches, xenoliths, required dimension, dressing, etc., the recovery in the granite could not be 100% of the R.O.M.

From the total Geological Insitu Reserves, the quantity of saleable Grey Granite stones and quantity of Grey Granite rejects and waste generation are computed by applying recovery factor as 35% by its volume upto 44m depth.

As the saleable Grey Granite stone are in terms of cubic meters (Volume) only and not in terms of tonnage as in the case of major industrial mineral, the geological resources, mineable reserves and quantum of waste generated etc, are given only in terms of cubic meters.

The details of estimation of geological resources and mineable reserves with reference to the geological plan & cross section and Conceptual Plan & Section as shown in (Plate No. IV & IX).

3.5 GEOLOGICAL RESOURCES AND GRADE (REASSESSED ON 18.07.2022):

Maximum Length : 258m
Maximum Width : 208m
Maximum Depth : 44m

Table - 10

Section	Bench	Length (m)	Width (m)	Depth (m)	ROM (m ³)	Recovery @ 35% (m ³)	Granite Waste @ 65% (m ³)	Topsoil (m ³)
XY-AB	i	80	76	4	-	-	-	24320
	ii	80	76	3	18240	6384	11856	-
	iii	80	76	5	30400	10640	19760	-
	iv	80	76	5	30400	10640	19760	-
	v	80	76	5	30400	10640	19760	-
	vi	80	76	5	30400	10640	19760	-
	vii	80	76	5	30400	10640	19760	-
	viii	80	76	5	30400	10640	19760	-
	ix	80	76	5	30400	10640	19760	-
Total					231040	80864	150176	24320
XY-CD	i	71	12	4	-	-	-	3408
	ii	71	12	3	2556	895	1661	-
	iii	71	12	2	1704	596	1108	-
		71	103	3	21939	7679	14260	-
	iv	71	103	5	36565	12798	23767	-
	v	71	103	5	36565	12798	23767	-
	vi	71	103	5	36565	12798	23767	-
	vii	71	103	5	36565	12798	23767	-
	viii	71	103	5	36565	12798	23767	-
	ix	71	103	5	36565	12798	23767	-
Total					245589	85958	159631	3408

XY-EF	i	76	83	4	-	-	-	25232
	ii	87	83	3.8	27440	9604	17836	-
	iii	87	83	1	7221	2527	4694	-
		107	83	4	35524	12433	23091	-
	iv	107	83	5	44405	15542	28863	-
	v	107	83	5	44405	15542	28863	-
	vi	107	83	5	44405	15542	28863	-
	vii	107	83	5	44405	15542	28863	-
	viii	107	83	5	44405	15542	28863	-
ix	107	83	5	44405	15542	28863	-	
Total					336615	117816	218799	25232
X1Y1-AB	i	28	55	4	-	-	-	6160
	ii	71	55	3.2	12496	4374	8122	-
	iii	71	55	5	19525	6834	12691	-
	iv	71	55	5	19525	6834	12691	-
	v	71	55	5	19525	6834	12691	-
	vi	71	55	5	19525	6834	12691	-
	vii	71	55	5	19525	6834	12691	-
	viii	71	55	5	19525	6834	12691	-
	ix	71	55	5	19525	6834	12691	-
Total					149171	52212	96959	6160
X1Y1-CD	ii	70	53	3.6	13356	4675	8681	-
	iii	70	53	5	18550	6492	12058	-
	iv	70	53	5	18550	6492.5	12057.5	-
	v	70	53	5	18550	6492.5	12057.5	-
	vi	70	53	5	18550	6492.5	12057.5	-
	vii	70	53	5	18550	6492.5	12057.5	-
	viii	70	53	5	18550	6492.5	12057.5	-
	ix	70	53	5	18550	6492.5	12057.5	-
	Total					143206	50122	93084
X1Y1-EF	i	34	36	4	-	-	-	4896
	ii	34	36	4	4896	1714	3182	-
	iii	34	36	5	6120	2142	3978	-
	iv	34	36	5	6120	2142	3978	-
	v	34	36	5	6120	2142	3978	-
	vi	34	36	5	6120	2142	3978	-
	vii	34	36	5	6120	2142	3978	-
	viii	34	36	5	6120	2142	3978	-
	ix	34	36	5	6120	2142	3978	-
Total					47736	16708	31028	4896
X2Y2-AB	i	13	9	4	-	-	-	468
	ii	17	9	3.5	535	187	348	-
	iii	17	9	1.6	245	86	159	-
		56	37	3.4	7045	2466	4579	-
	iv	56	37	5	10360	3626	6734	-
	v	56	37	5	10360	3626	6734	-
	vi	56	37	5	10360	3626	6734	-
	vii	56	37	5	10360	3626	6734	-
	viii	56	37	5	10360	3626	6734	-
ix	56	37	5	10360	3626	6734	-	
Total					69985	24495	45490	468

X2Y2-CD	i	27	7.5	4	-	-	-	810
	ii	27	7.5	4	810	283	527	-
	iii	27	7.5	1	203	71	132	-
		69	52	4	14352	5023	9329	-
	iv	69	52	5	17940	6279	11661	-
	v	69	52	5	17940	6279	11661	-
	vi	69	52	5	17940	6279	11661	-
	vii	69	52	5	17940	6279	11661	-
	viii	69	52	5	17940	6279	11661	-
ix	69	52	5	17940	6279	11661	-	
Total					105065	36771	68294	810
X2Y2-EF	i	35	53	4	-	-	-	7420
	ii	35	53	4.3	7977	2792	5185	-
	iii	35	53	5	9275	3246	6029	-
	iv	35	53	5	9275	3246	6029	-
	v	35	53	5	9275	3246	6029	-
	vi	35	53	5	9275	3246	6029	-
	vii	35	53	5	9275	3246	6029	-
	viii	35	53	5	9275	3246	6029	-
	ix	35	53	5	9275	3246	6029	-
Total					72902	25514	47388	7420
Grand Total					1401309	490460	910849	72714

Total available Geological Resources in ROM = 14,01,309m³

Total Recoverable Reserves @ 35% = 4,90,460m³

Granite Waste @ 65% = 9,10,849m³

Topsoil = 72,714m³

Granite : Waste ratio = 1 : 1.86

The Geological resources computed based on the geological cross sections upto the economically workable depth of 44m below from the existing ground profile at the rate of 35% recovery yields 4,90,460m³ and 14,01,309m³ of ROM. *The total geological resources has been calculated after depleted the existing quarry pit.

3.6 MINEABLE RESERVES: (REASSESSED ON 18.07.2022)

Maximum Length : 185m

Maximum Width : 177m

Maximum Depth : 44m

Table - 11

Section	Bench	Length (m)	Width (m)	Depth (m)	ROM (m ³)	Recovery @ 35% (m ³)	Granite Waste @ 65% (m ³)	Topsoil (m ³)
XY-AB	i	68	63	4	-	-	-	17136
	ii	62	57	3	10602	3711	6891	-
	iii	57	52	5	14820	5187	9633	-
	iv	52	47	5	12220	4277	7943	-
	v	47	42	5	9870	3454	6416	-
	vi	42	37	5	7770	2719	5051	-
	vii	37	32	5	5920	2072	3848	-
	viii	32	27	5	4320	1512	2808	-
	ix	27	22	5	2970	1040	1930	-
Total					68492	23972	44520	17136
XY-CD	iii	71	84	3	17892	6262	11630	-
	iv	71	78	5	27690	9692	17998	-
	v	71	72	5	25560	8946	16614	-
	vi	66	66	5	21780	7623	14157	-
	vii	62	60	5	18600	6510	12090	-
	viii	56	54	5	15120	5292	9828	-
	ix	49	48	5	11760	4116	7644	-
Total					138402	48441	89961	-
XY-EF	i	14	33	4	-	-	-	1848
	ii	19	29	3.8	2094	733	1361	-
	iii	14	63	1	882	309	573	-
	iiii	34	63	4	8568	2999	5569	-
	iv	25	57	5	7125	2494	4631	-
Total					18669	6535	12134	1848
X1Y1-AB	i	16	55	4	-	-	-	3520
	ii	53	55	3.2	9328	3265	6063	-
	iii	48	55	5	13200	4620	8580	-
	iv	43	55	5	11825	4139	7686	-
	v	38	55	5	10450	3657	6793	-
	vi	33	55	5	9075	3176	5899	-
	vii	28	54	5	7560	2646	4914	-
	viii	23	37	5	4255	1489	2766	-
	ix	18	9	5	810	284	526	-
Total					66503	23276	43227	3520

Scheme of Quarrying and PQCP:

Chendarapalli Grey Granite Quarry

X1Y1-CD	ii	70	53	3.6	13356	4675	8681	-
	iii	70	53	5	18550	6492.5	12057.5	-
	iv	70	53	5	18550	6492.5	12057.5	-
	v	70	53	5	18550	6492.5	12057.5	-
	vi	65	53	5	17225	6029	11196	-
	vii	60	53	5	15900	5565	10335	-
	viii	55	53	5	14575	5101	9474	-
	ix	50	53	5	13250	4637.5	8612.5	-
Total					129956	45485	84471	-
X1Y1-EF	i	21	36	4	-	-	-	3024
	ii	15	36	4	2160	756	1404	-
	iii	10	36	5	1800	630	1170	-
	iv	5	36	5	900	315	585	-
Total					4860	1701	3159	3024
X2Y2-AB	iii	35	23	3.4	2737	958	1779	-
	iv	26	17	5	2210	773	1437	-
	v	17	11	5	935	327	608	-
	vi	9	5	5	225	79	146	-
Total					6107	2137	3970	-
X2Y2-CD	i	27	40	4	-	-	-	4320
	ii	27	40	4	4320	1512	2808	-
	iii	27	40	1	1080	378	702	-
		69	34	4	9384	3284	6100	-
	iv	69	29	5	10005	3502	6503	-
	v	69	24	5	8280	2898	5382	-
	vi	50	19	5	4750	1662	3088	-
	vii	40	14	5	2800	980	1820	-
viii	26	9	5	1170	410	760	-	
Total					41789	14626	27163	4320
X2Y2-EF	i	21	44	4	-	-	-	3696
	ii	15	38	4.3	2451	858	1593	-
	iii	10	33	5	1650	577	1073	-
	iv	5	28	5	700	245	455	-
Total					4801	1680	3121	3696
Grand Total					479579	167853	311726	33544

Total available Mineable Reserves in ROM = 4,79,579m³

Total Recoverable Reserves @ 35% = 1,67,853m³

Granite Waste @ 65% = 3,11,726m³

Topsoil = 33,544m³

Granite : Waste ratio = 1 : 1.86

The Mineable reserves have been computed as 1,67,853m³ at the rate of 35% recovery and 4,79,579m³ of ROM. The mineable reserves are calculated after leaving the mineral locked up area under safety barrier, bench loss and existing quarry pit. Hence the remaining area is taken for calculation of mineable reserves. Proved reserves are considered upto 44m depth below from the existing ground profile:

The Grey granite body occurring in this area exhibits more or less uniform colour and texture. If any variation occurs during mining, such as cracks, joints, patches, colour variations etc., the defective area will be avoided. The formation is uniform and no gradational change is noticed except some shears, cracks and slender pegmatite veins.

4.0 CONCEPTUAL MINING PLAN:

Conceptual Mining plan is prepared with an object of long-term systematic development of benches, lay outs, selection of permanent ultimate pit limit, depth of Mining and ultimate pit, 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. The ultimate pit dimensions of the quarry are given below.

Table - 12

Ultimate Pit Dimensions (Maximum)		
Length (m)	Width (m)	Depth(m)
185	189	44

However, during extraction of blocks each bench will be of 5m height & width, vertical slope for proper dimensional cutting. The quantum of excavation is estimated to be 5,13,123m³ (ROM 4,79,579m³ + Topsoil 33,544m³) to a depth of 44m below from the existing ground profile. The generation of total waste is expected about 3,11,726m³ and marketable Grey Granite as 1,67,853m³ for remaining lease period.

During this scheme period, excavated waste (35,450m³) will be proposed to dump over the existing waste dump situated on the Northwest side with dimension of (L)60m x (W)60m x (H)19.74.

After expiry of lease period if the mineral reserves available and Market persist, the lessee may apply a renewal of quarry lease as to develop and conserve mineral reserves. If permission is granted for removal of waste (Existing Waste 35,640m³ + expected waste for remaining lease period 3,11,726m³) from concerned authorities, the waste material will be supplied to the needy crusher for convert to the building and road construction material after paying the seniorage fee and obtained necessary clearance and approval from concerned department for handling the waste. When the entire mineral reserves will be completely exhausted if permission not obtained for handling of waste from the concerned authority, backfilling will be carried out nearly existing ground profile and spread out the preserved topsoil to facilitate afforestation in the backfilled area. The quarry area will be fenced with barbed wire fencing, also safety bund to be construct around the quarry to prevent inadvertent entry of public and cattle (Please refer plate No. IX).

**5.0 MINING**

No change in the method of Mining. The same open cast mechanized Mining with 5m vertical bench with a bench width of 5m has been followed.

Under the regulation 106 (2) (b) of the Metallurgical Mines Regulation 1961, in all open cast Mining, the bench height should not exceed 5m and bench width should not be less than bench height. The slope of the bench should not exceed 60° from horizontal.

However as far as the quarrying of granite dimensional stones are concerned, observance of the provisions of Regulation 106(2) (b) as above is seldom possible due to various inherent petrogenetic & mining difficulties. Hence, it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety, Bengaluru for which necessary provision is available with the Regulation 106 (2) (b).

The production of grey Granite dimensional stone in this quarry involves the following method typical for Grey granite stone mining in contrast to other major mineral mining.

Splitting of rock mass of considerable volume from the parent sheet rock is carefully removed by avoiding any kind of damage in the form of cracks adopting the method of diamond wire cutting along the horizontal as well as two vertical sides along the width direction and the third vertical face behind the front face.

This liberation of huge volume of granite body from the parent sheet rock is called primary cutting. The Blocks splitted above are toppled and removed from the pit to the dressing yard, by using Crawler cranes.

Removing the defective portion and dressing into the dimensional blocks are done manually using feather, wedges, and chiseling respectively by the labours that are skilled in this work.

The defect free, dimensional stone of different sizes is marketed in domestic and international market by the well experienced marketing personals of the lessee.

The waste material generated during quarry activity includes rock fragments of different sizes and waste chips during dressing of the blocks.

The excavated waste materials are proposed to dump in the respective places earmarked for the purpose (Refer Plate No. VI).

**5.1 YEAR WISE DEVELOPMENT AND PRODUCTION FOR THE NEXT FIVE YEARS:**

Total Length : 62m
 Maximum Width : 67m
 Maximum Depth : 39m

Table - 13

Section	Year	Bench	Length (m)	Width (m)	Depth (m)	ROM (m ³)	Recovery @ 35% (m ³)	Granite Waste @ 65% (m ³)
XY-AB	2022-23	iii	24	67	3.5	5628	1970	3658
		iv	17	60	5	5100	1785	3315
		Total				10728	3755	6973
	2023-24	iii	20	67	3.5	4690	1642	3048
		iv	20	60	5	6000	2100	3900
		Total				10690	3742	6948
	2024-25	iii	18	67	3.5	4221	1477	2744
		iv	18	60	5	5400	1890	3510
		v	5	50	5	1250	437	813
		Total				10871	3804	7067
	2025-26	v	40	50	5	10000	3500	6500
		vi	5	40	5	1000	350	650
		Total				11000	3850	7150
	2026-27	vi	30	40	5	6000	2100	3900
		vii	25	30	5	3750	1313	2437
		viii	15	20	5	1500	525	975
Total					11250	3938	7312	
Grand Total						54539	19089	35450

Total Proposed ROM = 54,539m³

Total Recoverable Reserves @ 35% = 19,089m³

Granite Waste @ 65% = 35,450m³

Granite: waste ratio = 1:1.86

Estimated Life of the quarry

Mineable ROM = 4,79,579m³

Mineable Reserves @ 35% = 1,67,853m³

Average production per year @ 35% = 19,089/5 years = 3,818m³

Estimated Life of the Quarry = 1,67,853 / 3,818m³ = 44 years

The year wise quantum of work proposed and the details of estimation of production quantity and generation of waste are furnished with reference to Year wise Development and Production plan (Plate No. V). The average annual production for the next five years is 3,818m³ at the rate of 35% recovery.

Except depth, the proposed dimensions are lesser than the dimensions proposed in the approved mining plan. Hence, there will not be substantial change in the Method of quarrying, Drilling, Blasting, Wire saw cutting, Men and machinery deployment, Transportation and Handling of waste in the present scheme period. More details of the year wise production parameter explained with bench length, width and height in Plate No. V.

5.2 PROPOSED RATE OF PRODUCTION WHEN THE QUARRY IS FULLY DEVELOPED

The proposed rate of production when the quarry is fully developed is 3,818m³ per annum @ 35% recovery. The production schedule for the subsequent five year has drawn mainly in consideration of reserves position, market demand, men, machinery development and the cost of production.

5.3 MINEABLE RESERVES AND ANTICIPATED LIFE OF QUARRY

The Grey granite deep seated in nature as they have formed by basic intrusions from depth as Grey granite. The depth persistence of the Grey granite will be beyond the economically workable depth. The method of extraction of rock mass from Grey granite sheet rock is highly expensive at greater depth.

An optimum depth of 44m has been established as economically viable depth at present scenario. Eventually this depth is the optimum depth for safe and scientific quarrying.

The Mineable Reserves are calculated by excluding the mining loss due to formation of benches with suitable height & width, ultimate depth of quarry, the Mineral Reserve held up within the safety distances all along the lease boundary.

The Mineable Reserves @ 35% for this Grey Granite quarry is thus arrived as 1,67,853m³ and 4,79,579m³ of ROM for an assumed depth of 44m below from the existing ground profile. The average rate of production of Grey Granite from this quarry is 3,818m³ per year and Mineable recoverable reserves 1,67,853m³ considering @ 35% recovery for the entire life of the quarry. The details of estimation of year wise development and production plan and sections are shown in the plate No. V.

Based on the above, and taking into consideration of the available Mineable Reserves, **the life of quarry will be about 44 years** at 35% recovery, if the quarry is being worked out continuously with an average annual production of 3,818m³. This calculation is based on the plan approved by Director of Mines Safety leaving Benches and Safety barriers. If the annual production increases considerably and consistently a modified scheme will be prepared under Granite Conservation and Development Rules-1999 the same will be submitted to the relevant authorities for subsequent clearance and approval.

5.4 EXTENT OF MECHANIZATION

The following machineries are utilized on owned by the company for the development and production work at this quarry;

I. DRILLING MACHINE

Table - 14

S.No.	Type	Nos	Dia Hole mm	Size Capacity	Make	Motive power
1	Compressor	2	-	450/150 psi	Atlas Copco	Diesel Drive
2	Jack hammer	5	32	1.2m to 6m	Atlas Copco	Compressed air
3	Diesel Generator	1	-	125kva	Powerica	Diesel
4	Diamond Wire saw	1	-	20m ³ /day	Optima	Diesel Generator
5	Double Disc Blade Cutting	2	-	20m ³ / Day	Shulnan	*Electricity

II. LOADING EQUIPMENT

Table - 15

S.No.	Type	Nos	Capacity	Make	Motive Power
1	Crawler Crane	1	855	Tata P&H	Electric
2	Excavator	2	300	Tata Hitachi	Diesel Drive

III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT

a)

Table - 16

S.No.	Type	Nos	Capacity	Make	Motive Power
1	Tippers	2	20 tonns	Tata	Diesel Drive

b) Transport from the quarry head to destination

Transport from quarry head to destination is done by trucks or trailers.

c) Miscellaneous:

Apart from the above, the following tools and tackles are required for quarry operation.

A. For operation

The operation of granite quarry requires the following loose tools material and have to be kept sufficiently in stock for non - interruption of the quarry work.

1. Drill rods - 0.5 m, 0.75m, 1.65m, 2.25m, 3m, 5.5m, upto 9m.
2. Steel Alloy chains of sufficient length of 12mm, 16mm, 18mm, etc. sizes.
3. D' shackles to link the chain lengths.
4. Rubber hose of required length.
5. Hose clamps to link the compressor delivery hoses.
6. Feather and wedges of 6" and 12" dia sizes utilize for splitting the block from the mother rock. This is an important tool in the operation of a quarry.
7. Crow bars.
8. Spades.
9. Sludge Hammer
10. Iron Pans
11. Pitcher Hammer
12. Chisels.
13. Consumables, such as diesel, Hydraulic oil, grease, abrasive wheels, welding machines etc.
14. Stock of essential spare parts of machinery.
15. Explosive as per the licensed quantity
16. Besides diamond wire saw equipment with accessories are required to liberate the rock from to parent body rapidly with minimum damage.

Splitting the sheet rock by Diamond wire sawing which increases substantial recovery potential. Hence it is proposed to follow "Diamond wire saw cutting" for best recovery.

The above machineries are adequate to meet out the simultaneous development and production schedule drawn out in this scheme period.

6.0 BLASTING

a. Broad Blasting Parameters:

In general for granite quarrying primary (deep hole drill) blasting is not practiced, only secondary blasting is practiced coupled with jackhammer drilling (30-35mm dia). These blasting are carried out for splitting the blocks from parent sheet mass.

The granite industry needs blocks for about 3m x 2m x 2m for International buyers hence small blocks blasting pattern is not followed. The blasting pattern depends upon the texture of the rocks in the case of granite quarrying which in-turn depends upon the bedding plane, presence of fractures, fissures and cracks hence it is difficult to decide the definite particular pattern of holes in each blast.

Now-a-days Diamond wire saws are used for splitting the blocks from parent sheet mass. It is a new innovative Eco-friendly splitting technique without involving blasting. This is increase the recovery percentage of granite blocks and reduces from induce fissures due to blasting.

Hence, it is difficult to pronounce a definite pattern of holes with regard to spacing, burden and depth. Hence, only blasting is deployed for secondary fragmentation for handling the wastes and not for production.

b. Type and use of explosives

In granite quarries, only heaving effect is required and not the shattering effect. The aim is to recovery as large a block as possible.

Hence only low intense explosives like D-Cord and Gelatin sticks are used.

In granite quarrying it is very difficult to prescribe the charge/ hole as it depends upon the various factors like type of rock, texture, planes of weakness, required size of block, etc.

c) Storage of explosives:

Authorized explosive dealers supply the explosive at site as per the day's requirement. Hence question of storage of explosives does not arise at present.

However, the lessee has been advised to install one portable magazine of 'M' type at the earliest possible opportunity.

Splitting within the sheet rock is affected by diamond wire sawing which increases substantial recovery potential. Hence it is proposed to follow diamond wire saw cutting for better recovery of granite dimensional stone.

During future development of quarrying, removal of over burden will be done by blasting with explosives in small dia holes drilled by Jackhammer.

The explosive that will be used are D-Cord and Gelatin sticks that are indicated below.

D Cord 5mg

Gelatin Sticks.

7.0 MINE DRAINAGE

The water table is situated at 64m depth in summer it is observed from nearby Bore wells. The quarry operation confined to well above the water table. If water is encountered at depth due to rain water seepage, the same will be drained out by 5HP motor pumps and the drained out water will be utilized for afforestation.



8.0 STACKING OF MINERAL WASTE AND DISPOSAL OF WASTE

a) Topsoil:

There is no topsoil generated during this scheme period.

b) Granite waste and Land chosen for disposal of waste:

Total waste produced during this scheme period will be around 35,450m³. The quarried out waste will be proposed to dump over the existing waste dump situated on the Northwest side with maximum dimension of (L)60m x (W)60m x (H)19.74m, which will be act as temporary waste dump (Please refer Plate.No.VI & VII).

c) Manner of disposal of waste:

As and when there is accumulation of waste, the same is loaded into the tipper by loading machines and dumped in the respective places ear-marked for the purpose.

The waste management plan with reference to the quantum of waste generated is shown in Quarry layout and Afforestation plan (Plate No.VI).

There is no slurry anticipated in this quarry operations and the granite waste does not produce any toxic effluent in the form of Solid, liquid or gas.

9.0 USE OF THE GRANITE STONE

The quarried out granite blocks are exported as raw blocks and also processed as value added products such as slabs, tiles, fancy items, Monuments, precision surface plates for engineering application.

The export market for Grey Granite blocks are European Countries, North America, Middle East & Far East besides catering domestic demand.

10.0 QUALITY CONTROL

The Grey granite deposit occurring in this mine shows uniform quality throughout and hence mined and marketed as a single variety.

The excavated blocks will be carefully examined for any natural defects such as joints, cracks, xenoliths growth etc and such defects is removed manually using feather and wedges and the blocks are then shaped into perfect rectangular dimensional stone blocks by chiseling. Different price for each quality material has been fixed and the entire production quantity is marketed accordingly.

11.0 SURFACE TRANSPORT

The mode of transport of the Grey granite blocks produced and marketed is by road to various customer destinations and Grey granite processing units located at different parts of the country. The Grey granite blocks approved for export market are shipped from Chennai Port to various countries and if required the blocks may be shifted to Thoothukudi Port which depend upon the exporter's destination from time to time.



12.0 SITE SERVICES

The simple methods adopted and the limited scale of activities involved in Grey granite dimensional stone quarrying does not require high-tension electric power supply or huge workshop facilities. The quarry operation is restricted to one general shift during daytime only. Machinery repair works are attended at Krishnagiri town (10km-Northwest) and Minor repairs are carried out by the Company's experienced personnel at the quarry site itself.

Packaged drinking water is available from the water vendors in Krishnagiri town also potable water from the Company's community wells can be transported to the work site through tanker placed on tippers. The quarry office, first-aid room, store room, rest shed, toilet etc., already constructed as semi - permanent structures within the lease area (please refer Plate No - III - VII).

13.0 EMPLOYMENT POTENTIAL

The following manpower is proposed for the Grey granite quarry to carry out the day-to-day quarrying activities aimed at the proposed production target and also to comply with the statutory provisions of the metaliferous mines regulations, 1961.

- | | | | |
|----|--|---|---|
| 1. | Mines manager (with valid statutory qualification) | : | 1 |
| 2. | Mines foreman (with valid statutory qualification) | : | 1 |
| 3. | Machinery operators (Certified) | : | 5 |

WORKERS:

- | | | | |
|--------------|----------------|---|-----------|
| a. | Skilled labour | : | 5 |
| b. | Semi-skilled | : | 15 |
| c. | Unskilled | : | 8 |
| Total | | : | 35 |



The above manpower is adequate to meet out the production schedule and the machinery strength envisaged in the scheme of quarrying and also to comply with the statutory provisions of the Mines Safety Regulations.



14.0 ENVIRONMENTAL MANAGEMENT PLAN

14.1 BASELINE INFORMATION

The following observations are made for environmental management plan.

I. EXISTING LAND USE PATTERNS:

The area exhibits almost flat terrain and the gradient is gentle towards Northwest and the altitude of the area is 482.5 to 484.5m above from MSL. It is a barren land, except quarry operation the land didn't utilized any other specific purpose.

Existing Land use pattern

Table - 17

Description	Present Area (Ha.)	Area utilized in %
Area under Quarry	1.72.19	49.2
Waste dump	1.45.70	41.6
Infrastructure	0.03.00	0.9
Roads	0.01.00	0.3
Green Belt	Nil	-
Stacking Blocks	0.28.11	8.0
Grand Total	3.50.00	100

II. WATER REGIME:

Ground water occurrence in this area is about 64m depth at summer. The quarry operation confined to well above the water table; hence the quarry operation will not affected by the ground water in any manner. There is no major water body like lake, river or reservoir situated within 50m radius of the area.

III. FLORA AND FAUNA:

Main Floras like Mango, Manihot esculenta (Maravalli), Grass, Neem, Cocos nucifera trees, Prosopis juliflora and shrubs are found around the area and Cat, Rat, Rabbit, Squirrel, Cow, Goat, Dog, Hen and Crow faunas are found around the area. No plants of botanical interest or animals of zoological interest are recorded within 500m radius of the area.

IV. CLIMATIC CONDITIONS:

The prevailing climatic condition experienced in the quarry lease hold, the area is semi arid with maximum temperature up to 42°C in summer and it drops down to 23°C during winter seasons. The area receives 851mm average rainfall per annum.

V. HUMAN SETTLEMENT:

There is no approved habitation/village located within 300m radius of the area and few villages are located within 5km radius of the quarry lease area. The approximate distance, direction and population are given below.

Table - 18

S.No.	Name of the Village	Direction	Approximate Distance	Approximate population
1.	Jagadevipalayam	East	1km	6,800
2.	Chendarapalli	SW	750m	6,500
3.	Modikuppam	SW	3km	2,600
4.	Balinayanapalli	North	3.5km	4,800

Basic human welfare amenities such as health center, schools, communication facilities, commercial centers etc., are available at Krishnagiri located at a distance of 10km on the Northwest side.

VI. PUBLIC BUILDINGS, MONUMENTS AND PLACES OF WORSHIPS:

There is no Public building, Archaeological, Ancient or National Monument situated within 500m radius and no place of worship situated within 300m radius of the area.

Table - 19

Particulars	Location	Approximate aerial distance and direction from the lease area.
Nearest Post Office	Anchur	2km - West
Nearest School	Chendarapalli	750m - SW
Nearest Dispensary	Jagadevipalayam	1km - East
Nearest Police Station	Kandikuppam	6km - North
Nearest Govt. Hospital	Krishnagiri	10km - NW
Nearest Town	Krishnagiri	10km - NW
Nearest D.S.P. Office	Krishnagiri	10km - NW
Nearest Railway Station	Tirupathur	28km - East
Nearest Airport	Bengaluru	86km - NW
Nearest Seaport	Chennai	226km - NE
District Head Quarters	Krishnagiri	10km - NW

VII. WEATHER THE AREA FALLS UNDER NOTIFIED AREA UNDER WATER ACT, 1974.
The area falls under notified area under water Act, 1974.

14.2 ENVIRONMENT IMPACT ASSESSMENT STATEMENT

The scheme of mining proposed is a production of granite dimensional stone without involving deep hole drilling and blasting. Such limited quarrying activity is not likely to cause any impact adversely on environment as far as pollution of air, water and noise is concerned.



Table - 20

S. No.	Salient Features of the quarry site	Prescribed safety distance	Actual distance and direction from the site																				
1.	Railways, Highways, Tank, Lake, Odal, Canal, Stream, River and Reservoir	50m	There is no above features located within 50m radius (Refer Plate No. II).																				
2.	Village Road	10m	There is no village road situated within 10m radius of the area.																				
3.	Habitation / Village	300m	There is no approved habitation located within 300m radius.																				
4.	Adjacent Land Patta/ Govt.	7.5m / 10m	<table border="1"> <thead> <tr> <th>Direction</th> <th>S.F.No.</th> <th>Classification</th> <th>Safety Distance</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>375/1 and 379/1</td> <td>Govt. land</td> <td>10m</td> </tr> <tr> <td>East</td> <td>379/1</td> <td>Govt. land</td> <td>10m</td> </tr> <tr> <td>South</td> <td>380/1(P)</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td>West</td> <td>380/1(P) 375/1</td> <td>Patta land Govt. land</td> <td>7.5m 10m</td> </tr> </tbody> </table> <p>(Please Refer Plate No. II).</p>	Direction	S.F.No.	Classification	Safety Distance	North	375/1 and 379/1	Govt. land	10m	East	379/1	Govt. land	10m	South	380/1(P)	Patta land	7.5m	West	380/1(P) 375/1	Patta land Govt. land	7.5m 10m
Direction	S.F.No.	Classification	Safety Distance																				
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South	380/1(P)	Patta land	7.5m																				
West	380/1(P) 375/1	Patta land Govt. land	7.5m 10m																				
5.	Housing area, EB line (HT & LT Line)	50m	There is no EB(LT/HT) line or Housing area located within 50m radius.																				
6.	Boundaries of the permitted area:	7.5m	<p>North - S.F.Nos. 375/1 and 379/1. East - S.F.No. 379/1. South - S.F.No. 380/1(P). West - S.F.Nos. 375/1 and 380/1(P) village.</p> <p>(Refer Plate No. II)</p>																				
7.	Archaeological, Ancient or National Monument	500m	There is no Public building, Archaeological, Ancient or National Monument situated within 500m radius of the area.																				
8.	Reserve forest	1km	<p>There is no Reserved Forest situated within 1km radius. The following Reserved Forest situated within 10km radius of the area.</p> <ol style="list-style-type: none"> 1. Thogarapalli R.F. - 3.71km - SE 2. Varatanapalli R.F. - 6.85km - NE 3. Bargur R.F. - 9.03km - NE 																				
9.	protected area / ECO sensitive area/State or International border	10Km	There is no protected area of Wild life sanctuary / ECO sensitive area/ Critically polluted area/ HACA/ CRZ/ State border located within 10km radius of the area (Refer Plate No. IA).																				

The Financial Estimation for Quarry operations and Environment Management Plan (EMP).

Table - 21

A. Project Cost		
S.No.	Description	Approximate Cost (Rs.)
1.	Land Cost (As per Govt. Guideline value at present) 3.50.0Ha x Rs. 5,14,000/Ha = Rs. 17,99,000/-	17,99,000
2.	Labour Shed (Already Constructed)	2,50,000
3.	Sanitary Facility (Already Constructed)	1,00,000
4.	First aid Room and Accessories	50,000
5.	Excavator (2 Nos.)	70,00,000
6.	Crawler Crane (1 No.) Second hand	23,60,000
7.	Diesel Generator (1 No.)	6,50,000
8.	Tipper (2 Nos.)	40,00,000
9.	Wire Saw (1 No.)	3,00,000
10.	Double Disc Blade Cutting machine (1 No.)	25,00,000
11.	Compressor with loose tools (2 Nos.)	12,50,000
12.	Jack Hammer (5 Nos.)	1,50,000
13.	Drinking Water Facility	1,00,000
14.	Safety Kits	50,000
15.	Fencing Cost (900m length x Rs. 300/- per meter)	2,70,000
16.	Garland drain (650m length x Rs. 300/- per meter)	1,95,000
17.	Tree saplings under safety zone during this scheme period (500 Tree saplings x Rs. 200/- per sapling)	1,00,000
18.	Water sprinkling	1,00,000
Total Project Cost		2,12,24,000

B. Proposed financial estimate / budget for (EMP) Environmental Management Plan:

Budget Provision for this Scheme period

S. No.	Monitory and Analysis Description	Rate per location	No. of location	Total Charges/ six months	Total Charges/ year	Total Charges For this scheme period
1	Ambient air quality monitoring	6500	4	26000	52000	2,60,000
2	Noise level monitoring	250	4	1000	2000	10,000
3	Ground vibration monitoring	1000	2	2000	4000	20,000
4	Water sampling and analysis	9000	1	9000	18000	90,000
Total EMP Cost/ year					76,000	3,80,000

The EMP cost for this scheme period would be around **Rs. 3,80,000/-**

Total Cost of the Project including EMP Cost	
Description	Amount (Rs)
A. Project Cost	2,12,24,000
B. EMP Cost	3,80,000
Total Project Cost (A+B)	2,16,04,000
The company Intents to involve corporate Environment responsibilities (CER) activity like Water purifier, Fan and Sanitary facility to the Chendarapalli Govt. School at 2.0% from the total project cost. The cost would be around Rs. 4,32,000/- .	4,32,000
Total Cost	2,20,36,000

The total project cost would be around two crore twenty lakh and thirty six thousand only.

14.3 PROPOSAL FOR WASTE MANAGEMENT

The waste in the quarry includes rock fragments, rubbles generated as waste during production work.

The total waste to be produced during this scheme period is around 35,450m³. The quarried out waste will be proposed to dump over the existing waste dump situated on the Northwest side with dimension of (L)60m x (W)60m x (H)19.74. The waste management plan with reference to the quantum of waste generated is shown in quarry layout and afforestation plan (Please refer Plate No.VI & VII).

14.4 PROPOSAL FOR RECLAMATION OF LAND AFFECTED BY MINING ACTIVITIES DURING & AT THE END OF MINING

Due to nature of occurrence of Grey granite, the depth persistence of the granite body in this quarry is beyond the workable limit. In the proposed scheme of quarrying only 44m depth has been envisaged as workable depth for safe & economic quarrying. After expiry of lease period if the mineral reserves available and Market persist, the lessee may apply a renewal of quarry lease as to develop and conserve mineral reserves. If permission is granted for removal of waste, the waste material will be supplied to needy crusher for building and road construction from concerned authorities after paying the seniorage fee and obtained necessary clearance and approval from concerned department for handling the waste. When the entire mineral reserves will be completely exhausted if permission not obtained for handling of waste from the concerned authority, backfilling will be carried out nearly existing ground profile and spread out the preserved topsoil to facilitate afforestation in the backfilled area. The quarry area will be fenced with barbed wire fencing, also safety bund to be construct around the quarry to prevent inadvertent entry of public and cattle (Please refer plate No. VII & IX).

14.5 PHASED PROGRAMME OF PLANTING TREES

The safety distance along the South and Eastern side lease boundary has been identified to be utilized for subsequent Afforestation. Appropriate species of Neem, pongamia pinnata, Manjanathi, Mango, etc., tree saplings will be planted in a phased manner as described below.

Table – 22

Year	No. of trees proposed to be planted	Area to be covered in m ²	Name of the species to be plant	Survival rate expected in %	No. of trees expected to be grown
2022-23	100	946	Neem, Mango, Manjanathi, Pongamia pinnata, etc., trees	80	80
2023-24	100	946		80	80
2024-25	100	946		80	80
2025-26	100	945		80	80
2026-27	100	945		80	80

Nearly 4,728m² area is proposed for afforestation by planting 100 Nos. of tree saplings during every year and expected growth is around 80 Nos. of trees at a survival rate of 80%. The afforestation plan is shown in Plate No.VI.

14.6 MEASURES FOR DUST SUPPRESSION:

As the Grey granite stones are mined as undamaged dimensional stones without involving deep hole drilling and blasting, fragmentation and generation of lumps, fines or dust is very limited. This quantum of Mining activity will not cause the dust detrimental to the health of the persons employed. Nevertheless, water will be sprinkle for the suppression air borne dust from mine approach roads, waste dumps on regular intervals using water tankers. Drilling of blast holes of 32mm dia will be always under wet conditions to prevent flying of dusts. In the unloading points, water will be sprinkle through tippers to suppress dust. The drillers are provided with respirators in accordance with the Mines Safety Regulations.

14.7 MEASURES TO MINIMIZE GROUND VIBRATION DUE TO BLASTING AND CHECK NOISE POLLUTION

Shallow holes of 32 mm diameter will be drilled and conventional low explosives such as D-Cord and Gelatin stick will be used for removal of over burden. Hence, ground vibration and noise pollution will be minimal and restricted with the quarry workings. The blasting will be taken up at appointed timing and with sufficient caution to the public under the advice of qualified and competent personnel. The noise produced by diamond wire saw cutting will be negligible.

14.8 STABILIZATION AND VEGETATION OF DUMPS

As the waste generation in the mine includes hard rock fragments of considerable size and irregular shape with varying angularity, the temporary waste dump will be stable on its own even at higher slopes of the sides. However, excavated and preserved topsoil will be spread out over and sides of the inactive waste dump also tree saplings will be carried out for increasing the stability and to prevent erosion during rainy season.



15.0 PROGRESSIVE QUARRY CLOSURE PLAN

15.1 Introduction

The Progressive Quarry Closure Plan for Chendarapalli Grey Granite quarry lease over an extent of 3.50.0 Hectares of Patta land in S.F.No. 380/1(Part) of Chendarapalli Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State has been prepared for **M/s. Zak Exports**, having an office at No.35/13, 2nd Cross Co-operative Colony, Krishnagiri Taluk and District, Tamil Nadu – 635 001.

15.2 Present Land use pattern:

Land Use Table – 23

Description	Present area in (Ha)
Area under Quarry	1.72.19
Dumps	1.45.70
Infrastructure	0.03.00
Roads	0.01.00
Green Belt	Nil
Stocking Blocks	0.26.11
Grand Total	3.50.00

15.3 Mineral Processing Operations:

The quarried out Rough granite blocks are marketed by road to various customer destinations and granite processing units located at different parts of the country. The Grey Granite blocks approved for export market are shipped from Chennai Port to various countries and if required the blocks may be shifted from Thoothukudi Port which depend upon the exporter's destination from time to time. No Mineral processing is involved within the quarry lease area.

15.4 Reasons for closure:

The mineral is not going to be exhausted during the proposed scheme period hence, immediate closure does not planned due to sufficient reserves are available for the entire life of quarry. Hence, the reason for closure will be discussed an ensuing scheme period or in Final Mine Closure Plan.

15.5 Statutory obligations:

All the conditions stipulated in the G.O. and lease deed was fulfilled and maintained during the course of quarry operations.

15.6 Progressive quarry closure plan preparation:

Name and address of the Qualified Person who prepared the progressive closure plan and name and address of the executing agency who is involved in the Preparation of progressive quarry closure plan:

Dr. P. THANGARAJU, M.Sc., Ph.D.,

Qualified Person

No.17, Advaita Ashram Road,

Alagapuram,

Salem District,

Tamil Nadu - 636004.

94422 78601, 94433 56539.

The lessee will himself implement the closure plan; no outside agency will be involved.

15.7 Review of Implementation of Mining Plan including Progressive Closure Plan upto the Final Closure Plan:

In the approved mining plan is discussed only when the working area reaches its ultimate pit limit or at the end of life of quarry, the Reclamation and Rehabilitation will be carried out. The Grey granite mineral reserves are available for the entire life of quarry. The entire quarry area is an active, so the lessee has not taken any action for progressive quarry closure. Hence, review of implementation of progressive quarry closure does not arise at present. However, if any work done for progressive quarry closure during this scheme period, it will be discuss an ensuing Scheme period.

15.8 Closure Plan:**(i) Mined Out Land:**

At the end of this scheme period the quarry operation to be carried out only 1.72.19ha to a depth of 39m out of 2.59.00ha of total mineable area upto a depth of 44m. When the remaining reserves will be completely exhausted, the mine closure plan will be prepared and submitted to the competent authority to obtain approval and the same will be implemented. The quarry area will be fenced with barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle.

Land use pattern

Table - 24

Description	Present Area (Ha.)	Area to be required during this present scheme period(ha)	Area at the end of life of quarry (ha)
Area under Quarry	1.72.19	Nil	2.59.00
Waste dump	1.45.70	Nil	Backfilled#
Infrastructure	0.03.00	Nil	0.03.00
Roads	0.01.00	0.01.00	0.02.00
Green Belt	Nil	Nil * (0.47.28)	0.81.10
Stocking Blocks	0.28.11	0.27.11	0.04.90
Total	3.50.00	0.28.11	3.50.00

*Green Belt will be carried out (Proposed area 0.47.28) over the existing Topsoil dump - 2.

#If permission is granted for disposal of waste from the State Government, the existing topsoil dumps (68,876m³) and excavated topsoil (33,544m³) will be utilized for backfilling. If permission not obtained for disposal of waste, backfilling will be carried out with waste and spread out the preserved topsoil to facilitate afforestation in the backfilled area.



(ii) Water quality management:

Following control measures will be adopted for controlling water pollution:-

- Garland drain will be constructed around the quarry area to prevent surface run off rain water entering to the pit.
- Construction of check dams / gully plugs at strategic places to arrest silt wash off from broken up area.
- Collection of surface run-off from broken up area in mine pits for settling and only properly settled excess water from mine pit will be discharged to nearby users. The storm water/ mine water will be used for dust suppression, greenbelt development, etc.
- Periodic analysis of mine pit water and ground water quality in nearby villages.
- Domestic sewage from site office & urinals/latrines provided in QL is discharged in septic tank followed by soak pits.

(iii) Air Quality Management:

The proposed quarrying method is not likely to produce much of dust and fugitive emissions to cause damage to ambient air quality of the area. All personnel protective equipment like Nose-mask, earplug/ muffs will be provided to the Workers. For air pollution management at the progressive quarry closure plan, greenbelt will be developed to prevent and control air pollution.

(iv) Top Soil and Waste Management:

There is no topsoil generated during this scheme period.

During this scheme period, the quarried out waste (35,450m³) will be proposed to dump over the existing waste dump situated on the Northwest side with dimension of (L)60m x (W)60m x (H)19.74. If permission is granted for removal of waste (Existing Waste 35,640m³ + expected waste for remaining lease period 3,11,726m³) from concerned authorities, the waste material will be supplied to the needy crusher for convert to the building and road construction material after paying the seniorage fee and obtained necessary clearance and approval from concerned department for handling the waste. When the entire mineral reserves will be completely exhausted if permission not obtained for handling of waste from the concerned authority, backfilling will be carried out nearly existing ground profile and spread out the preserved topsoil to facilitate afforestation in the backfilled area.

Disposal of mining machinery:

All the Machineries are purchased by fresh condition and the same has been maintained in good condition during the entire lease period. After completion of quarry operation all machineries will be utilized at another quarry or sold out to the second hand. Hence, disposal or decommissioning of mining machinery does not arise.

**(v) Safety & Security:**

Safety measures will be implemented to prevent access in the excavation area an unauthorized persons as per Mine Act 1952, MMR 1961.

- Safety measures will be implemented as per Mine Act 1952, MMR 1961, and Mines Rules 1955.
- Provisions of MMR 1961 shall be strictly followed and all roads shall be wider than the height of the bench or equal to the height of the bench and have a gradient of not more than 1 in 16.
- The bench height will be 5.0m.
- Width of working bench will be kept about 5.0m for ease of operations and provide sufficient room for the movement of equipments.
- Protective equipment like dust masks, ear-plugs/ muffs and other equipments shall be provided for use by the working personnel.
- Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries. Sufficient caution and sign boards will be kept in and around the quarry to induct public for awareness.
- Blasting will be carried out in a specific time after giving sufficient caution to the public such as danger signs shall be displayed near the excavations and siren alarm signal will be provide before small amount of blasting time for precautionary action of accident. (blasting is carried out only for secondary fragments and not to liberate the Granite body from the parent rock mass).
- Security guards will be posted to prevent inadvertent entry of public.
- In the event of temporary closer, approaches will be fenced off and notice displayed.

(vi) 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 Company 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.
- 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.



(vii) 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 an inadvertent entry to the lease 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,

Mine 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 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 quarry shall be discussed daily.

In case of discontinuance due to any natural calamities/abnormal conditions, quarry operation will be restarted as early as possible after completing rescue work, restoring safety and security, repairs of roads etc.,

(viii) Economic Repercussion of Closure of Quarry and manpower Retrenchments:

The quarry lease is granted for a period of twenty 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.

**(ix) Time Scheduling For Abandonment:**

The lease area has enormous potential for continuance of operations even after the expiry of the lease period. The details of time schedule of all abandonment will be given at the time of final quarry closure plan.

(x) 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 this scheme period, the cost is assessed as given below:

Table - 25

ACTIVITY	YEAR					RATE	AMOUNT (Rs.)
	2022-23	2023-24	2024-25	2025-26	2026-27		
Plantation (In Nos.)	100	100	100	100	100	@200 Rs Per sapling	1,00,000 /-
Plantation and Maintenance Cost	20,000	20,000	20,000	20,000	20,000		
Barbed wire fencing (In Mtrs) 900 Mtrs (Already Fenced)	2,70,000	-	-	-	-	@300 Rs Per Meter	2,70,000/-
Garland drain (In Mtrs) 650 Mtrs	1,05,000	-	-	-	-	@300 Rs Per Meter	1,95,000/-
TOTAL							5,65,000/-

16.0 MINERAL CONSERVATION AND DEVELOPMENT

The scheme of quarrying proposed has fully covered the aspects of granite conservation and Development Rules, 1999 with a future plan to extend the proposed working of the quarry to the maximum possible workable depth of the deposit. Extreme care is taken to ensure proper supervision of quality control of the granite dimensional stone aimed at the recovery of the maximum saleable quality and quantity of Grey granite dimensional stones suitable for full utilization of the consumers.

Care is been taken for each process just to safeguard the material quarried in an economical and efficient manner by adopting systematic and scientific quarrying with consultation and supervision of well experienced quarry persons.



17.0 STATUTORY PROVISIONS

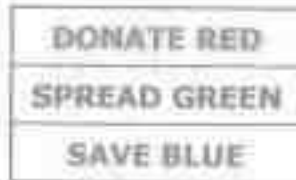
The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied with, so that the safety of the mine, machinery and person will be ensured. Permission, relaxation or exemption wherever required for the safe and scientific Mining of the deposit will be obtained from the Department of Mines Safety, Chennai. Any violation pointed out by the inspecting authorities shall be rectifying as per the guidelines of the department.

Certified that this Scheme of Mining has been prepared in accordance with the Mines Act, Rules & Regulations and orders made there under and in conformity with the provisions sub rule (13) of Rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959 and Rule 12, 13 & 16 of Granite Conservation and Development rules June 1999.

Prepared By:

[Signature]
Dr. P. THANGARAJU, M.Sc., Ph.D.,
Qualified Person

Place: Salem
Date: 18.07.2022



[Signature]
COMMISSIONER
COMMISSIONERATE OF GEOLOGY AND MINING,
GUINDY, CHENNAI-600 032.

18/7/22

This Scheme of Mining Plan is approved
Subject in the Conditions / Stipulation Indicated
in the Scheme of Mining Plan Approval

Letter No. 49/A/MP/2022 Dated 18/07/22



ABSTRACT

Industries-Mines and Quarries - Minor Minerals - Krishnagiri District, Bargur Taluk, Chendarapalli Village - Grant of quarry lease to quarry Grey Granite - Over an extent of 3.50.0 hectares of patta land in S.F.No. 380/1 (P) - Grant of Quarry lease application of M/s. Zak Exports - Sanctioned - Orders - Issued.

INDUSTRIES (MME.2) DEPARTMENT

G.O. (3D) No.25

Dated: 21.11.2017

திருவாரூர் ஆள் 2048,
மேலநிலை வகுப்பு, கார்த்திகை 5.

Read:

1. Quarry lease application preferred by M/s. Zak Exports, Krishnagiri, dated 20.06.2016.
2. From the District Collector, Krishnagiri, Letter Rc.410/2016/Mines-1, dated: 19.09.2016.
3. From the Commissioner of Geology and Mining, File No.6982/MM5/2016, dated: 31.03.2017.
4. Government Letter No.4608/ MME.2 / 2017-1, Dated 09.06.2017.
5. From the Commissioner of Geology and Mining, Letter No.6982/MMS/2016, dated, 14.07.2017.
6. From the Chairman, DEIAA-KGI/District Collector, Krishnagiri, Letter No.13/DEIAA-KGI/EC No.11/2017, dated 12.10.2017.

ORDER:

In the reference first read above, M/s. Zak Exports has applied for grant of lease to quarry Grey Granite over an extent of 3.50.0 hectares of patta land in S.F. No. 380/1 (P) of Chendarapalli Village, Bargur Taluk, Krishnagiri District for a period of 20 years under rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959.

2. In the reference second and third read above, the District Collector Krishnagiri and the Commissioner of Geology and Mining have recommended and forwarded the application of M/s. Zak Exports to the Government for passing orders.

3. Based on the reports of the District Collector, Krishnagiri and the Commissioner of Geology and Mining, the Government have examined the quarry lease application of the applicant company and communicated the area recommended by the Commissioner of Geology and Mining as precise area and requested the applicant company in the reference fourth read above to furnish the approved Mining Plan as per sub-rule 13 of rule 19A of the Tamil Nadu Minor Mineral Concession Rules, 1959 through the Commissioner of Geology and

Mining and to produce environmental clearance from Competent Authority. Accordingly, the Commissioner of Geology and Mining in the letter fifth read above has approved the mining plan as per sub rule (13) of rule 19A of the Tamil Nadu Minor Mineral Concession Rules, 1959 subject to the condition that the applicant company shall obtain the Environmental Clearance as per the orders of the Hon'ble Supreme Court of India order, dated 27.2.2012 in I.A. No.12-13/2011 in SLP(C) No.19629/2009 and as per the Office Memorandum No.L11011/47/2011-1A II(M), dated 18.05.2012 of Ministry of Environment and Forest, Government of India. In the letter sixth read above the DEIAA have accorded Environmental Clearance for mining in the above said area subject to certain conditions.

4. The Government after careful examination have decided to grant lease to quarry Grey Granite to M/s. Zak Exports, in patta land mentioned in para 1 above. Accordingly, in exercise of powers conferred under Rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959 the Governor of Tamil Nadu hereby grants quarry lease to M/s. Zak Exports for quarrying Grey Granite over an extent of 3.50.0 hectares of patta land in S.F. No.380/1(P) of Chendarepalli Village, Bargur Taluk, Krishnagiri District for a period of twenty years, subject to the conditions specified in the annexure to this order and also the following special conditions along with all the conditions imposed by the Chairman/ District Collector, District Environment Impact Assessment Authority, Krishnagiri District in his Letter No.13/DEIAA-KGI/EC No.11/2017, dated 12.10.2017.

(i) 7.5 meters safety distance to be provided and maintained in the lease hold area for the patta lands adjoining the boundary of lease applied area.

(ii) 10 meters safety distance should be provided and maintained in the lease hold area for the adjoining poramboke lands in S.F. Nos.375/1 & 379/1.

(iii) Before execution of lease, the applicant firm must produced latest mining dues clearance certificate in favour of partner of applicant firm Thiru.D.Loganathan from the District Collector, Sivagangai.

(iv) The waste material generated during the time of quarrying should be dumped only within the lease hold area. At any cost the waste material should not be dumped in the adjacent Government Poramboke lands.

(v) No hindrance shall be caused to the adjacent pottadars lands and Government Poramboke lands.

(vi) The applicant firm should fence the lease granted area with barbed wire before the execution of lease deed as follows:-

❖ The pillar post shall be firmly grounded with concrete foundation of height not less than 2 meters with a distance between two pillars shall not be more than 3 meters.

❖ The applicant shall incorporate the DGPS readings for the entire boundary pillars of the area and the same should be clearly shown in the mining plan and submit in CD.

(vii) Environment Clearance should be obtained from the Competent Authority in respect of the subject area as per the orders of the Hon'ble Supreme Court of India, Dated: 27.2.2012 in I.A. No.12-13/2011 in SLP(C) No.19629/2009 and Office Memorandum No.L11011/47/ 2011-1A II(M), Dated:



18.5.2012 of the Ministry of Environment & Forests, Government of India and as per Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959.

(viii) The lessee shall strictly adhere to the statutory and safety requirements.

(ix) Quarrying shall be done as per the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.

(x) The lease grantee shall submit scheme of mining; mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per rules.

(xi) The District Collector, Krishnagiri shall obtain a sworn-in-affidavit from the appellant containing the above conditions before execution of lease deed and also ensure that the instructions issued in Government Letter No.12789/MMB.2/2002-7, Industries Department, Dated: 9.1.2003 are complied with.

5. The Collector of Krishnagiri District is directed to take necessary further action for the execution of agreement in the prescribed form and communicate the date of execution of agreement to the Government and Commissioner of Geology and Mining.

6. The District Collector, Krishnagiri is also directed to verify and to furnish a certificate to the effect that all lease deed conditions and other conditions mentioned in paragraph 4 above have been complied with and duly incorporated in the lease agreement and send it to the Government. The District Collector, Krishnagiri is also instructed to include all the conditions imposed by the Chairman/ District Collector, District Environment Impact Assessment Authority, Krishnagiri District in his Letter No.13/DE/IAA-KGI/EC No.11/2017, dated 12.10.2017.

(BY ORDER OF THE GOVERNOR)

ATULYA MISRA
PRINCIPAL SECRETARY TO GOVERNMENT

To
M/s.Zax Exports,
No.35/13 2nd Cross, Co-operative Colony,
Krishnagiri Taluk & District, Pin - 635 001.
The Commissioner of Geology and Mining, Guindy, Chennai-32.
The District Collector, Krishnagiri.

Copy to:
The Special Personal Assistant to Hon'ble Minister
(Law, Court & Prisons), Chennai - 600 009.
The Industries (OP II) Department, Chennai - 600 009.
SF/SC.

// FORWARDED BY ORDER //

[Handwritten Signature]
SECTION OFFICER

[Handwritten Date]
22-11-2017

ANNEXURE

G.O (3D) No.25, Industries (MME.2) Department, dated: 21.11.2017.

1. The applicant shall execute an agreement within one month from the date of receipt of the Government order.
2. The date of commencement of the period of lease shall be the date on which the agreement is executed.
3. The applicant shall pay seigniorage or dead rent whichever is more in respect of the actual quantity of granite removed at the rate prescribed from time to time in Appendix -II of the Tamil Nadu Minor Mineral Concession Rules, 1959.
4. The applicant should keep correct accounts showing the quantities and other particulars of all minerals obtained from the lands permitted to quarry.
5. The applicant should also allow any officer authorized by the District Collector or any officer authorized by him in this behalf or any other officer authorized by the State Government in this behalf to inspect the area and verify records and accounts and furnish such information under the terms as may be required by them.
6. The applicant shall carry out the quarrying operations in skilful, scientific systematic manner keeping in view the proper safety of the labour conservation of minerals and preservation of environment ecology.
7. The applicant shall allow any officer authorized by the District Collector and Director of Geology and Mining to enter upon the area and inspect for the purpose mentioned in conditions 4 and 6 above and also carry out the directions issued to the satisfaction of the above said authorities.
8. No quarrying activities connected there to shall be done before the execution of the agreement and registration is at the cost of the applicant.
9. No hindrance shall be caused to the adjoining pattadars or public.
10. The applicant should restrict his mining operation strictly within the permitted area as defined in the sketch.
11. The terms and conditions are also subject to such further modifications, deletion and additions alternation as may be ordered by the Government to be included in the agreement to be executed for this purpose.

(p.t.o.)



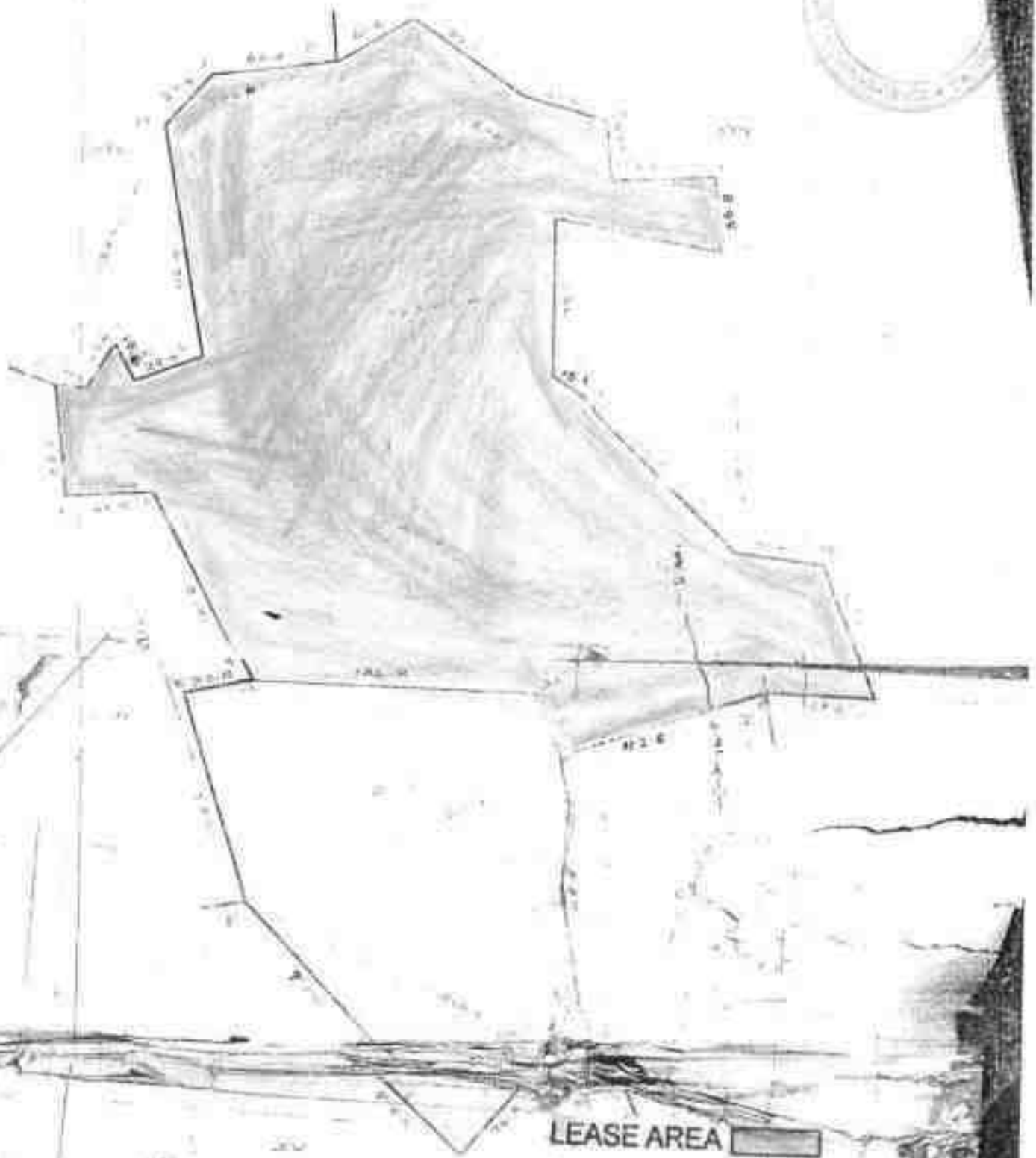
12. The applicant should maintain at his cost proper signboards indicating the survey numbers, years of the lease, name of the lease holder and the lease period to the satisfaction of the District Collector, Director of Geology and Mining and maintain it all time at the quarry site.
13. No quarrying shall be done within a distance of 7.5 metres of the boundaries of the permitted area.
14. The applicant should make his own arrangements to form the approach road from the public road to the place of his quarry.
15. The lessee shall strictly adhere to the statutory and safety requirements.
16. The waste materials generated during quarrying operation shall be dumped only in the area granted under lease.
17. 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.
18. That the approval of the mining plan does not in any way imply the approval of the Government in terms of any other provision, 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 and the Tamil Nadu Minor Minerals Concession Rules 1959.
19. That the mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.

ATULYA MISRA
PRINCIPAL SECRETARY TO GOVERNMENT

// True Copy //


SECTION OFFICER

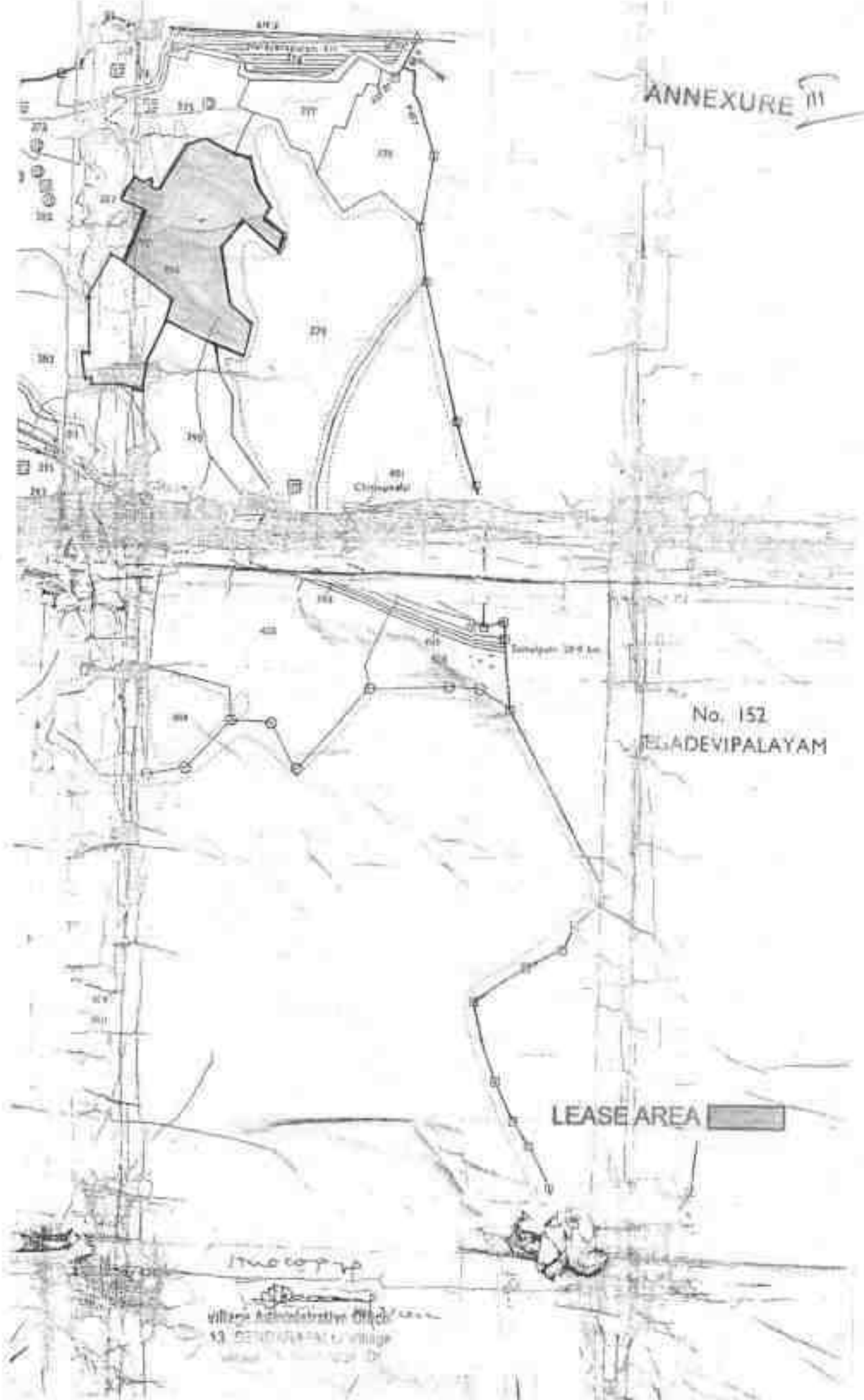
ANNEXURE II



1 July 2011

S. Jyoti
 Village: S. Jyoti
 13 SUNDARAPALLI Village
 GARDI TA. KRISHNAPUR - Dt.

ANNEXURE III





தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : கிருஷ்ணகிரி

வட்டம் : பர்கூர்

வருவாய் கிராமம் : செந்தூரப்பள்ளி

பட்டா எண் : 2338

உரிமையாளர்கள் பெயர்

1. மீர் தாஹர் அலி மகன் மீர் மஹமூத் அலி
2. மீர் தாஹர் அலி மகன் மீர் பரித் அலி (எ) மீர் முகமது பரித் அலி



பலா எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - ஸப	ஹெக்ட - ஏர்	ரூ - ஸப	ஹெக்ட - ஏர்	ரூ - ஸப	
380	1	7 - 38.00	20.43	--	--	--	--	2016/0103/31/012990- -- 06-08-2016
		7 - 38.00	20.43					

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் தகவல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 31/06/117/02338/30746 என்ற குறிப்பு எண்ணை உள்ளிட்டு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 04-04-2022 ஆன்று 05:04:54 PM நேரத்தில் அச்சிடக்கப்பட்டது.
3. ஸ்கான்பர் கோமராவின 2D barcode படப்பள்ளி மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.

http://mshimam.surveyengine.com/Checklist.html

3/20/2017

TOTAL FOR SURVEY NUMBER- 379													
									17:36:50	12	28		
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100	2	2-3	P	Uppala	Uppala	2-3	4	2	77	2	60.00	20	2317-07 H. Nagar H. Nagar H. Nagar Dms 1 h Lumpsum
100	3A	2-3	H	Uppala	Uppala	2-3	4	2	22	6	40.00	12	1027- B
100	3B	2-3	P	Uppala	Uppala	2-3	4	2	77	0	13.00	0	1027- B

Page Number: 152

(Signature)

Office of the
Assistant Engineer
12 SENIARAPALLE Village
Tiruvot - TL, Krishnagur - Dt



http://mshimam.surveyengine.com/Checklist.html



2	3	4	5	6	7	8	9	10	11	
4	313-41	2	40					0 138-5		
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(2)	2	2	4		7-3	4	2 77	0 06-5	2 57	1130 മ. മേൽപ്പാലം (1), മ. മേൽപ്പാലം (2), മ. മേൽപ്പാലം (3)
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தமிழ்நாடு தமிழ்நாடு TAMILNADU

செய் AH 865523



17413
15-6-2016

ZAK EXPORTS
KRISHNAPUR

B.N. MURILAK
S.V.No: 7388/85
Krishnagiri, Tamilnadu

குத்தகை ஆவணம்

15.6.2016 கிராமபஞ்சாயத்து பதினாறாம் வட்டம் ஜனம் மதம் பதினாறாம் குத்தகை...
கிருஷ்ணகிரி மண்டலம், கிருஷ்ணகிரி மண்டலம் கோ-ஆப்டிபிரேக்ஸாலை,
3rd Cross கதவு எண்:18/16 முகவரின் குடிசைகூடமும் பிந்தாமலி அல்
அவர்களின் குமாரச்சன் கிராமபஞ்சாயத்து-1, கிருஷ்ணகிரி மண்டலம், கிருஷ்ணகிரி
வட்டம், கோ-ஆப்டிபிரேக்ஸாலை. 2nd Cross, கதவு எண்:35/13 முகவரின்
குடிசைகூடமும் பிந்தாமலி பதினாறு பதினாறு-2 மற்றும்.

1) / Totok 3) / Qly - 2

2) / P. K. Bopalakrishnan, I.C.L.S.,
ADVOCATE & NOTARY





ದ್ರವ್ಯವಹಿಸಿ ಮೂಲದ ದ್ರವ್ಯವಹಿಸಿ ಹೀಗೆ ಹೇಳಿ
 ಮೂ-ಛೋಟುಮೂಲದ 2^ನ Cross, ಏಕೆ ಮೂ35/13
 ದ್ರವ್ಯವಹಿಸಿ ZAK EXPORTS ದ್ರವ್ಯವಹಿಸಿ ದ್ರವ್ಯವಹಿಸಿ
 ದ್ರವ್ಯವಹಿಸಿ ಮೂ-ಛೋಟುಮೂಲದ 3^ನ Cross ಏಕೆ ಮೂ 10/16
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 ದ್ರವ್ಯವಹಿಸಿ ಮೂ-ಛೋಟುಮೂಲದ 2^ನ Cross, ಏಕೆ ಮೂ 35/13
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 ದ್ರವ್ಯವಹಿಸಿ ಮೂ 30 ದ್ರವ್ಯವಹಿಸಿ ದ್ರವ್ಯವಹಿಸಿ S/o
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 ZAK EXPORTS ದ್ರವ್ಯವಹಿಸಿ ದ್ರವ್ಯವಹಿಸಿ ದ್ರವ್ಯವಹಿಸಿ
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P.H. GOPALAKRISHNAN, B.A. LL.B.
 ADVOCATE & NOTARY
 No. 45/41A, 1st Cross, Madivala
 KRISHNAGIRI-560 001
 Cell: 9944476082, 944327601



DEPARTMENT OF GEOLOGY AND MINING

From
Dr. R.Palaniswamy, I.A.S.,
Commissioner of Geology and Mining,
Industrial Estate,
Guindy, Chennai-600 032.

To
The Principal Secretary,
Government,
Industries Department,
Secretariat, Chennai-600 008

Lr.No. 6982/MM5/2016 dated 14.07.2017

Sir,

Sub: Mines and Quarries – Grey granite – Krishnagiri District – Bargur Taluk – Chenderapalli Village - S.F.Nos.380/1(part)– over an extent of 3.50.0 hect. of patta land – Quarry lease application preferred by M/s.Zak Exports– precise area communicated by the Government - Approved Mining Plan called for – Mining Plan submitted for approval – approval accorded – Approved Mining Plan forwarded to Government - Reg.

- Ref:**
- 1) Quarry lease application preferred by Thiru M/s.Zak Exports, dated 20.06.2016.
 - 2) District Collector, Krishnagiri letter Roc.No.410/2016/Mines-1/2016,Dated;19.09.2016.
 - 3) This office recommendations made in File No. 6982/MM5/2016 Dated;31.03.2017.
 - 4) Government letter, No.4606/MME-2/2017-1 dated 09.06.2017.
 - 5) M/s.Zak Exports letter dated 14.06.2017 in the O/o Deputy Director (G&M), Krishnagiri.
 - 6) Deputy Director (G&M), Krishnagiri letter No. Roc.No410/2016/Mines,Dated;16.06.2017.

-o/o-

The Government in the reference 4th cited have communicated the precise area to M/s.Zak Exports with a direction to produce an Approved Mining Plan in respect of the area applied for grant of quarry lease for quarrying Grey Granite over an extent of 3.50.0 hect. of patta lands in S.F.Nos.380/1(part) of Chenderapalli Village, Bargur Taluk, Krishnagiri District within a period of 3 months as per sub-rule (13) of Rule 19-A of Tamil Nadu Minor Mineral Concession Rules, 1959 by incorporating the conditions stipulated in the Government letter dated 09.06.2017.



2) In response to the precise area communicated, the applicant in the reference 5th cited has submitted 6 copies of draft mining plan duly prepared by the Recognized Qualified Person for approval.

3) The Deputy Director of Geology and Mining, Krishnagiri in the reference 6th cited has forwarded the draft mining plan for approval stating that the mining plan has been verified with reference to field conditions and the details such as Geological Reserves, Mineable Reserves, year wise production and development program have been incorporated in the draft mining plan. He has further reported that the mineable reserves in the draft mining plan has been estimated as 1,19,042 cumtrs. for a depth persistence of 22 mts. with a recovery of 35%.

4) The draft mining plan submitted in respect of the precise area communicated and the report of the Deputy Director of Geology and Mining, Krishnagiri have been examined with reference to the provisions of Rule 12, 13 and 15 of Granite Conservation and Development Rules, 1989 and the followings are observed:-

- i) All the conditions stipulated in the Government letter No.4605/MME-1/2017-1 Dept dated 09.05.2017 have been incorporated in the mining plan.
- ii) The required safety distance of 7.5 meters has been provided to the adjacent patta lands and the same has been demarcated in the mining plan.
- iii) The required safety distance of 10 meters has been provided to the adjacent poramboke lands in S.F.No.375/1 & 376/1 lands have been demarcated in the mining plan.
- iv) The DGPS readings for the entire boundary pillars of the area have been incorporated and shown in the mining plan.
- v) The total quantity of mineable reserves has been estimated as 1,19,042 cu.m with a recovery of 35% for a depth persistence of 22 mts.



- 4) The total quantity of recoverable reserves of granite for the first 5 years has been estimated as 18,025 cbm for a depth persistence of 9 mtrs. with a recovery of 35%.

5) In the light of the above, in exercise of the powers conferred under Rules 12,13 and 15 of Granite Conservation and Development Rules, 1999 read with G.O.Ms.No.67, Industries (MMC1) Department Dated 22.2.2001, I hereby approve the mining plan subject to the following conditions:-

- (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) 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, 1986, Indian Explosives Act, 1884 (Central Act IV of 1884) 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 applicant should obtain Environment Clearance from the Competent Authority as per Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959.
- (v) The applicant should fence the lease granted area with barbed wire before the execution of lease deed and the pillar post shall be firmly grounded with concrete foundation of height not less than 2mts with a distance between two pillars shall not be more than 3mts.
- (vi) The lessee shall strictly adhere to the statutory and safety requirements.
- (vii) Waste materials generated during quarrying operations shall be dumped within the lease applied area earmarked for this purpose.
- (viii) The applicant should leave a safety distance of 7.5 meters to the adjacent patta lands and should not cause any hindrance to them while quarrying and transportation of granite.



The applicant should leave a safety distance of 10 meters to the adjacent paramboke lands in S.F.No.375/1 & 379/1 and should not cause any hindrance to them while quarrying.

- (k) Before execution of lease, the applicant firm must produce latest mining dues clearance certificate in favour of partner of applicant firm Thiru.D.Loganathan from the District Collector, Sivagangai.
- x) The proposed area for quarrying should be demarcated by using DGPS readings before executing the lease deed.
- xi) Quarrying operations shall be carried out as per the Approved Mining Plan.
- xii) The production of granite shall be done as per the Approved Mining Plan.
- xiii) Scheme of mining along with the progressive mine closure plan shall be submitted within the time stipulated in the rules.
- xiv) The District Collector, Krishnagiri shall obtain a sworn-in affidavit from the applicant containing the above conditions before execution of lease deed and also ensure that the instructions issued in Government letter 12789/MME2/2002-7, Industries Department, dated 09.01.2003 are complied with.

A copy of the Approved Mining Plan is sent herewith for further necessary action.

End: Approved mining plan.

Sd/- R.Palaniswamy
Commissioner of Geology and Mining

Forwarded / By Order

Joint Director

- 1) M/s.Zak Exports
No.35/13,2nd Cross
Co-Operative Colony,
Krishnagiri Taluk and District.
- 2) The District Collector Krishnagiri (with AMP)
- 3) The Directorate of Mines Safety,
Chennai-40 (with AMP).

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12/7/12

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ANNEXURE 1A

भारतीय गैर न्यायिक INDIA NON JUDICIAL

रु.
25000
पच्चीस हजार रुपये



Rs.
25000
TWENTY FIVE THOUSAND RUPEES



தமிழ்நாடு தமிழ்நாடு TAMILNADU

44259
24.11.2017

Zak Exports
Krishnagiri

செ.எ.எ. பி 333625

B.N. KUNIRAJ
S.V.No: 7363/83
Krishnagiri, Tamilnadu

APPENDIX V

FORM OF JOINT AGREEMENT FOR QUARRYING AND CARRYING AWAY MINOR MINERALS BY LESSEES IN KYOTWARI LANDS IN WHICH THE MINERALS BELONG TO GOVERNMENT

G.O (35) No 25 Industries (MME-2) Department Dated 21.11.2017

THIS AGREEMENT MADE THIS 24th day of December 2017 between
1) Thiru Mir Mazahar Ali S/o Mir Tahar Ali, D.No. 18/16, Co- Operative Colony, 3rd Cross, Krishnagiri 2) Thiru Mir Fared All @ Mir Mohammadi Fared All S/o Mir Tahar Ali D.No. 35/13, Co-Operative Colony, 2nd cross, Krishnagiri (hereinafter referred to as "the registered holder" which expression shall where the context so admits include also their heirs, executors, administrators, legal representatives and assigns) of the first part and M/s. Zak Exports, having administrative office at No. 35/13, 2nd cross, Co-Operative Colony, Krishnagiri represented by its Authorised signatory /partner Thiru Mir Mazahar Ali (hereinafter referred to as "the lessee" which expression shall where the context so admits shall include heirs, executors, administrators, legal representatives and

Mir Mazahar Ali
MMA

Registered holder

LESSEE

For ZAK EXPORTS

Mir Mazahar Ali
Partner

DISTRICT COLLECTOR,
KRISHNAGIRI



भारतीय गैर न्यायिक INDIA NON JUDICIAL



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पच्चीस हजार रुपये



Rs.
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TWENTY FIVE THOUSAND RUPEES

தமிழ்நாடு தமிழ்நாடு TAMILNADU

Q 333518

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24.11.17

ZAK EXPORTS
Krishtnagiri

T. V. BADHIRINATHAN
STAMP VENDOR
L.No: 8139/82 Tamil Nadu
KAVERIPATTINAM.

assign) of the second part and the Governor of Tamil Nadu (hereinafter referred to as the Government which expressions shall where the context so admits shall include his successors in office and assign) of the third part.

WHEREAS the registered holder holds the lands described in the schedule hereto and intended to leased out to the lessee of the said lands for the purpose of quarrying GREY GRANITE in the said lands and to deposit mining waste in the said lands and has lodged with Collector the lease and accurate map or sketch of the said lands.

[Signature]
Registered holder

[Signature]
DISTRICT COLLECTOR,
KRISHNAGIRI.

LESSEE

For ZAK EXPORTS

[Signature]
Partner.



भारतीय गैर न्यायिक INDIA NON JUDICIAL



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TWENTY FIVE THOUSAND RUPEES



தமிழ்நாடு தமில்நாடு TAMILNADU 25000

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24.11.17

ZAK EXPORTS
Krishnagiri

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T.V. BADIHINATHAN
STAMP VENDOR
L.No: 813892 Tamilnadu
KAVERIPATTINAM.

AND WHEREAS the lessee or tenant of the registered holder has made application to the Government through the Collector of the district of Krishnagiri (hereinafter referred to as "the Collector") seeking grant of quarrying lease for quarrying GREY GRANITE in the said lands and to deposit mining waste in the said lands and has lodged with the Collector an accurate map or sketch of the said lands;

AND WHEREAS, the Government have granted a quarrying lease to the lessee allowed him to commence quarrying operations for GREY GRANITE in the said lands and to deposit mining waste thereon by the lessee in the G.O (30) No. 25 Industries (NME-2) Department dated 21.11.2017.

M. John N.
NPS
Registered holder

Raj
DISTRICT COLLECTOR,
KRISHNAGIRI.

LESSEE

For ZAK EXPORTS
M. John N.
Partner.



भारतीय नैर् न्यायिक INDIA NON JUDICIAL

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TWENTY FIVE THOUSAND RUPEES



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24.12.17

ZAK EXPORTS
KOTAHU

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N. P. S. ...
S. N. 101 ... / KGI
KRISHNAGIRI TAMILNADU.

AND WHEREAS, the Collector, is prepared to allow the said registered holder or lessee to commence mining operations and to deposit mining waste in or on the said lands described in the schedule for a term of 20 years beginning on ^{24th} day of ^{December} 2017 and ending on

^{24th} day of ^{December} 2037 upon the registered holder and the lessee entering into the agreement here in contained.

Motahar N.
MPS
Registered holder

[Signature]
DISTRICT COLLECTOR,
KRISHNAGIRI.

LESSEE For ZAK EXPORTS
Motahar N.
Partner.



भारतीय नैर न्यायिक INDIA NON JUDICIAL



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पच्चीस हजार रुपये



Rs.
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TWENTY FIVE THOUSAND RUPEES

தமிழ்நாடு தமில்நாடு TAMILNADU

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24.11.17

ZAK EXPORTS
Krishnagiri

D 333854
N. MANIVARAN
S.V. LC 1/25000/1001
KRISHNAGIRI TAMILNADU

AND WHEREAS the lessee has deposited with the collector, the sum of Rs. 20,000/- (Rupees twenty thousand only) vide challan No. Nil dated 27.11.2017 remitted at state bank of india, Krishnagiri as security for the due performance of the covenants, agreements and provisos or damage which may be incurred to the Government by reason of any of the said lands described in the schedule hereto being rendered unfit for cultivation by the mining operations therein or by the deposit of mining waste thereon by either the registered holders or the lessee.

Manivaran
Registered holder

Manivaran
DISTRICT COLLECTOR,
KRISHNAGIRI.

LESSEE

For ZAK EXPORTS
Manivaran
Partner.



भारतीय नैऋत्यायिक INDIA NON JUDICIAL



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25000
पच्चीस हजार रुपये



Rs.
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TWENTY FIVE THOUSAND RUPEES

தமிழ்நாடு தமிழ்நாடு TAMILNADU

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ZAK EXPORTS
Krishnagiri

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N. MANIVANNAN
S.V. LC: 17/2008/KGI
KRISHNAGIRI TAMILNADU.

AND WHEREAS, the lessee has at the request of the registered holder and in consideration of such approval by the Collector of the mining operations as herein before recited agreed to join in these presents for the purpose of entering into covenants, agreements and provisos hereinafter contained as surety for the registered holder.

NOW THESE PRESENTS WITNESS and registered holder and the lessee do hereby jointly and severally and each of them both individually hereby covenant and agree with the Government as follows:-

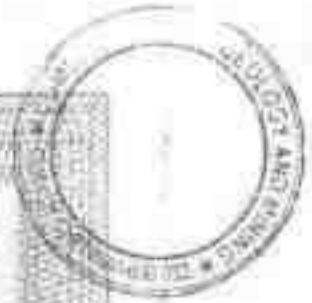
Mohana N.
N. Manivannan
Registered holder

N. Manivannan
DISTRICT COLLECTOR,
KRISHNAGIRI.

LESSEE For ZAK EXPORTS
Mohana N.
Partner.



भारतीय गैर न्यायिक INDIA NON JUDICIAL



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पच्चीस हजार रुपये



Rs.
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TWENTY FIVE THOUSAND RUPEES

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ZAK EXPORTS
Krishnagiri

D 333656
N. MANIVELAN
S. NO. 1, LEYALUR, TOTT
KRISHNAGIRI TAMILNADU.

I. To carry on mining operations during the said term in a proper and workman like manner and to deposit mining waste on the lands described in the schedule hereto and to answer and to account at all reasonable times to Government for all acts and defaults committed by any servants, agents or workmen employed by the registered holders or lessee in carrying on such operations or in making such deposits.

M. Mohan R.
Registered holder

[Signature]
DISTRICT COLLECTOR,
KRISHNAGIRI.

LESSEE

For ZAK EXPORTS
M. Mohan R.
Partner.



भारतीय गैर न्यायिक INDIA NON JUDICIAL



रु.
25000
पच्चीस हजार रुपये

Rs.
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TWENTY FIVE THOUSAND RUPEES



கமலிமுத்தாடு சமீலநாடு TAMILNADU 25000/-

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ZAK Exports
Krishnagiri

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T.V. BADIIRINATHAN
STAMP DUNDR
L.No: 5135/92 Tamilnadu
KAVERIPATTINAM.

2. To pay on the 05th day of ~~March~~ 2018 next and ~~05th~~ day on the ~~05th~~ day of every succeeding year so long as the operations aforesaid are carried on, upto the Treasury/ State Bank of India at Krishnagiri to the credit of the Government in addition to the land assessment for the time being payable in respect of the said lands, seigniorage on the minerals mined or dead rent which ever is higher for every year at the rates prescribed by the Government from time to time in the Appendix II of the TamilNadu Minor Mineral Concession Rules 1959.

3. To abide by the rules prescribed by the Government from time to time regarding quarrying of minor minerals.

M. S. S.
Registered holder

hls
DISTRICT COLLECTOR,
KRISHNAGIRI.

LESSEE For ZAK EXPORTS
M. S. S.
Partner.



भारतीय नैऋत्यायिक INDIA NON JUDICIAL



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पच्चीस हजार रुपये

Rs.
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TWENTY FIVE THOUSAND RUPEES



தமிழ்நாடு தமில்நாடு TAMILNADU

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ZAK EXPORTS
Kotshinagiri

T.V. BADHIRINATHAN
STAMP VENDOR
L.N. 5129/52 Tamil Nadu
KAVERIPATTINAM.

4. To keep correct accounts in such form as the collector shall from time to time required and direct showing the quantities and other particulars of all minerals obtained by the registered holders or the lessee from the said lands and also the number of persons employed in carrying on the said mining operations therein and to prepare and maintain from time to time when so directed by the said collector complete and correct plans of all mines and working in the said lands and to allow any officer thereunto authorised by the Commissioner/ Director of Geology and Mining, Tamil Nadu, from time to time and at all times to examine such accounts and any such plans and to supply and furnish when so required all such information and returns regarding all or any of the matters aforesaid as the Government may from time to time required and direct.

M. Lohar M.
N. K.
Registered holder

M. Lohar
DISTRICT COLLECTOR,
KRISHNAGIRI.

LESSEE For ZAK EXPORTS
M. Lohar M.
Partner.



भारतीय गैर न्यायिक INDIA NON JUDICIAL



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पच्चीस हजार रुपये



Rs.
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TWENTY FIVE THOUSAND RUPEES

தமிழ்நாடு தமிழ்நாடு TAMILNADU

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23/11/17

Zak Exports
Krishnagiri

333649
N. MANIVANNAN
S.V. LC: 11/2008/RGI
KRISHNAGIRI TAMILNADU.

5. To allow any officer authorized by the Commissioner/Director of Geology and Mining, Tamil Nadu in that behalf from time to time and at all times to enter upon any part of the said lands where mining operations may be carried on for the purpose of inspecting the same.

6. To forthwith send to the Collector a report of any accident which may occur at or in the said land and also of the discovery therein of any minerals other than GREY GRANITE.

Moham R
Nepo
Registered holder

h/w
DISTRICT COLLECTOR,
KRISHNAGIRI.

LESSEE For ZAK EXPORTS
Moham R
Partner.



भारतीय गैर न्यायिक INDIA NON JUDICIAL



₹. 25000

पच्चीस हजार रुपये

Rs. 25000

TWENTY FIVE THOUSAND RUPEES



INDIA

தமிழ்நாடு தமிழ்நாடு TAMILNADU 61500

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23.11.17

ZAK EXPORTS
Krishnagiri

D 333650

N. MANIVANNAN
S.V.LC:11/2008/KGI
KRISHNAGIRI TAMILNADU.

7. Not to claim any remission of assessment in respect of any of the said lands which shall be rendered unfit for surface cultivation by carrying on of any mining operations or by the deposit of mining waste unless thirty times of the assessment thereon has been deducted under proviso 2 here under.

PROVIDED ALWAYS and it is hereby further agreed by and between the parties as follows:-

1. That it shall be lawful for the registered holder or lessee as the case may be at any time to cease mining operations under these presents provided the registered holder or lessee shall pay to the Government or the Collector the land assessment, cess and seigniorage payable by the registered holder or the lessee under these presents upto to the end of the year in which the registered

holder
[Signature]
Registered holder

DOCUMENT
No. 3380 / 2017
Page No. 11
Total Page No. 44

[Signature]
DISTRICT COLLECTOR,
KRISHNAGIRI.

LESSEE For ZAK EXPORTS
[Signature]
Partner.



தமிழ்நாடு தமில்நாடு TAMILNADU

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23/1/19

ZAK EXPORTS
Krishnagiri

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N. MANIVANNAN
S.V.L.C: 11/2008/KGI
KRISHNAGIRI TAMILNADU.

or the lessee shall cease such mining operations and shall restore the said lands fence or fill in abandoned pits and excavations therein if required by the collector as next hereinafter provided and upon, the registered holder or the lessee so doing these presents shall cease and determine.

2. That in case the registered holder shall relinquish the whole or part of the said lands in case of the expiry or sooner determination of this agreement then and in any such case, the registered holder in the case of relinquishment and the registered holder and the lessee in other cases shall restore said lands or the area relinquished or so much thereof as the collector shall required to be restored to a state fit for cultivation and shall securely and permanently fence

Registered Holder
Registered holder

DOCUMENT
No. 3380
Page No. 12
Total Pages No. 49

District Collector
DISTRICT COLLECTOR,
KRISHNAGIRI.

LESSEE

For ZAK EXPORTS
Partner
Partner.

भारतीय गैर न्यायिक INDIA NON JUDICIAL



रु.
25000
पच्चीस हजार रुपये



Rs.
25000
TWENTY FIVE THOUSAND RUPEES

தமிழ்நாடு தமிழ்நாடு TAMILNADU

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23/1/13

ZAK EXPORTS
Krishnagiri

N. MANIVANAN
S.N. LC-11/2008/KCI
KRISHNAGIRI TAMILNADU.

or fill in all abandoned pits and excavation therein as the Collector shall require to be so fenced or filled in and in case the registered holder or the lessee shall fail, or neglect any such lands with the registered holder or the lessee be required to restore to a state fit for cultivation or to so fence or fill in any such abandoned pit or excavation which the registered holders or the lessee shall be required to so fence or fill them and in any such case it shall be lawful for the collector to so restore any such lands or as the case may be so fence or fill in any pit or excavation at the expense of the registered holders or lessee and to apply the said sum of Rs 20,000/- (Rupees twenty thousand only) so deposited

M. Lakshmi
N. Lakshmi
Registered holder

M. Lakshmi
DISTRICT COLLECTOR,
KRISHNAGIRI.

LESSEE
For ZAK EXPORTS
M. Lakshmi
Partner.

DOCUMENT
No. 3370
Page No. 13
Total Pages 49



தமிழ்நாடு தமில்நாடு TAMILNADU

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ZAK EXPORTS
Krishnagiri

G. R. Sathish Kumar
G. R. SATHISH KUMAR
S. V. LC: 6579/88
Krishnagiri, Tamilnadu.

in or towards the cost of so doing and to deduct from the amount of the said deposit and retain on behalf of the Government a sum equal to thirty times the assessment of the said lands which shall have been rendered unfit for cultivation. If, however the amount of deposit is not sufficient to cover the cost of such restoration or fencing or filling as the case may be or to meet thirty times the assessment of the area rendered uncultivable, it shall be lawful for the Government to recover the balance by resort to Civil Court.

3. That all land assessment, cess and soignorage fee or dead rent payable under these presents shall be recoverable under the provisions of the Tamil nadu Revenue Recovery Act, 1864, or any subsisting statutory modification thereof, as if the same were arrear of land revenue.

M. Sathish Kumar
Registered holder

G. R. Sathish Kumar
DISTRICT COLLECTOR,
KRISHNAGIRI

LESSEE

For ZAK EXPORTS
M. Sathish Kumar
Partner.



भारतीय गैर न्यायिक INDIA NON JUDICIAL



रु.
25000

पच्चीस हजार रुपये



Rs.
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TWENTY-FIVE THOUSAND RUPEES

தமிழ்நாடு தமிழ்நாடு TAMILNADU கோவை

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23/4/17

ZAK EXPORTS
Krishnagiri

[Signature]
B. R. SATHISH KUMAR
S. V. LEI 6579/82
Krishnagiri, Tamilnadu.

4. That in the event of any breach of the registered holder/ lessee of any of the conditions of these presents, it shall be lawful for the Government to levy enhanced seigniorage subject to the maximum of five times the normal rate or for the collector to give notice in writing to the registered holder/lessee of his intention to cancel these presents whereupon the same shall stand cancelled but without prejudice to any rights which the Government may have against the registered holder/ lessee in respect of any antecedent claim or breach of covenant or condition.

[Signature]
Registered holder



[Signature]
DISTRICT COLLECTOR,
KRISHNAGIRI.

LESSEE

For ZAK EXPORTS
[Signature]
Partner.

भारतीय गैर न्यायिक INDIA NON JUDICIAL



रु.
25000
पच्चीस हजार रुपये



Rs.
25000
TWENTY FIVE THOUSAND RUPEES

தமிழ்நாடு சமீலநாடு TAMILNADU ரூ. 25000/-

D. 333631



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23/11/17

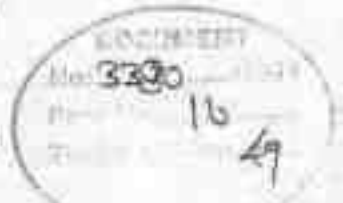
Zak Exports
Krishnagiri

B. R. Sathish Kumar
B. R. SATHISH KUMAR
S. V. No: 4079/88
Krishnagiri, Tamilnadu.

5. That any notice to be given to registered holder/ lessee may be addressed to his last known place of abode and where a notice has been so addressed it shall be deemed to have been duly served for the purpose of these presents.

6. Should any question or dispute arise regarding an agreement executed in pursuance of these rules or any matter or thing connected therewith or the powers of the registered holder/ lessee thereunder, the amount or payment of the solumage fee or dead rent or area assessment made payable thereby, the matter in issue shall be decided by the Commissioner/ Director of Geology and Mining. In case the registered holder /lessee is not satisfied with decision of the Director of Geology and Mining, the matter shall be referred to the State Government.

MoTaha
NRHO
Registered holder



[Signature]
DISTRICT COLLECTOR,
KRISHNAGIRI.

LESSEE | For ZAK EXPORTS
| *MoTaha*
| Partner.



சுமிக்ரூபா சமில்நாடு TAMILNADU 25000

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13552
23/11/17

ZAK EXPORTS
Krishnagiri

H. K. Satish Kumar
H. K. SATISH KUMAR
E. V. No. 6579/88
Krishnagiri, Tamilnadu.

7. The registered holder/lessee shall abide by the conditions laid down in the payment of wages Act, 1936 (Central Act IV of 1936), Minimum Wages Act 1948 and Rules 1950, the Mines Act, 1952 (Central XXX V of 1952) the Indian Explosive Act, 1884. (Central Act IV) and Mines and Mineral (Development and Regulation) Act 1957 and the rules and regulations made thereunder.

8. The lessee shall comply with the provisions of the labour laws applicable to quarrying. Any contravention of the provisions shall attract legal proceedings of the appropriate authority.

McTaha N.
MPK
Registered holder



H. K. Satish Kumar
DISTRICT COLLECTOR,
KRISHNAGIRI.

LESSEE
For ZAK EXPORTS
McTaha N.
Partner.

भारतीय गैर न्यायिक INDIA NON JUDICIAL



रु.
25000

पच्चीस हजार रुपये

Rs.
25000

TWENTY FIVE THOUSAND RUPEES



தமிழ்நாடு தமிழ்நாடு TAMILNADU கிருஷ்ணகிரி

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1336
24/1/17

ZAK EXPORTS
Krishnagiri

S. V. Lakshmi
S. V. Lakshmi
S. V. No: 0579/38
Krishnagiri, Tamilnadu.

9. To put up boundary pillars and to effectively fence off the same demised pieces of land from the adjoining lands and to keep the fences in good repairs and conditions during the period of lease.

10. The lessee shall not assign lease or part with the possession of the said lands or any part thereof for the whole or any part of the said term without previous permission in writing to the Government.

11. The lessee should not engage child labour in the quarrying activities.

M. S. Mohan
M. S. Mohan
Registered holder



S. V. Lakshmi
DISTRICT COLLECTOR,
KRISHNAGIRI.

LESSEE For ZAK EXPORTS
M. S. Mohan
Partner.



காமிநாடு தமிழ்நாடு TAMILNADU ரூ. 25000/-

D-333634

13557
24/1/17

ZAK EXPORTS
Krishnagiri

[Signature]
D. R. SATHISH KUMAR
S. V. Lo: 6572/88
Krishnagiri, Tamilnadu.

12. That this lease may be terminated in respect of whole or any part of the premises by six months notice in writing on either side.

13. The lessee shall erect fence at his own cost in between the adjacent paramboke lands and the leased out area and if any fault occur the lessee must held responsible for that and abide by the action taken by the Government.

14. Anticipated seigniorage for the minerals to be quarried from the demised land is Re. 15,93,41,000/- (Rupees fifteen crores ninety three lakhs forty one thousand only) area assessment of Re. 14,000/- (Rupees fourteen thousand only) and security deposit amount of Re. 20,000/- were taken into account for the purpose of calculation of stamp duty.

[Signature]
Registered holder

LESSEE

For ZAK EXPORTS
[Signature]
Partner.

[Signature]
DISTRICT COLLECTOR, 3380
KRISHNAGIRI
19
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भारतीय गैर न्यायिक INDIA NON JUDICIAL



रु.
25000
पच्चीस हजार रुपये



Rs.
25000
TWENTY FIVE THOUSAND RUPEES

தமிழ்நாடு தமில்நாடு TAMILNADU

D 333636

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20/11/17

ZAK EXPORTS
Krishnagiri

U. R. Sathish Kumar
U. R. SATHISH KUMAR
S. V. Let 5579/80
Krishnagiri, Tamilnadu.

21. Special Conditions:

- (i) A safety distance of 7.5 meters to be provided and maintained in the lease hold area for the patta lands adjoining the boundary of lease granted area.
- (ii) A safety distance of 10 metres to be provided and maintained in the lease hold area for the adjoining poramboke lands in S.F No. 375/1 & 379/1.
- (iii) The waste material generated during the time of quarrying should be dumped only within the lease hold area. At any cost the waste material should not be dumped in the adjacent Government poramboke lands.

(iv) No hindrance shall be caused to the adjacent pattadars lands and Government Poramboke lands.

M. Sathish Kumar
Registered holder

U. R. Sathish Kumar
DISTRICT COLLECTOR,
KRISHNAGIRI.

LESSEE
For ZAK EXPORTS
M. Sathish Kumar
Partner.



भारतीय गैर न्यायिक INDIA NON JUDICIAL



₹. 25000

पच्चीस हजार रुपये

Rs. 25000

TWENTY FIVE THOUSAND RUPEES



தமிழ்நாடு தமிழ்நாடு TAMILNADU

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25/11/17

ZAK EXPORTS
Krishnagiri

B. P. Sathish Kumar
B. P. SATHISH KUMAR
S. V. L. 0579/08
Krishnagiri, Tamilnadu.

(v) The lessee shall strictly adhere to the statutory and safety requirements.

(vi) Quarrying shall be done as per the approved Mining Plan and that the mining plan is approved without prejudices 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.

(vii) The lessee grantee shall submit scheme of mining, mine closure plan and other statutory requirements within the time stipulated for submission of the above as per rules.

M. Zahar
MZA
Registered holder

h/s
DISTRICT COLLECTOR,
KRISHNAGIRI.

LESSEE

FOR ZAK EXPORTS
M. Zahar
Partner.



भारतीय गैर न्यायिक INDIA NON JUDICIAL

रु.
25000
पच्चीस हजार रुपये

Rs.
25000
TWENTY FIVE THOUSAND RUPEES



தமிழ்நாடு தமிழ்நாடு TAMILNADU

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ZAK EXPORTS
Krishnagiri

B. R. SATHISH KUMAR
S. V. L. 6573/88
Krishnagiri, Tamilnadu.

(viii) The lessee should comply the instructions issued in Government letter No. 12789/MMD2/2002-7 Industries Department dated 9.1.2005.

(8) The lessee should strictly adhere all the conditions imposed by the Chairman/District Collector, District Environment Impact Assessment Authority Krishnagiri District in his letter No. 13/DEIAA-KGI/EC No. 11/2017 Dated 12.10.2017.

22. Conditions:

(1) The date of commencement of the period of lease shall be the date on which the agreement is executed.

M. Sathish Kumar
Registered holder

B. R. Sathish Kumar
DISTRICT COLLECTOR,
KRISHNAGIRI.

LESSEE

For ZAK EXPORTS
M. Sathish Kumar
Partner.





(2). The lessee shall pay seigniorage or dead rent whichever is more in respect of the actual quantity of granite removed at the rate prescribed from time to time in Appendix II of the Tamil Nadu Minor Mineral Concession Rules 1959.

(3). The lessee should keep correct accounts showing the quantities and other particulars of all minerals obtained from the lands permitted to quarry.

(4). The lessee should also allow any officer authorized by the District Collector or any officer authorized by him in this behalf or any other officer authorized by the State Government in this behalf to inspect the area and verify records and accounts and furnish such information under the terms as may be required by them.

(5). The lessee shall carry out the quarrying operations in a skilful, scientific systematic manner keeping in view the proper safety of the labour, conservation of minerals and preservation of environment ecology.

(6). The lessee shall allow any officer authorised by the District Collector and Director of Geology and Mining to enter upon the area and inspect for the purpose mentioned in conditions 3 and 5 above and also carry out the directions issued to the satisfaction of the above said authorities.

(7). No quarrying activities connected thereto shall be done before the execution of the agreement and registration is at the cost of the lessee.

(8). No hindrance shall be caused to the adjoining proprietors or public.

(9). The lessee should restrict his mining operations strictly within the permitted area as defined in the sketch.

(10). The lessee should maintain, at his cost proper signboards indicating the survey numbers, years of lease, name of the lesseeholder and lease period to the satisfaction of the District Collector and Commissioner/ Director of Geology and Mining and maintain it all time at the quarry site.

Motah N.

Motah

Registered holder

LESSEE

For ZAK EXPORTS

Motah N.
Partner.

M.
DISTRICT COLLECTOR,
KRISHNAGIRI.





(11). No quarrying shall be made within a distance of 7.5 mts of the boundaries of the permitted area.

(12). The lessee should make his own arrangement to form the approach road from the public road to the place of his quarry.

(13). The lessee shall strictly adhere to the statutory and safety requirements.

(14). The waste materials generated during quarrying operation shall be dumped only in the area granted under lease.

(15). That the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such Laws or made by the Central Government, State Government or any other authority.

(16). That the approval of the mining plan does not in any way imply the approval of the Government in terms of any other provision, 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, 1986, Indian Explosives Act 1884, (Central Act IV of 1884) and the Rules made there under and the Tamil Nadu Minor Minerals Concession Rules, 1959.

(17). That the mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.

23. Conditions imposed by the District Environment Impact Assessment Authority.

i. i) The Environmental Clearance is granted to mining of grey granite for the production quantity of 18025 Cu.m of Grey Granite for the period of 5 years from the date of execution of the mining lease period.

ii) The approved quantity of Grey Granite to be quarried - 18025 cbm

iii) Depth of mining permitted - 09.

Motahar M.
MND



Registered holder

DISTRICT COLLECTOR,
KRISHNAGIRI.

LESSEE

For ZAK EXPORTS

Motahar M.
Partner.



II. A. Conditions to be complied before commencing quarrying operations:-

- (1). The lessee has to obtain land use classification as industrial use before issue/ renewal of mining lease from the Deputy Director of Town and Country Planning Dharmapuri.
- (2). NOC from the Standing committee of NBWL shall be obtained, if protected areas are located within 10km from the proposed project site.
- (3). The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
- (4). 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.
- (5). 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.
- (6). The proponent shall ensure that First Aid Box is available at site.
- (7). The excavation activity shall not alter the natural drainage pattern of the area.
- (8). The Excavated pit shall be restored by the project proponent for useful purposes, IN this regard, the proponent shall deposit a sum of Rs. 5,00,000/- (Rupees Five lakhs only) in the name of District Collector Krishnagiri in the form of fixed deposit . The said fixed deposit. Will be refunded after restoration.
- (9). The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
- (10). The quarrying operation shall be restricted between 7AM and 5 PM.

M. S. S.
M. S. S.
 Registered holder

LESSEE

[Signature]
 DISTRICT COLLECTOR,
 KRISHNAGIRI.

For ZAK EXPORTS
M. S. S.
 Partner.





(11). 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.

(12). A minimum distance of 15 mts. From any civil structure shall be kept from the periphery of any excavation area.

(13). Depth of quarrying shall be 2m above the ground water table /approved depth of mining whichever is lesser to be considered as a safe guard against Environmental Contamination and over exploitation of resources.

(14). The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.

(15). Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.

(16). Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.

(17). The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.

(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, Govt on

16.11.2009.
Motola M.
 Registered holder

LESSEE

For ZAK EXPORTS
Motola M.
 Partner.

[Signature]
 DISTRICT COLLECTOR,
 KRISHNAGIRI.



(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.

(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 MoE&F, 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). Rain water harvesting to collect and utilize the entire water falling in land area should be provided by construction of a storage tank with a capacity of 5,00,000 litre and the rain water harvested in the entire quarry area should be stored in it and used for the quarry purpose like dust prevention, wet drilling, providing water for green belt etc.

(26). Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.

(27). Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.

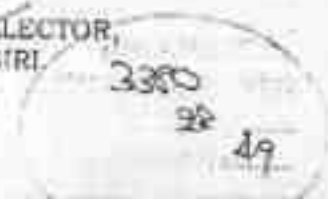
(28). The following measures are to be adopted to control erosion of dumps:-

M. J. Mohan
M. J. Mohan
 Registered holder

LESSEE

For ZAK EXPORTS
M. J. Mohan
 Partner.

K. P. S.
 DISTRICT COLLECTOR,
 KRISHNAGIRI



- i. Retention/ toe walls shall be provided at the foot of the dumps.
- ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.

(29). Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.

(30). Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

(31). Rain water 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. Photographs of the silt trap should be furnished before commencing quarry operation.

(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, that the ground water is getting depleted due to the quarrying activity, necessary corrective measures shall be carried out. The Assistant Director Ground water Division, PWD Dharmapuri shall monitor.

(33). No tree-felling shall be done in the leased area, except only with the permission from competent Authority.

Mohar M
MPS
 Registered holder

[Signature]
 DISTRICT COLLECTOR,
 KRISHNAGIRI.

LESSEE

For ZAK EXPORTS
Mohar M
 Partner.





(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 and it should be monitor by the District Environmental Engineer, TNPCB. Once on yearly basis.

(35). It shall be ensured that the total extent of nearby quarries located within 500 meter radius from the periphery of this quarry is not exceeding 25 hectares within the mining lease period of this application.

(36). It shall be ensured that there is no habitation is located within 500 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 500m radius from the periphery of the quarry site

(37). Ground water quality monitoring should be conducted once in 3 Months.

(38). Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.

(39). Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI.

(40). Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI periodically once in six months.

(41). Bunds to be provided at the boundary of the project site and it should be properly maintained.

(42). 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.

(43). At least 10 Neem trees should be planted around the boundary of the quarry site.

(44). Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.

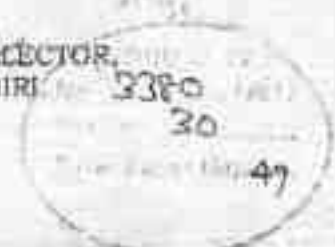
M. S. S. S.
Registered holder

LESSEE

For ZAK EXPORTS

M. S. S. S.
Partner.

M. S. S. S.
DISTRICT COLLECTOR,
KRISHNAGIRI





- (46). The Project Proponent shall ensure a minimum of 2.5 of the annual turnover will be utilized for the CSR Activity
- (46). The Project Proponent shall provide solar lighting system to the nearby villages
- (47). The Project Proponent shall comply with the mining and other relevant rules and regulations where ever applicable.
- (48). Rainwater shall be pumped out Via Settling Tank only
- (49). Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
- (50). As per MoEF & CC, Gov. Office Memorandum dated 30-03-2015, prior clearance from Forestry & Wild Life angle including clearance from obtaining committee of the National Board for Wild life as applicable shall be obtained before starting the quarrying operation, if the project site is located within 10KM from National Park and Sanctuaries.
- (51). 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.
- (52) Safety equipments to be provided to all the employees.
- (53) Safe distance of 50 mts has to be provided in case of railway reservoir canal/ Odal.
- (54) The Assistant / Deputy Director Department of Geology and 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.
- (55) 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.
- (56) 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.

M. P. Lakshmi
M. P. Lakshmi
 Registered holder

LESSEE
 For ZAK EXPORTS
M. P. Lakshmi
 Partner.

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[Signature]
 DISTRICT COLLECTOR,
 KRISHNAGIRI.



- (57) The proponent shall furnish the data obtained from the Public Works Department regarding the details of ground water table in the quarry site.
- (58) The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh case before execution of mining lease.
- (59) The proponent has to display the name board at the quarry site showing the details of proponent, leased period, extent etc., with respect to the existing activity before execution of mining.
- (60) Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
- (61) The Environmental norms shall be monitored by the District Environmental Engineer, Tamil Nadu Pollution Control Board, Hoaur.
- (62) The Assistant Director Public Works Department, Ground Water Division Dharmapuri shall monitor whether the quarrying activity is carried out above the ground water level on yearly basis.
- (63) NOC for sanitary certificate shall be obtained from the Deputy Director of Health Services, Krishnagiri.
- (64) Yearly medical examination of the quarry workers should be carried out by a registered medical practitioner and the report should be filed in the quarry office in a separate file and copy should be sent to the Deputy Director, Health Services, Krishnagiri.
- (65) Closed circuit camera should be erected at the quarry site and the passage of vehicles in and out of the quarry should be recorded and the footage of the recordings of the camera should be maintained and should be produced before the enforcing officials when ever called for.
- (66) Vehicles used for transportation of quarried materials should be fitted with GPS and monitored and vehicles should not carry the products more than the quantity allowed in the registration certificate.
- (67) Pit Mouth register should be maintained in on line.
- (68) Auditor report on the annual turnover amount should be submitted to the District Collector within one month from the end of the financial year.
- (69) 02.5% of the turn over amount should be utilized for the CSR activity after consultation with the District Collector.

M. Z. Khan
M. Z. Khan
 Registered holder

LESSEE

For ZAK EXPORTS
M. Z. Khan
 Partner.



M. Z. Khan
 DISTRICT COLLECTOR,
 KRISHNAGIRI.



(70) The proponent should submit action plan for the CSR activity for the next five years before 31st every year.

(71) Green belt should be constructed all along the boundary of the land granted area by planting at least 400 seedlings of native species. The tree saplings shall not be less than 1.00 mts. height.

(72) 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 forest and social forests, tree plantation and bio diversity, surrounding water bodies etc.

B. General Conditions:

- (1). EC is given only on the factual records, documents and the commitments furnished in non judicial stamp paper by the proponent.
- (2). The Proponent shall obtain the Consent for Establishment from the TNPC Board before commencing the activity.
- (3). No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
- (4). No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
- (5). Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
- (6). Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
- (7). A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation. Registered holders.
- (8). Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.

Motahar N.
NMS
Registered holder

Ayer
DISTRICT COLLECTOR,
KRISHNAGIRI.

LESSEE

For ZAK EXPORTS
Motahar N.
Partner.





- (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 personal protective measures such as masks, gloves, boots etc.
- (13). Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
- (14). The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
- (15). The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its regional office located at Chennai.
- (16). The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
- (17). This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance.

[Signature]
[Signature]
 Registered holder

LESSEE

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 For ZAK EXPORTS
[Signature]
 Partner.

[Signature]
 DISTRICT COLLECTOR,
 KRISHNAGIRI.



(18). The DEIAA, Krishnagiri may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.

(19). The DEIAA, Krishnagiri 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 DEIAA, Krishnagiri that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the environmental clearance.

(20). Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.

(21). The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, draft Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.

(22). Any other conditions stipulated by other Statutory/Government authorities shall be complied.

24. The lessee should get the consent for operation from the Tamil Nadu Pollution Control Board before the commencement of quarrying operation.

25. The lessee should sent the notice for opening of the quarry to the Director of Mines safety, Bangalore.

26. Quarrying operation should be carried out only after appointing Mines Manager/Mines Mate and Foremen.

Mozak M.
N.M.S.
Registered holder

LESSEE

For ZAK EXPORTS
Mozak M.
Partner.

Sy...
DISTRICT COLLECTOR,
KRISHNAGIRI.



27. At any cost the blasting activity should be carried out under the supervision of Minca Mate.

28. In any accident occur in the quarry area the lessees should give intimation to the Director of Mines safety Bangalore and District Collector, Krishnagiri at once and lessee is solely responsible for any violation.

29. The conditions imposed by the TNPCB in the consent order should be adhered without any omission.

30. The Environmental clearance and the consent of the TNPCB should be renewed periodically without any lapse.

31. If any illicit quarrying is found in the area Overn an extent of 350.0 Hecters in S.F. No. 380/1 (part) of Chendanspalli Village, Bargur Taluk, Krishnagiri District before the date of execution of lease deed, this lease deed is liable to be cancelled and criminal action will be initiated.

32. If the quarry area is situated within 10 km distance from any protected areas NOC from the Standing committee of NEWL should be obtained before commencing the quarry operation.

33. If the lease holder wants to quarry more than the quantity permitted in the environmental clearance within the lease period, modified mining plan / scheme and Environment Clearance for the additional quantity should be submitted.

[Signature]
Registered holder

LESSEE

[Signature]
DISTRICT COLLECTOR,
KRISHNAGIRI.

FOR ZAI EXPORTS

[Signature]
Partner.





THE SCHEDULE

TALUK : BARGUR
 VILLAGE : CHENDARAPALLI

Sl. No.	Survey Field number	Extent Leased out in Hectares	Boundary			
			North S.F No.	East S.F No	South S.F No.	West S.F No.
1.	380/1 (part)	3.50.0	375/1,2E, 3 & 372	379/1	380/1 (Part)	375/1, 381
	Total	3.50.0				

M. J. Lakshmi
 Requested holder

[Signature]
 DISTRICT COLLECTOR,
 KRISHNAGIRI.

LESSEE

For ZAK EXPORTS
M. J. Lakshmi
 Partner.

3380
 37
 49



IN WITNESS where of 1) Thiru Mir Mazhar Ali S/o Mir Tahar Ali, D.No. 18/16, Co-Operative Colony, 2nd Cross, Krishnagiri 2) Thiru Mir Feroze Ali S/o Mir Mohammed Feroze Ali S/o Mir Tahar Ali D.No. 35/13, Co-Operative Colony, 2nd cross, Krishnagiri "the registered holders", M/s. Zak Exports, having administrative office at No. 35/13, 2nd cross, Co-Operative Colony, Krishnagiri represented by its Authorised signatory/ partner Thiru Mir Mazhar Ali "the Lessee" and Thiru C. KATHIRAVAN, I.A.S the Collector of Krishnagiri District acting for and on behalf of and by the order and direction of the Government of Tamil Nadu have hereto set their hands.



Mazhar Ali
M/s
 Registered holder

[Signature]
 DISTRICT COLLECTOR,
 KRISHNAGIRI.

For ZAK EXPORTS
Mazhar Ali
 LESSEE Partner.

Signed by the above named
 in the presence of

Signed by the above named
 in the presence of

[Signature]
 D Loganathan
 3B, 11th CROSS
 POWER HOUSE COLONY
 KRISHNAGIRI

[Signature]
 (L-502654)
 DEPUTY DIRECTOR
 Department of revenue and Mining
 Collectorate, Krishnagiri.

2. *N Sully* s/o D. Natargan
 N'S ELVANDI,
 NO. 14, V CROSS,
 ZHAKKAPPAI NAGAR,
 KRISHNAGIRI PIN-635001

[Signature]
 S RAJAKUMARAN
 ASSISTANT DEPUTY DIRECTOR
 Dept. of Revenue and Mining
 Collectorate, Krishnagiri.



3380/2017/BK1

CERTIFICATE UNDER SECTION 42 OF STAMP ACT

S No. 848 of 2017
I hereby certify that a sum of Rs. 18,000/- (Rupees Eighteen Thousand only) of amount in proper / defunct stamp duty has been levied under section 41 of the Stamp Act in respect of this instrument from MR MAZHAR Ali residing at Krishnagiri



Bargur
Date: 14/12/2017

[Signature]
Signature of Sub Registrar & Collector
Under Section 41 of the Indian Stamp Act.

Presented in the Office of Sub Registrar of Bargur and fee of Rs. 20725 paid between hours of 12 and 1 on 14/12/2017 by



Left Thumb




Mazhar Ali
Admissions As per the recitals of the document

Execution Admitted by

Left Thumb




Mazhar Ali
Admissions As per the recitals of the document



Endorsement Sheet no. 1 of 1

Execution Admitted by



2 - Left Thumb



Handwritten signature

Additions As per the recitals of the document.

I have satisfied my self as to the execution of the instrument by Thiru C.KATHIRAVAN I.A.S who is exempted from Personal Appearance under Section 107 of the Andhra P.R. Act.

S/o

DISTRICT COLLECTOR KRISHNAGIRI

Handwritten signature

Identified by

Handwritten signatures and initials

Name : SELVARAJ

S/O NATARAJAN

KRISHNAGIRI

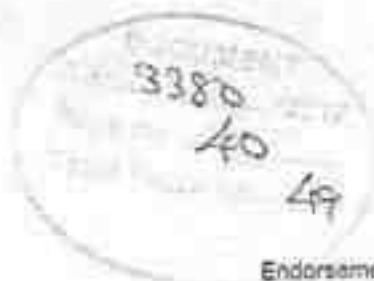
Name : HARIKESHWAN

S/O MANIVANNAN

KRISHNAGIRI

14th day of December 2017

Handwritten signature
Sub Registrar
Bargur



Endorsement Sheet no. 2 of 3

Registered as No. 3380 of 2017 of B...

Date: 14/12/2017

[Signature]
Sub-Registrar
Bapat



3380
41
49

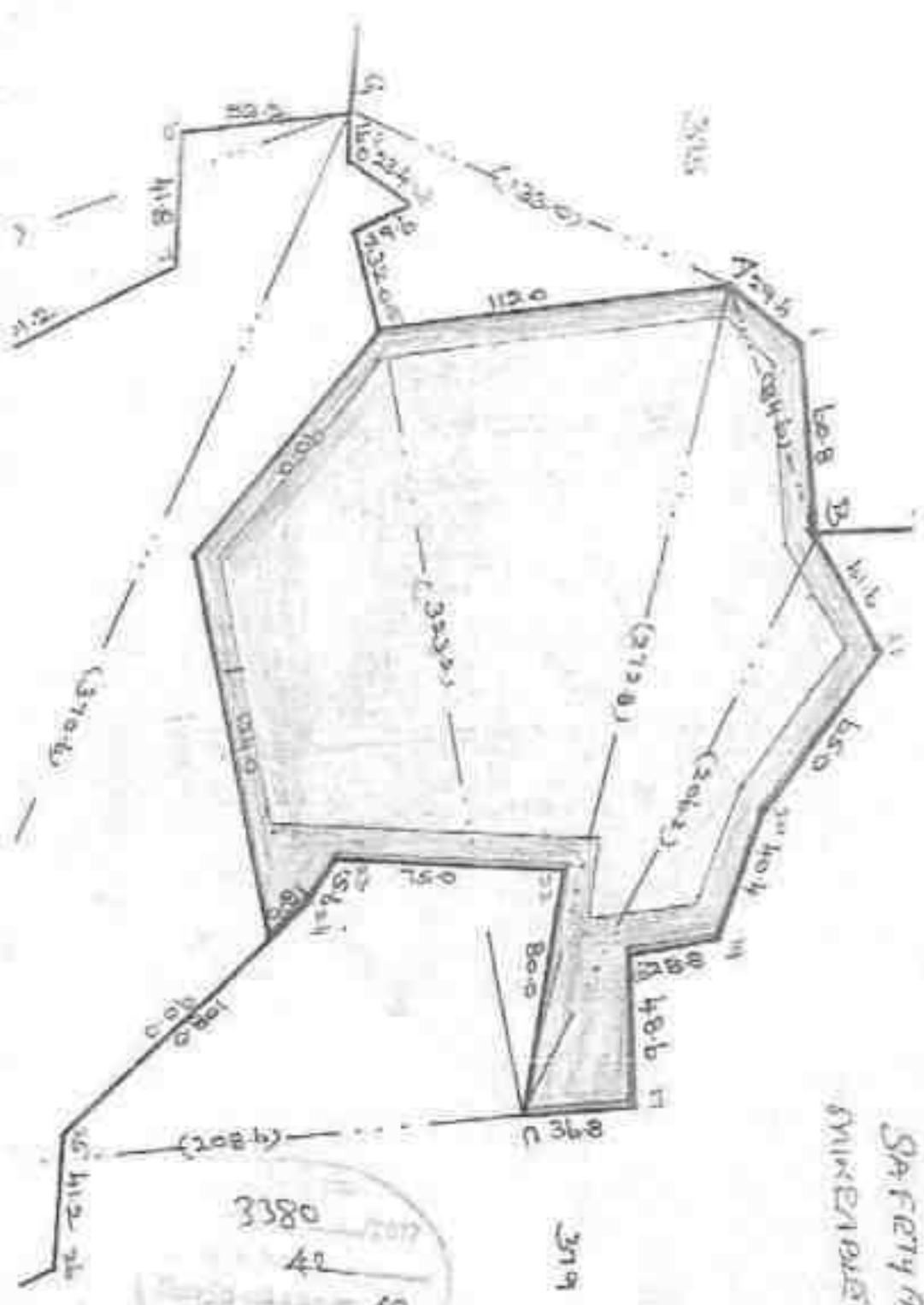
Endorsement Sheet no. 3 of 3



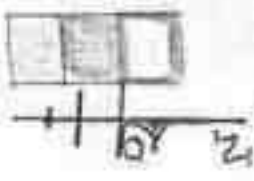
Survey No: 117
 Date: 15.12.2019

Area: 3380

Original: 117
 Original: 15.12.2019



LEGEND
 APPLIED AREA
 SAFETY AREA
 MINERABLE AREA



E	2122	1071.8	412.28
D	2086	1442.58	58.25
C	1502	1416	762.24
B	2114	3122	
A	2062	1824	35021
		1190	23821
		790	302.19
		1520	1610
		206	130611



From
 Thiru C.Kathiravan, I.A.S.,
 District Collector,
 Krishnagiri.

To
 The Sub Registrar,
 Bargur.

Roc 410/2016 (Mines-1) dated 12.12.2017.

Sir,

Sub: Mines and Minerals - Minor Mineral - Grey Granite -
 Krishnagiri District - Bargur Taluk - Chendarapalli Village -
 Patta land in S.F No. 380/1 (part) - over an extent 3.50.0 Hect.
 quarry lease for Grey Granite granted to M/s. Zak Exports, No.
 35/13,2nd Cross, Co-Operative Colony, Krishnagiri. - Lease
 deed agreement executed - sent for registration - regarding.
 Ref: G.O (3D) No. 25 Industries (MME-2) Department
 dated 21.11.2017.

In the order cited, the Government have granted a quarry lease for Grey Granite over an extent of 3.50.0 Hect. in S.F Nos. 380/1 (Part) of Chendarapalli Village of Bargur Taluk, Krishnagiri District for a period of twenty years from the date of execution of lease deed under the provisions of Rule 19 -A of the Tamil Nadu Minor Mineral Concession Rules, 1959 to M/s. Zak Exports, No. 35/13,2nd Cross, Co-Operative Colony, Krishnagiri. The lease agreement was executed on 06.12.2017 and the lease period is twenty years from 06.12.2017 to 05.12.2037.

The lessee M/s. Zak Exports, No. 35/13,2nd Cross, Co-Operative Colony, Krishnagiri. have been instructed to register the lease deed agreement at the Sub Registrar office at Bargur.

In this connection it is informed that the stamp duty worked out on the basis of the Anticipated scignorage fee calculated on the total of 72100 CBM of Grey Granite (as per approved mining plan) to be removed during the entire lease period of twenty years, security deposit and area assessment remitted by the lessee is as detailed below:

Anticipated Scignorage fee for 72100 Cbm of Black granite @ Rs. 2210/- per Cbm (72100 x 2210).	: Rs. 15,93,41,000/-
Security Deposit	: Rs. 20,000/-
Area Assessment	: Rs. 14,000/-
Total	: Rs. 15,93,75,000/-
Stamp duty at the rate of 1%	: Rs. 15,93,750/-
Total value of Stamp papers	: Rs. 15,94,000/-



D:\Local Disk (M) Documents\Sub Registrar



The lease deed executed in Rs. 5,75,000/- stamp paper is enclosed for registration along with a demand draft of Rs. 10,19,000/- bearing No. 017812 dated 27.11.2017 at Indian Overseas Bank Krishnagiri drawn in favour of Sub Registrar, Bargar. The same may be registered at the cost of lease holder.

Further it is informed that the District Collector is exempted from personal appearance for the Registration under section 88 (1) of the Indian Registration Act, 1908.

Encl: Executed lease deed and
Demand Draft No. 017812 Indian Overseas Bank
Krishnagiri.


For Collector,
Krishnagiri.

Copy to
M/s. Zak Exports,
No. 35/13, 2nd Cross,
Co-Operative Colony,
Krishnagiri.


12-22-17





சாலை வாகனம்

பெயர்: Mr Masudhan Ali
 பிள்ளை அல்ல / DOB: 09/06/1972
 இனம் / GENDER: MALE

7138 5533 4402

சாதாரண மனிதனின் அதிகாரம்

Handwritten signature

நாணய விலிபிடி வகைப் பதிவுகாரன்

பெயர்: Mr Masudhan Ali
 பிள்ளை அல்ல / DOB: 09/06/1972
 இனம் / GENDER: MALE

Address: 20 My Town At 2011 St,
 Gokulam Colony, Thiruvallur,
 Tamil Nadu - 630011

7138 5533 4402

இலாபியகாரர்கள்

பெயர்: Mr Mohammed Fozal Ali
 பிள்ளை அல்ல / DOB: 11/10/1980
 இனம் / GENDER: MALE

6812 0405 0448

எனது கட்டு, எனது அடையாளம்

Handwritten signature

பெயர்: Mr Mohammed Fozal Ali

Address: 20 My Town At 2011 St,
 Gokulam Colony, Thiruvallur,
 Tamil Nadu - 630011

6812 0405 0448

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 46
 49



सत्यमेव जयते

भारत सरकार
Government of India

केन्द्रीय प्रभुत्व
Revenue Minister
मंत्रालय
एनएच 48



आधार संख्या: 8443 9619 8245
एनएच 48



8443 9619 8245

சமூக நலத்துறை
சாதாரண மனிதனின் அடையாளம்



Unique Identification Authority of India

சமூக நலத்துறை
சாதாரண மனிதனின் அடையாளம்
ஆய்வு மற்றும் பதிவு
புதுச்சேரி

Address: SO, Bangalore
#14, ANANDH NAGAR,
5TH STREET, KOLKATA,
Dist: Kolkata, West Bengal,
700017

8443 9619 8245



N. Suresh





राष्ट्रीय विशिष्ट पहचान प्राधिकरण
भारत सरकार
 Unique Identification Authority of India
 Government of India

E-Aadhaar Letter

உறுதிப்படுத்தல் Enrolment No.: 2043/10345/00015

Haridahanan M ஹரிதானன் M
 S.O Manikeman, DNO 5/194, THIRUVALLUVAR
 NAGAR, Krishnagiri, Krishnagiri,
 Tamil Nadu - 635001

- தகவல்
- உங்கள் அடையாளப்படுத்தலானது, மூலக்கொள்கையாகும்.
 - உடனடியாக அடையாளம், ஆன்லைன், ஆன்லைன்/ஆஃபர் லைன் மூலமாக உறுதிப்படுத்தலாம்.
 - இது மின்னணுவால் உருவாக்கப்பட்ட துணை துணைப்படி, ஆகும்.

TAMIL NADU 2017

உங்கள் அடையாளம் Your Aadhaar No.:

6221 7498 5185



INFORMATION

- Aadhaar is a proof of identity, not of citizenship.
- To establish identity, authenticate online.
- This is electronically generated letter.

உங்கள் அடையாளம் உறுதிப்படுத்தலுக்கு உபயோகிக்கலாம்.



- உங்கள் அடையாளம் மூலக்கொள்கையாகும்.
- உங்கள் அடையாளம் உறுதிப்படுத்தலுக்கு மட்டும் மூலக்கொள்கையாகும். இது மின்னணுவால் உருவாக்கப்பட்ட துணை துணைப்படி, ஆகும்.
- உறுதிப்படுத்தலுக்கு ஆன்லைன்/ஆஃபர் லைன் மூலமாக உறுதிப்படுத்தலாம். இது மின்னணுவால் உருவாக்கப்பட்ட துணை துணைப்படி, ஆகும்.

- Aadhaar is valid throughout the country.
- You need to enrol only once for Aadhaar.
- Please update your mobile number and e-mail address. This will help you to avail various services in future.

भारत सरकार
 GOVERNMENT OF INDIA

राष्ट्रीय विशिष्ट पहचान प्राधिकरण
 UNIQUE IDENTIFICATION AUTHORITY OF INDIA



ஹரிதானன் M
 Haridahanan M
 உறுதிப்படுத்தல் DDB: 07/02/1992
 ஆண் / MALE

தகவல்: Address:
 S.O Manikeman, DNO 5/194, THIRUVALLUVAR NAGAR, Krishnagiri, Krishnagiri, Tamil Nadu - 635001



Handwritten signature

6221 7498 5185

6221 7498 5185

Government of Tamil Nadu

Registration Department

Acknowledgement



Reference Details

SRO Name	Bargur
Application No.	S01MIR1B5201712140007255
Transaction No.	REG20171214011774
Transaction Date	14/12/2017

Application Details

Applicant Name	Mir Mazahar Ali
Service Type	Document Registration (New) in SRO
Registration Fee	20100.00
IP Camera Fee	50.00

Payment Details

Name Of the Bank	SBI
Bank Ref. No.	IK00KEMTP3
Payment Mode	Online
Amount Paid	Rs.20150.00
Payment Date	14/12/2017

Printed On :14/12/2017 8.40 PM





படிவம் - இ

[விதி 9(அ) காண்க]

தொழில் கூட்டுப்பதிவு அறிவிப்பு

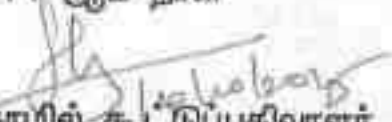
கிருஷ்ணகிரி தொழில் நிறுவனப் பதிவாளர், 1932ஆம் ஆண்டு இந்தியக் கூட்டு வணிகச் சட்டம், 58(1) பிரிவில் குறிப்பிட்டிருக்கும் அறிக்கை வரப்பெற்றுக் கொண்டதை இதனால் அறிவித்துக்கொள்கிறார். அந்த அறிக்கை கோப்பில் சேர்க்கப்பட்டு தொழில் நிறுவனத்தின் பெயரான

ZAK Exports

தொழில் நிறுவனப் பதிவேட்டில் 2015 ஆம் ஆண்டு 409 ஆம் எண்ணாகப் பதிவாகியிருக்கிறது.

2015 ஆம் ஆண்டு அக்டோபர் திங்கள் 14 ஆம் நாள்




தொழில் கூட்டுப்பதிவாளர்
மற்றும்
மாவட்டப்பதிவாளர்
கிருஷ்ணகிரி.

ANNEXURE X

भारतीय गैर न्यायिक

एक सौ रुपये

Rs.



₹. 100



ONE HUNDRED RUPEES

भारत INDIA
INDIA NON JUDICIAL

தமிழ்நாடு தமிழ்நாடு TAMILNADU

G100/BA 694513

26228

ZAK EXPORTS
JAGADIVI

1-10-2015

B.N. MUNIRAJ
S.V.Lc: 7353/83
Krishnagiri, Tamilnadu

ZAK EXPORTS
PARTNERSHIP DEED

To-day this 3rd October 2015 this Partnership deed is executed by and between

1. Mir Tahar Ali aged about 65 year's son of Late Mr. Mir Ahmad Ali residing at No. 18/16, Co-operative Colony, 3rd Cross, Krishnagiri-635001.
Partner - 1
2. Mir Mazhar Ali, aged about 36 years, son of Mr. Mir Tahar Ali residing at No. 18/16, Co-operative Colony, 3rd Cross, Krishnagiri-635001.
Partner - 2
- and
3. Mir Mohammed Fareed Ali, aged about 34 years, son of Mr. Mir Tahar Ali, residing at No. 35/13, CO -Operative Colony, 2nd Cross, Krishnagiri-635001
Partner - 3

Mir Tahar ali

Mir Mazhar Ali

Mir Mohammed Fareed Ali



தமிழ்நாடு தமில்நாடு TAMILNADU

100/BA 694514

2025 ZAK EXPORTS
JAGADEVI
100/2025

B.N. MUNIRAJ
S.V.Lc: 7553/R3
Krishnagiri, Tamilnadu.

Whereas the aforesaid parties have come together to operate a granite Quarry in the name of ZAK Exports this document has been executed. The firm can also do trading in granite products, Kerosene, granite Slabs, Marbles Tiles, Monuments, Coolant Oil, Segments, Cutting Blade, Bricks, Rough granite Blocks, Khandas, granite processing machineries, machinery parts & accessories. The terms and conditions of the partnership as agreed have been hereby set down in writing.

Bank Accounts

The firm's bank accounts shall be operated jointly by the second and third partners namely Mir Mazahar Ali and Mir Mohammed Fared Ali.

Salary

All the three partners shall be working partners. Mr. Mir Mazahar Ali and Mir Tahar Ali will be eligible for a monthly salary of Rs. 15,000 (Rs Fifteen thousands) only. They are also eligible for getting the conveyance and other expenses incurred for and on behalf of the firm reimbursed.

Capital

The capital shall be contributed by the partners as and when funds are required by the firm. The funds accumulated in the capital accounts of the partners shall be considered as the capital of the partners.

Mir Tahar Ali
Tahar Ali

Mir Ali



தமிழ்நாடு தமிழ்நாடு TAMILNADU

BA 694515

36230 ZAK EXPORTS
1-10-2015 JASADENI

B.N. MUNIRAJ
S.V.Lc: 7353/83
Krishnagiri, Tamilnadu

Date of Commencement

The firm comes into effect from 03/10/2015

Business of Partnership

The firm shall operate a granite quarry taken on lease by the first partner in his name. It can also have a processing industry. It can do trading in granite products, Kerosene, granite Slabs, Marbles, Tiles, Monuments, Coolant Oil, Segments, Cutting Blade, Bricks, Rough granite Blocks, Kantas and granite processing machineries, machinery parts & accessories. The firm can do any other business or businesses as agreed by both the partners.

Name of the Firm

The name of the partnership firm shall be "ZAK EXPORTS" and such other name or names as the parties may from time to time determine.

Place of Business

The place of business shall be at Survey Nos 3802 Chendarapalli (Vill), Anchoor (Po) Krishnagiri-635203 and /or such other places as the parties may from time to time determine.

Duration

The partnership shall be at WILL.

M. N. Taharali
M. N. Taharali

M. N. Taharali



Communication and Administration Address:

The firms communication and administration office shall be at 35/13, Co-Operative colony, 2nd cross, Krishnagiri - 635 001.

Interest on Capital

The capital amounts of the partners shall bear interest at 12% per annum.

Sharing of Profits/Losses

The Partners shall share the Profit or Loss of the firm in the following ratios.

Mir Tahar Ali	- 5%
Mir Mazahar Ali	- 47.5%
Mir Mohammed Fareed Ali	- 47.5%

Accounts

The accounts of the partnership shall be closed once every year on March 31st and a profit and loss account and Balance sheet shall be prepared as of that date every year.

Borrowing Powers

The partners are free to borrow monies for the purposes of business from banks, financial and lending institutions and from others and for this purpose may designate one or more partners to negotiate on behalf of the firm. All the partners shall jointly sign the loan documents. The partners' individual loans shall not bind the firm.

Letters, Parcels, VPPs, Registered posts and Bank Instruments

All the partners are authorized to receive the firm's Letters, Parcels, VPPs, Registered Posts and Bank Instruments.

Variation Clause:

Any of the above clauses may be altered or varied or added to by the common consent of the parties.

Arbitration:

All the disputes arising out of this partnership shall be subject to arbitration.

Mir Tahar ali
Mir Mazahar Ali

Mir Mohammed Fareed Ali



Partnership Act:

For any other matter which is not mentioned in this deed the provisions of the Indian Partnership Act 1932 shall be applicable.

In witness whereof we the partners have signed this deed the date mentioned earlier.

1. Mir Tahar ali
2. Tahira J.
3. Neta

Witnesses:

1. Zakia June
2. N. Hasan Fathima

Document prepared by

G →

THE ATTORNEY
I. SHANKAR, B.L.S.,
SOLICITOR
21, B.S. LANE,
BHOPAL - 462 001.



தமிழ்நாடு கிருஷ்ணாநாடு TAMILNADU

BE 861909

15347 ZAK EXPORTS
25.5.2016 KRISHNA G. Co.

B.N. MUNIRAN
S.V.Lc: 7353/83
Krishnagiri, Tamilnadu

ZAK EXPORTS
RECONSTITUTED PARTNERSHIP DEED

To-day this 26th May 2016 this Partnership deed is executed by and between:

1. Mir Mazahar Ali, aged about 36 years, son of Mr. Mir Tahar Ali residing at No. 18/16, Co-Operative Colony, 3rd Cross, Krishnagiri-635001.
Partner - 1
2. Mir Mohammed Fared Ali, aged about 34 years, son of Mr. Mir Tahar Ali, residing at No. 35/13, Co-Operative Colony, 2nd Cross, Krishnagiri-635001
Partner - 2
3. D. Loganathan, aged about 47 years, son of Mr. Daraisamy residing at No. 3B, 3rd Cross, Power House Colony, Krishnagiri-635001.
Partner - 3
4. Mir Tahar Ali, aged about 65 years, son of late Mr. Mir Ahmad Ali residing at No. 18/16, Co-operative Colony, 3rd Cross, Krishnagiri-635001.
Retiring Partner

Mir Mazahar Ali
D. Loganathan

Mir Tahar Ali



தமிழ்நாடு தமில்நாடு TAMILNADU

BE 861910

15348 ZAK EXPORTS
25-5-2016 KARSHNAGIRI

S.N. MUNIRAA.
S.V.Lc: 7353/83
Krishnagiri, Tamilnad

Whereas the aforesaid parties 1, 2 & 3 had come together to do granite trading business in the name of ZAK Exports through a deed dated 3/10/2015 and now they intend to expand the business admitting a new partner and retiring a partner this document has been executed. The firm shall do trading in granite products, Kerosene, granite Slabs, Marbles, Tiles, Monuments, Coolant Oil, Segments, Cutting Blade, Bricks, Rough Granite Blocks, Khandas, Granite Processing Machinerics, Machinery Parts & Accessories. The terms and conditions of the partnership as agreed have been hereby set down in writing.

Bank Accounts

The firm's bank accounts shall be operated jointly by any one of the first two partners namely Mir Mazahar Ali or Mir Mohammed Fareed Ali and D.Loganathan the third partner.

Salary

The partners namely Mir Mazahar Ali and D. Loganathan shall be working partners and will be eligible for a monthly salary of Rs. 15,000 (Rupees Fifteen Thousands) only.

Capital

The capital shall be contributed by the partners as and when funds are required by the firm. The funds accumulated in the capital accounts of the partners shall be considered as the capital of the partners. The retiring partner has received his investment in the business fully.

* Mir Mazahar Ali
* D. Loganathan

Mir Mazahar Ali



தமிழ்நாடு தமில்நாடு TAMILNADU

BE 861911

15349

ZAK EXPORTS
KRISHNAGIRI

B.N. MUNIRAA.
S.V.Lc: 7353/83
Krishnagiri, Tamilnadi

25-5-2016

Date of Commencement

The new firm comes into effect from 26/05/2016

Business of Partnership

The firm shall do trading in granite products, Kerosene, granite Slabs, Marbles Tiles, Monuments, Coolant Oil, Segments, Cutting Blade, Bricks, Rough Granite Blocks, Khandas and Granite Processing Machineries, Machinery, Parts & Accessories. The firm can do any other business or businesses as agreed by all the partners.

Name of the Firm

The name of the partnership firm shall be "ZAK EXPORTS" and such other name or names as the parties may from time to time determine.

Place of Business

The administrative office of the firm shall be at Door Number 35/13 Second Cross, Co-operative Colony Krishnagiri town Krishnagiri Tk & Dt: It can have branches anywhere in Tamil Nadu as agreed by all the partners.

Duration

The partnership shall be at WIL.

M. Tahara
M. Tahara

M. Tahara
M. Tahara



Authorized Signatory

The first partner Mr. Mir Mazahar Ali shall be the authorized signatory of the firm for signing all the applications, forms, tenders, invoices and papers to the government, commercial tax, Income tax and all other departments.

Interest on Capital

The capital amounts of the partners shall bear interest at 12% per annum.

Sharing of Profits/Losses

The Partners shall share the Profit or Loss of the firm in the following ratios.

Mir Mazahar Ali	- 25%
Mir Mohammed Fareed Ali	- 25%
D. Loganathan	- 50%

Accounts

The accounts of the partnership shall be closed once every year on March 31st and a profit and loss account and Balance sheet shall be prepared as of that date every year.

Borrowing Powers

The partners are free to borrow monies for the purposes of business from banks, financial and lending institutions and from others and for this purpose may designate one or more partners to negotiate on behalf of the firm. All the partners shall jointly sign the loan documents. The partners' individual loans shall not bind the firm.

Letters, Parcels, VPPs, Registered posts and Bank Instruments

All the partners are authorized to receive the firm's Letters, Parcels, VPPs, Registered Posts and Bank instruments.

Variation Clause:

Any of the above clauses may be altered or varied or added to by the common consent of the parties.

Arbitration:

All the disputes arising out of this partnership shall be subject to arbitration.

Mir Mazahar Ali
D. Loganathan

Mir Mazahar Ali
Mir Mazahar Ali



Partnership Act:

For any other matter which is not mentioned in this deed the provisions of the Indian Partnership Act 1932 shall be applicable.

In witness whereof we the partners have signed this deed the date mentioned earlier.

1. *[Signature]*

2. *[Signature]*

3. *[Signature]*
New Partner

[Signature]

Retiring Partner

Witnesses:

1. *Hajara Begum*

HAJARA BEGUM

Krishnagiri


2. *N. Hasen Fathima*

N. HASEEN FATHIMA

KRISHNAGIRI

Document prepared by

[Signature]

 K. SHAHJAHAN, B.Com, F.C.A.,
CHARTERED ACCOUNTANT
22-A, P.S. Lakshminagar
KRISHNAGIRI - 635 001. Ph: 231287



இந்திய அரசாங்கம்
Government of India




பி. மாசாஹர் அலி
Mr Masahar Ali
தாய் : பி. தாஹர் அலி
Father : Mr Tahar Ali
பி.என். எண் / DOB : 09/01/1978
ஆண் / Male



7136 5533 4402

எனது ஆதார், எனது அடையாளம்


Unique Identification Authority of India

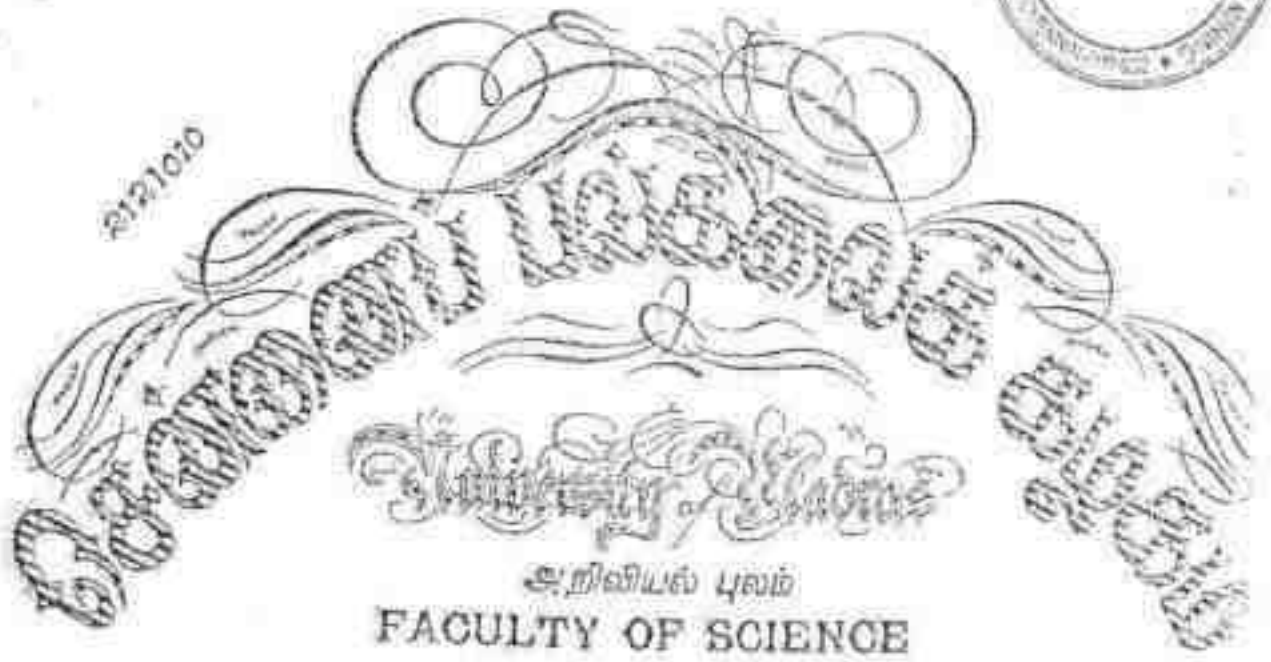


பி. மாசாஹர் அலி : 1978-09-09
ஆண் / Male

Address
S/O. Mr Tahar Ali, 18/15, Co-
Operative Colony, Third Cross,
Krishnagin, Krishnagin, Tamil
Nadu, 635001

7136 5533 4402

1947  www.uidai.gov.in



அறிவியல் புலம்
FACULTY OF SCIENCE

சென்னைப் பல்கலைக் கழகம் 1934

சுனா... சம்பல்... கனிமியல்...
... சிபு, சாங்குராசு...
... அறிவியல் நிறைகு...
... மட்ட... மட்ட... மட்ட... மட்ட... மட்ட...

The Senate of the UNIVERSITY OF MADRAS hereby
makes known that... P. Manjerajoo...
has been admitted to the Degree of Master of Science, he/she
having been certified by duly appointed Examiners to be qualified
to receive the same in ... Geology ... and was placed in the
... First ... Class, at the Examination held in April 1934.



Given under the seal of the University

Registrar, University of Madras

[Signature]



GOVERNMENT OF INDIA
 MINISTRY OF LABOUR AND REHABILITATION
 OFFICE OF THE INSPECTOR GENERAL OF MINES SAFETY

Certificate of Practical experience granted to the Candidate for a Candidate for a Candidate's Supervisors / Foreman's / Overman's / Sider's / Miner's / Blower's / Blower's Certificate of competency (Restricted) examination under the Metallurgical Mines Regulation 1961.

I T VENKATARAJAGOPALAN being the Mine Agent of MUKLIMENAPPI CHEMICALS, RAJAPALAYAM OF LIMESTONE PRODUCTS (Internal Limestone Mine) do hereby certify that Thiru P. THANGARAJU, son of S. PERIASAMY (whose signature is appended) worked as a foreman in the above mine from 01.05.1994 to 30.12.1999. During his term of work aforesaid, he has obtained practical experience as detailed overleaf. The duties connected with his work have involved continuous attendance at the mine and have been efficiently performed by him.

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

(Signature)
 10/11/06
 (Signature with date and official Seal)
 T. VENKATARAJAGOPALAN

Mine Agent:

P.O. : ARULANGULAM
 District : TIRUNELVELI
 State : TAMIL NADU

(Signature)
 (Signature of Candidate)

(State name of Mineral) : LIMESTONE



**THIRU C.KATHIRAVAN, I.A.S.,
CHAIRMAN/
DISTRICT COLLECTOR.**

**Krishnagiri District
Environment Impact
Assessment Authority,
Room No.30,
Collectorate,
Krishnagiri.**

ENVIRONMENTAL CLEARANCE

Lr.No.13/DEIAA-KGI/ECNo.11/2017 dated 12.10.2017.

To

M/s. Zak Exports,
No.35/13, 2nd Cross Co-operative Colony,
Krishnagiri.

Sir,

Sub: DEIAA-Proposed - Grey Granite quarrying over an extent of 3.50.0 Hecta. in patta land S.F.No. 380/1 (P) of Chendarapalli village of Bargur Taluk Krishnagiri District by M/s. Zak Exports, No.35/13, 2nd Cross Co-operative Colony, Krishnagiri - issue of Environmental Clearance - Reg.

Ref: 1. TV/ZAK Exports Application for Environment Clearance dated 19.02.2017 submitted at DEIAA Tamil Nadu.
2. Minutes of the DEAC meeting on 06.09.2017
3. Minutes of the DEIAA meeting held on 09.10.2017.

-oOo-

Details of Minor mineral Activity:-

This has reference to your application first cited. The proposal is for obtaining Environmental Clearance for mining / quarrying of minor minerals based on the particulars furnished in your application as shown

1.	Name of Project Proponent and address	M/s. Zak Exports, No.35/13, 2 nd Cross Co-operative Colony, Krishnagiri
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2.	Location of the Proposed Activity	
	Survey Number and Extent	380/1 (P)
	Latitude and Longitude	12° 20' 31" N to 12° 20' 47" N 78° 18' 31" E to 78° 18' 25" E
	Village	Chendarapalli
	Taluk	Bargur
	District	Krishnagiri
3.	Proposed Activity	
	i. Minor mineral	Grey Granite
	ii. Mining Lease Area	3.50.0 Hecta.
	iii. Approved quantity	18,025 Cbm of Multi Colour Granite for a period of Five years.
	iv. Depth of Mining	09 Mts
	v. Type of mining	Open cast semi mechanised mining
	vi. Category [B1/B2]	B2
	vii. Precise Area Communication	Government Lr.No.4608/MME2/2017-1 dated 09.06.2017
	viii. Mining Plan approval	The Commissioner of Geology and Mining, Guindy, Chennai - 600 032 Rc.No.6082/MMS/2017 dated 14.07.2017
	ix. Mining lease period	Twenty years
4.	Whether Project area attracts any general conditions specified in the EIA notification, 2006 as amended:-	Not attract. Affidavit furnished
5.	Man Power requirement per day	35 Employees
6.	Utilities	
	i. Source of Water	a. For Drinking and Domestic purpose water will be purchased from the approved water vendors. b. For dust suppression and water from the existing bore hole situated near by the quarry will be used.



	ii.	Quantity of Water Requirement in KLD:	
	a.	Domestic	0.3 kilo litre
	b.	Industrial	--
	c.	Green Belt & Dust Suppression	Green Belt = 0.4 KLD Dust Suppression = 0.3 KLD
	iii.	Power requirement	
	a.	Domestic purpose	TNEB
	b.	Industrial purpose	Fuels are used for operating machineries and vehicles during the quarrying process and transportation and the fuel required for the entire project life is 5,44,192 Lts. of HSD and 82,400 lts. for the first five years.
7.		Cost	
	i.	Project Cost	Rs.2,10,25,000/-
	ii.	EMP Cost	Rs.6,75,000/-
8.		Public Consultation:-	Not required as per O.M. dated 24.12.2013 of MoEF, GOI
9.		Date of Appraisal by DEAC: Agenda No.	Agenda No.11 of DEAC meeting conducted on 06.09.2017.
10.		Date of review / discussion by DEIAA and the Remarks:-	<p>The proposal was placed before the DEIAA in its second meeting on 06.10.2017 as agenda No.11 and the Authority after careful consideration, decided to grant Environmental Clearance to the said project Mining of Grey Granite subject to terms and conditions stipulated under the provisions of Environment Impact Assessment Notification, 2006 as amended.</p>
11.		Validity:	<p>This Environmental Clearance is granted to Mining of Grey Granite for the production quantity of 18,025 Cbm of Grey Granite for the period of five years from the date of execution of the lease deed.</p>

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that



- i) The project has been accorded Environmental Clearance.
- ii) Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
- iii) Environmental Clearance may also be seen on the website of the State Level Environment Impact Assessment Authority.
- iv) The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.

2) The applicant has to obtain land use classification as industrial use before issue/renewal of mining lease from the Deputy Director of Town and Country Planning Dharmapuri.

3) NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.

4) The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.

5) A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.

6) Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.

7) The proponent shall ensure that First Aid Box is available at site.

8) The excavation activity shall not alter the natural drainage pattern of the area.

9) The excavated pit shall be restored by the project proponent for useful purposes. In this regard, the proponent shall deposit a sum of Rs.5,00,000/- (Rupees Five Lakhs only) in the name of District Collector Krishnagiri in the form of fixed deposit. The said fixed deposit will be refunded after restoration.

10) The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.

11) The quarrying operation shall be restricted between 7 AM and 5 PM.



12) The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.

13) A minimum distance of 15 mts. From any civil structure shall be kept from the periphery of any excavation area.

14) Depth of quarrying shall be 2m above the ground water table /approved depth of mining whichever is lesser to be considered as a safe guard against Environmental Contamination and over exploitation of resources.

15) The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.

16) Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.

17) Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.

18) The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.

19) Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.

20) A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.

21) The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, Govt of India. (GLC = Ground Level Concentration), (NAAQ = Noise and Ambient Air Quality).

22) The following measures are to be implemented to reduce Air Pollution during transportation of mineral -



(i). Roads shall be graded to mitigate the dust emission.

(ii). Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust.

23) The following measures are to be implemented to reduce Noise Pollution.

(i). Proper and regular maintenance of vehicles and other equipment.

(ii). Limiting time exposure of workers to excessive noise.

(iii). The workers employed shall be provided with protection equipment and earmuffs etc.

(iv). Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.

24) Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoEF, Govt to control noise to the prescribed levels.

25) Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Assistant Director, Ground Water Division, FWD, Dharmapuri.

26) Rain water harvesting to collect and utilize the entire water falling in land area should be provided by construction of a storage tank with a capacity of 5,00,000 litres and the rain water harvested in the entire quarry area should be stored in it and used for the quarry purpose like dust prevention, wet drilling, providing water for green belt etc.

27) Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.

28) Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.

29) The following measures are to be adopted to control erosion of dumps:-

(i). Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.



30) Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.

31) 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.

32) Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season. Photographs of the silt trap should be furnished before commencing quarry operation.

33) The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, that the ground water is getting depleted due to the quarrying activity, necessary corrective measures shall be carried out. The Assistant Director Ground water Division, PWD Dharmapuri shall monitor.

34) No tree-felling shall be done in the leased area, except only with the permission from competent Authority.

35) To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution and it should be monitor by the District Environmental Engineer, TNPCB, Hosur on yearly basis.

abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 25 hectares within the mining lease period of this application.



37) It shall be ensured that there is no habitation is located within 500 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 500m radius from the periphery of the quarry site

38) Ground water quality monitoring should be conducted once in 3 Months.

39) Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.

40) Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI once in three months.

41) Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI periodically once in six months.

42) Bunds should be provided at the boundary of the project site and it should be properly maintained.

43) The project proponent shall undertake plantation/ afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.

44) At least 10 Neem trees should be planted around the boundary of the quarry site.

45) Floor of excavated pit to be leveled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.

46) The Project Proponent shall ensure a minimum of 2.5 of the annual turnover will be utilized for the CSR Activity

47) The Project Proponent shall provide solar lighting system to the nearby villages

relevant rules and regulations where ever applicable.

49) Rainwater shall be pumped out Via Settling Tank only

50) Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.



51) As per MoEF & CC, Gov. Order Memorandum dated 30.03.2015, prior clearance from Forestry & Wild Life angle including clearance from obtaining committee of the National Board for Wild life as applicable shall be obtained before starting the quarrying operation, if the project site is located within 10KM from National Park and Sanctuaries.

52) The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.

53) Safety equipments to be provided to all the employees.

54) Safety distance of 50 m has to be provided in case of railway, reservoir, canal/oddi

55) The Assistant / Deputy Director Department of Geology and Mining shall ensure that the proponent has engaged the blaster with valid Blasting license / certificate obtained from the competent authority before execution of mining lease.

56) The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.

57) The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.

58) The proponent shall furnish the data obtained from the Public Works Department regarding the details of ground water table in the quarry site.

59) The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh case before execution of mining lease.

60) The proponent has to display the name board at the quarry site showing the details of proponent, leased period, extent etc., with respect to the existing activity before execution of mining.

61) Heavy earth machinery equipments if utilized, after getting approval.

62) The environmental norms shall be monitored by the District Environmental Engineer, Tamil Nadu Pollution Control Board, Hosur.



63) The Assistant Director Public Works Department, Ground Water Division Dharmapuri shall monitor whether the quarrying activity is carried out above the ground water level on yearly basis.

64) NOC for sanitary certificate shall be obtained from the Deputy Director of Health Services, Krishnagiri.

65) Yearly medical examination of the quarry workers should be carried out by a registered medical practitioner and the report should be filed in the quarry office in a separate file and copy should be sent to the Deputy Director, Health Services, Krishnagiri.

66) Closed circuit camera should be erected at the quarry site and the passage of vehicles in and out of the quarry should be recorded and the footage of the recordings of the camera should be maintained and should be produced before the enforcing officials when ever called for.

67) Vehicles used for transportation of quarried materials should be fitted with GPS and monitored and vehicles should not carry the products more than the quantity allowed in the registration certificate.

68) Pit Mouth register should be maintained in on line

69) Auditor report on the annual turnover amount should be submitted to the District Collector within one month from the end of the financial year.

70) 02.5% of the turn over amount should be utilized for the CSR activity after consultation with the District Collector.

71) The proponent should submit action plan for the CSR activity for the next five years before 31st March every year.

72) Green belt should be constructed all along the boundary of the lease granted area by planting at least 400 seedlings of native species. The tree saplings shall not be less than 1.00 Mts. height.

73) 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 forest and social forest tree plantations and bio diversity, surrounding water bodies etc.



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 for Establishment from the TNPC Board before commencing the activity.
- (3) No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
- (4) No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
- (5) Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
- (6) Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
- (7) A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
- (8) Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
- (9) Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying them 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 provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.



- (12) Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
- (13) Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
- (14) The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
- (15) The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its regional office located at Chennai.
- (16) The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
- (17) This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance.
- (18) The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
- (19) The SEIAA, Tamil Nadu may cancel the environmental clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this environmental clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the environmental clearance.
- Non-compliance with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.




(21) The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, draft Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India / Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.

(22) Any other conditions stipulated by other Statutory/ Government authorities shall be complied.

(23) Any appeal against this environmental Clearance shall lie with the Hon'ble National Green Tribunal, if preferred within a period of 30 days as prescribed under section 16 of the National Green Tribunal Act 2010.

Sd/-C.Kathiravan
CHAIRMAN
DEIAA-KGI/
DISTRICT
COLLECTOR,
KRISHNAGIRI.

//True Copy//


For CHAIRMAN
DEIAA-KGI
DISTRICT COLLECTOR,
KRISHNAGIRI.

Copy to

- L*
2.10.17
1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi
 2. The Principal Secretary, Environment and Forest Department, Government of Tamil Nadu, Tamil Nadu.
 3. The Principal Secretary to Government, Industries Department, Government of Tamil Nadu, Tamil Nadu.
 4. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex East Arjun Nagar, New Delhi 110 032.
 5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex East Arjun Nagar, New Delhi 110 032.



6. The Member Secretary, State Level Environmental Impact Assessment Authority Tamil Nadu Panagal Building Saidapet, Chennai
7. The Chairman Tamil Nadu Pollution Control Board, 76 Mount Salai (Guindy, Chennai-32)
8. The Commissioner of Geology and Mining, Guindy, Chennai-32
9. E1 Division, Ministry of Environment and Forests Paryavaran Bhawan, New Delhi
10. File No.15/ DEIAA/KGI/2017.

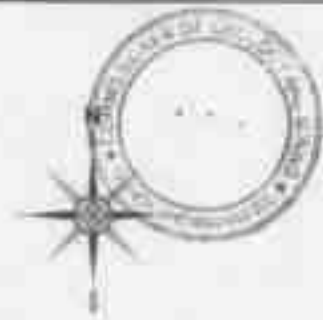


PLATE NO. I

DATE OF SURVEY: 11.07.2022

LESSEE:

M/s. ZAK EXPORTS,
No. 35/13 2nd CROSS
CO-OPERATIVE COLONY,
KRISHNAGIRI TALUK AND DISTRICT
PIN-535 001.

LOCATION OF QUARRY:

S.F.No : 38D/1 (Pw-1)
EXTENT : 3.50.0 Ha,
VILLAGE : CHENDRAPALLI,
TALUK : BARDUR,
DISTRICT : KRISHNAGIRI.

INDEX

Q. I. AREA : ●

TOPO SHEET NO. : 37 - U/07

LATITUDE : 12° 29' 21.350\"/>

LONGITUDE : 78° 18' 18.308\"/>

LOCATION PLAN

SCALE: 1:24,00,000

PREPARED BY:

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLAN IS TRUE AND CORRECT TO THE
BEST OF MY KNOWLEDGE AND WITH THE USUAL
ACCURACY OF THIS OFFICE.

S. Srinivasan
S. Srinivasan
Surveyor General

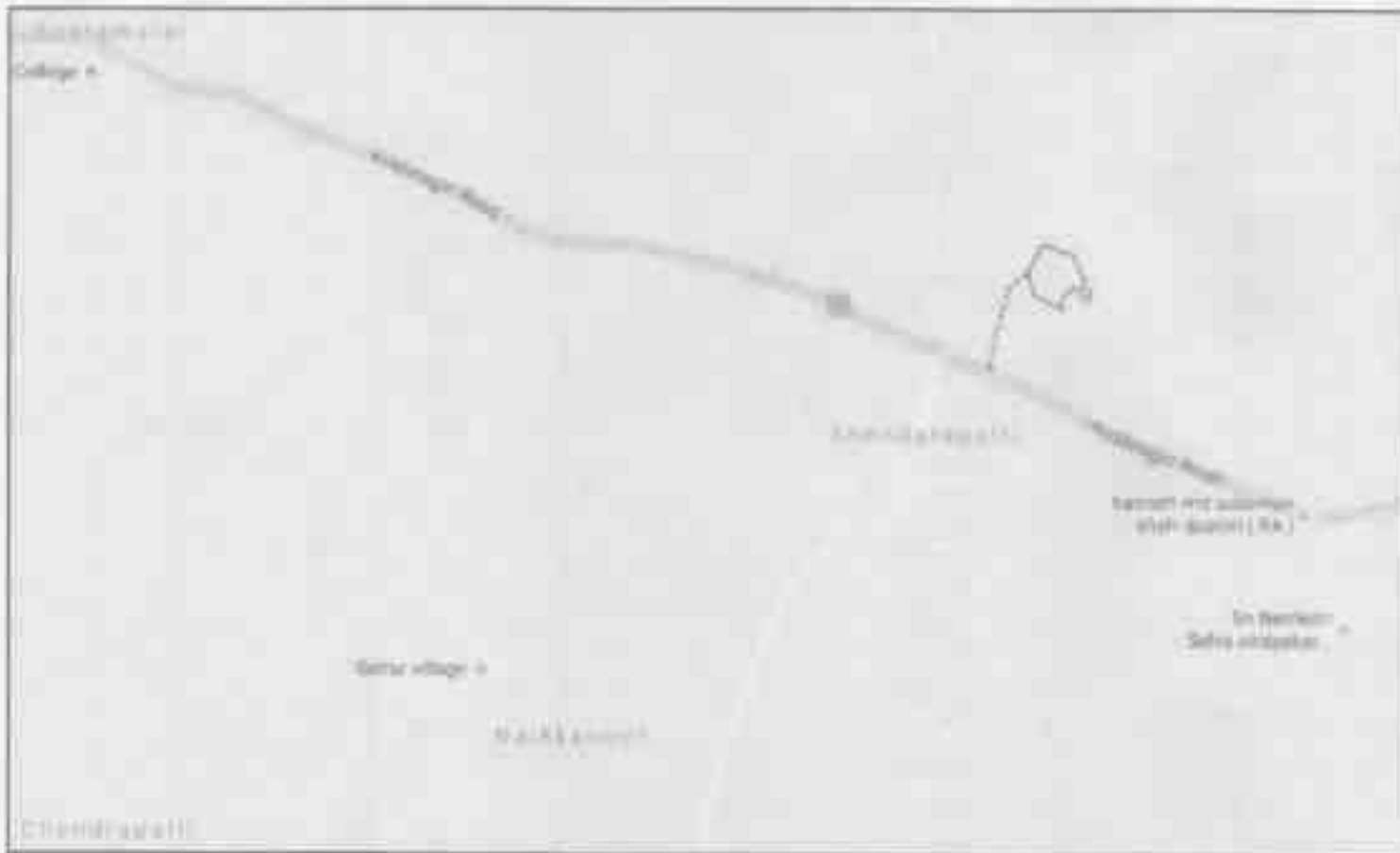


PLATE NO: I-B

DATE OF SURVEY: 11.07.2022

LESSEE:
 M/s. ZAK EXPORTS,
 No.35/13 2nd CROSS
 CO-OPERATIVE COLONY,
 KRISHNAGIRI TALUK AND DISTRICT
 PIN-535 001.

LOCATION OF QUARRY:

S.F.No : 380/1(Part)
 EXTENT : 3.50.0 Ha,
 VILLAGE : CHENDRAPALLI,
 TALUK : BARGUR,
 DISTRICT : KRISHNAGIRI.

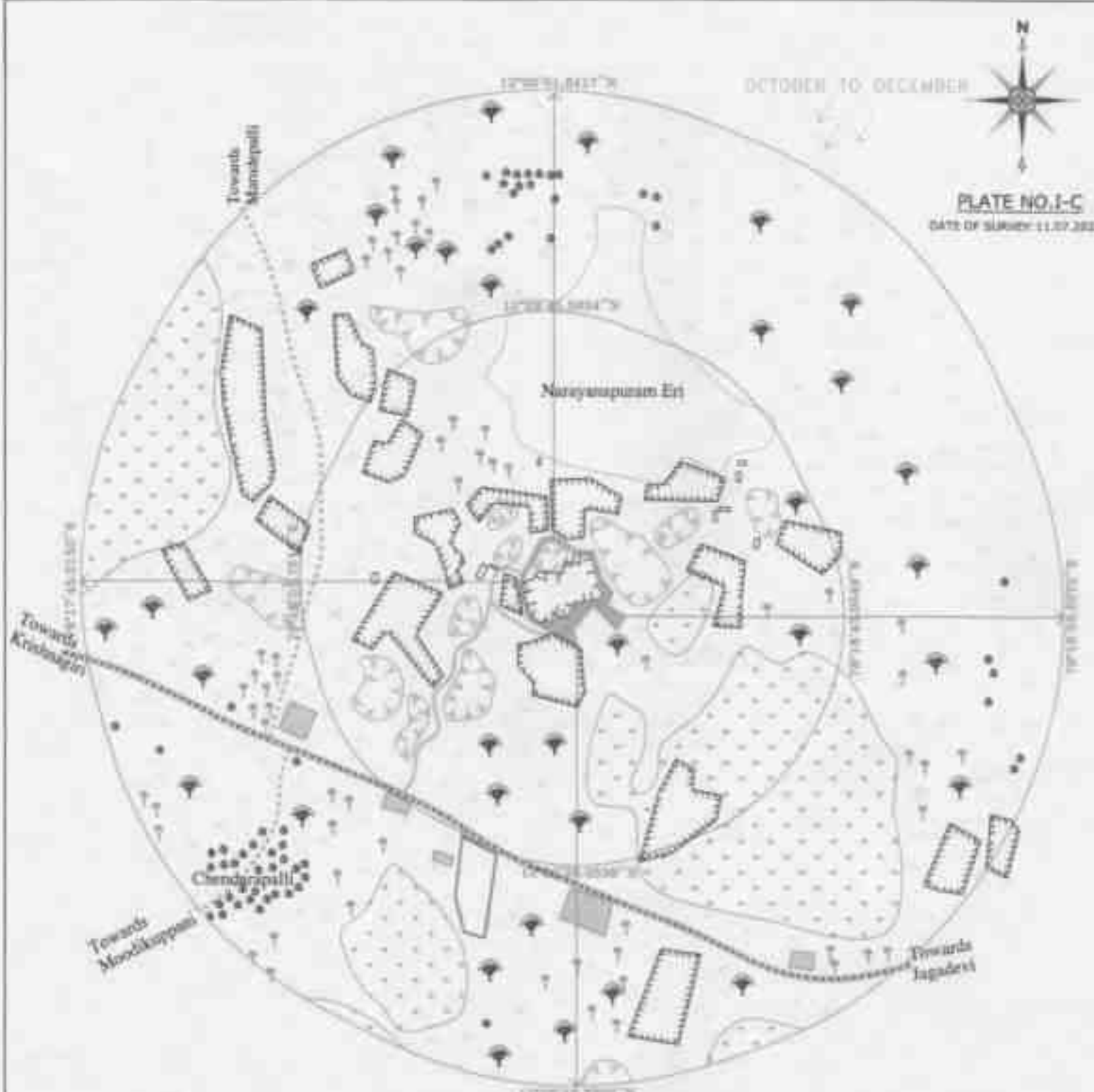
INDEX

O.I. BOUNDARY	
APPROACH ROAD	
NATION HIGHWAY	
MAJOR ROAD	
VILLAGE 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 DOCUMENTS
 SUBMITTED BY THE GOVERNMENT

[Signature]
 P.A. THIRUGANESAN S.M.S.O.
 QUALIFIED PERSON



OCTOBER TO DECEMBER

PLATE NO. I-C
DATE OF SURVEY: 11.07.2022

LESSEE:
M/s. ZAK EXPORTS,
No. 35/13 2nd CROSS
CO-OPERATIVE COLONY,
KRISHNAGIRI TALUK AND DISTRICT
PIN-635 001.

LOCATION OF QUARRY:
S.F.No : 380/1(Part)
EXTENT : 3.50.0 Ha,
VILLAGE : CHENDRAPALLI,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI.

TOPO SHEET NO. : 57 - 1/JOT
LATITUDE : 12°5' 21.3815"N to 12°5' 21.4081"N
LONGITUDE : 78°18' 18.3091"E to 78°18' 26.5027"E

INDEX

- Q.LEASE BOUNDARY
- 1KM RADIUS
- 500m RADIUS
- WIND DIRECTION
- TREES
- NATIONAL HIGHWAY-66
- FANCHAYAT ROAD
- APPROACH ROAD
- AGRICULTURAL LAND
- HABITATION/INFRASTRUCTURE
- HILLOCK
- QUARRY PIT
- ERI
- DUMP
- GRANITE FACTORY
- SCHOOL

ENVIRONMENTAL AND
LANDUSE PLAN FOR 1KM RADIUS

SCALE: 1:10000

PREPARED BY:
M/S. ZAK EXPORTS
11/07/2022

JULY TO SEPTEMBER

LAND USE PATTERN		
DESCRIPTION	PERCENTAGE	INDEX
ROADS	(05%)	
HABITATION/INFRASTRUCTURE	(10%)	
SEASONAL AGRICULTURAL LAND	(45%)	
TREES	(20%)	
HILL LOCK AREA	(20%)	



PLATE NO.1-D

DATE OF SURVEY: 11.07.2022

LESSEE:

M/s.ZAK EXPORTS,
No.35/13 2nd CROSS
CO-OPERATIVE COLONY,
KRISHNAGIRI TALUK AND DISTRICT
PIN-635 001.

LOCATION OF QUARRY:

S.F.No : 380/11(Part)
EXTENT : 3.50.0 Ha,
VILLAGE : CHENDARAPALLI,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI.

INDEX

Q.LEASE BOUNDARY



500m RADIUS



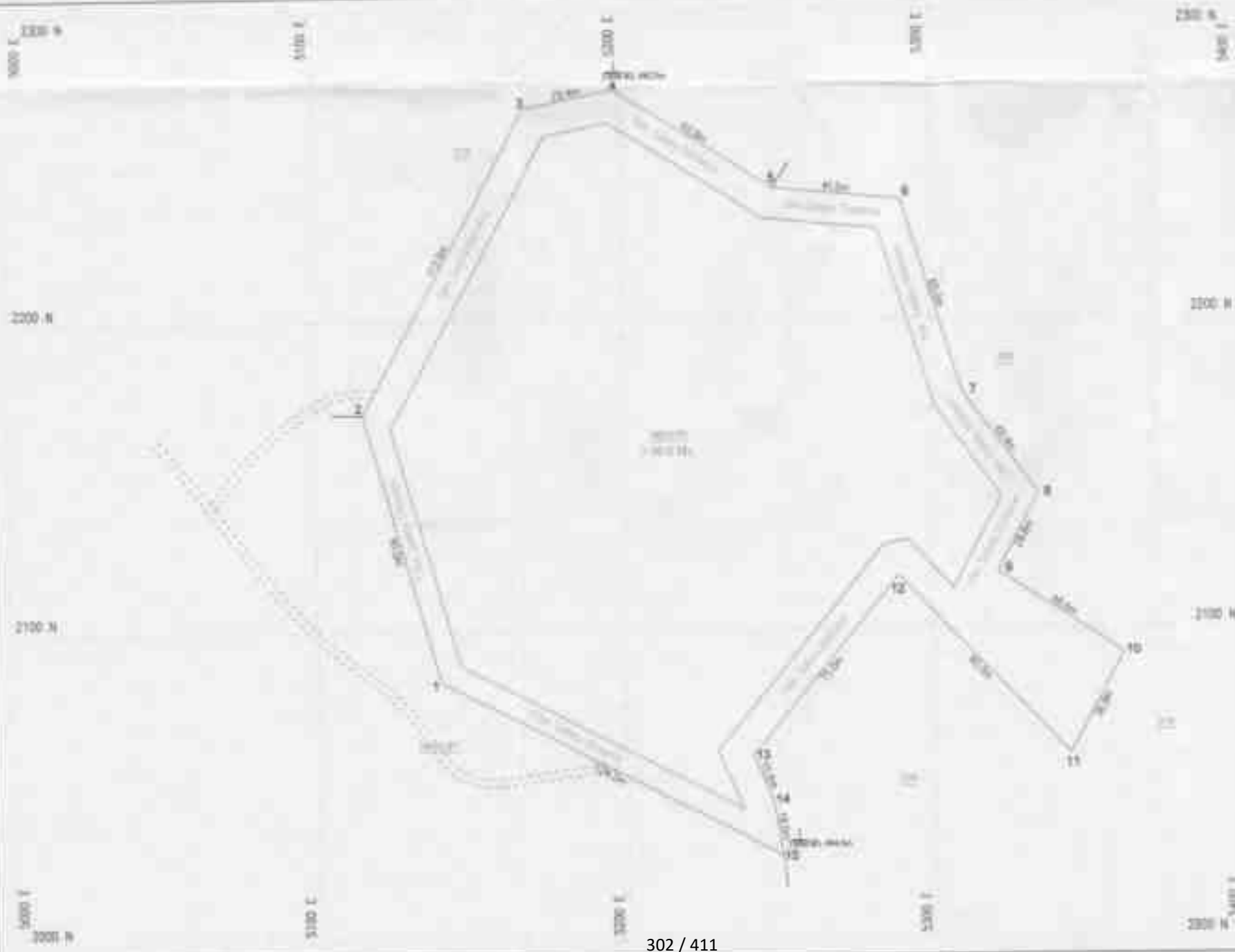
500m RADIUS SATELLITE IMAGE

SCALE 1:5000

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 MATERIAL
FURNISHED BY YOUR GOVERNMENT.

Chinnappa
S.P. KRISHNAN
QUALIFIED PERSON



BOUNDARY COORDINATES

SL. NO.	BEARING	DISTANCE
1	12° 20' 32.0000"N	18.41 20.0000'
2	12° 20' 32.0000"N	18.41 20.0000'
3	12° 20' 32.0000"N	18.41 20.0000'
4	12° 20' 32.0000"N	18.41 20.0000'
5	12° 20' 32.0000"N	18.41 20.0000'
6	12° 20' 32.0000"N	18.41 20.0000'
7	12° 20' 32.0000"N	18.41 20.0000'
8	12° 20' 32.0000"N	18.41 20.0000'
9	12° 20' 32.0000"N	18.41 20.0000'
10	12° 20' 32.0000"N	18.41 20.0000'
11	12° 20' 32.0000"N	18.41 20.0000'
12	12° 20' 32.0000"N	18.41 20.0000'
13	12° 20' 32.0000"N	18.41 20.0000'
14	12° 20' 32.0000"N	18.41 20.0000'
15	12° 20' 32.0000"N	18.41 20.0000'

PLATE NO. II

SCALE OF GRAPH IS 1:1000

LESSEE:
 PUNJAB EXPORTS,
 No. 25/13 2ND CROSS
 CO-OPERATIVE COLONY,
 KRISHNAGIRI TALUK AND DISTRICT
 PIN-532 502.

LOCATION OF QUARRY:
 S.P. No. : 380/1174/1
 EXTENT : 2.502 HA.
 VILLAGE : CHERAKAPALLI,
 TALUK : KANIGAL,
 DISTRICT : KRISHNAGIRI.

INDEX

- QUARRY LEASE BOUNDARY
- FRESH WATER CANAL
- APPROACH ROAD
- RAILWAY LINE

QUARRY LEASE PLAN
 SCALE 1:1000

PREPARED BY:
 M. S. SURESH, P.E., DISTRICT ENGINEER,
 KRISHNAGIRI DISTRICT, AP.
 DATE: 15/05/2018

1000 E
3300 N

1100 E

5000 E

5300 E

2300 N
2400 E



2200 N

2200 N

2100 N

2100 N

5000 E
2000 N

5100 E

5200 E

5300 E

2000 N
2400 E

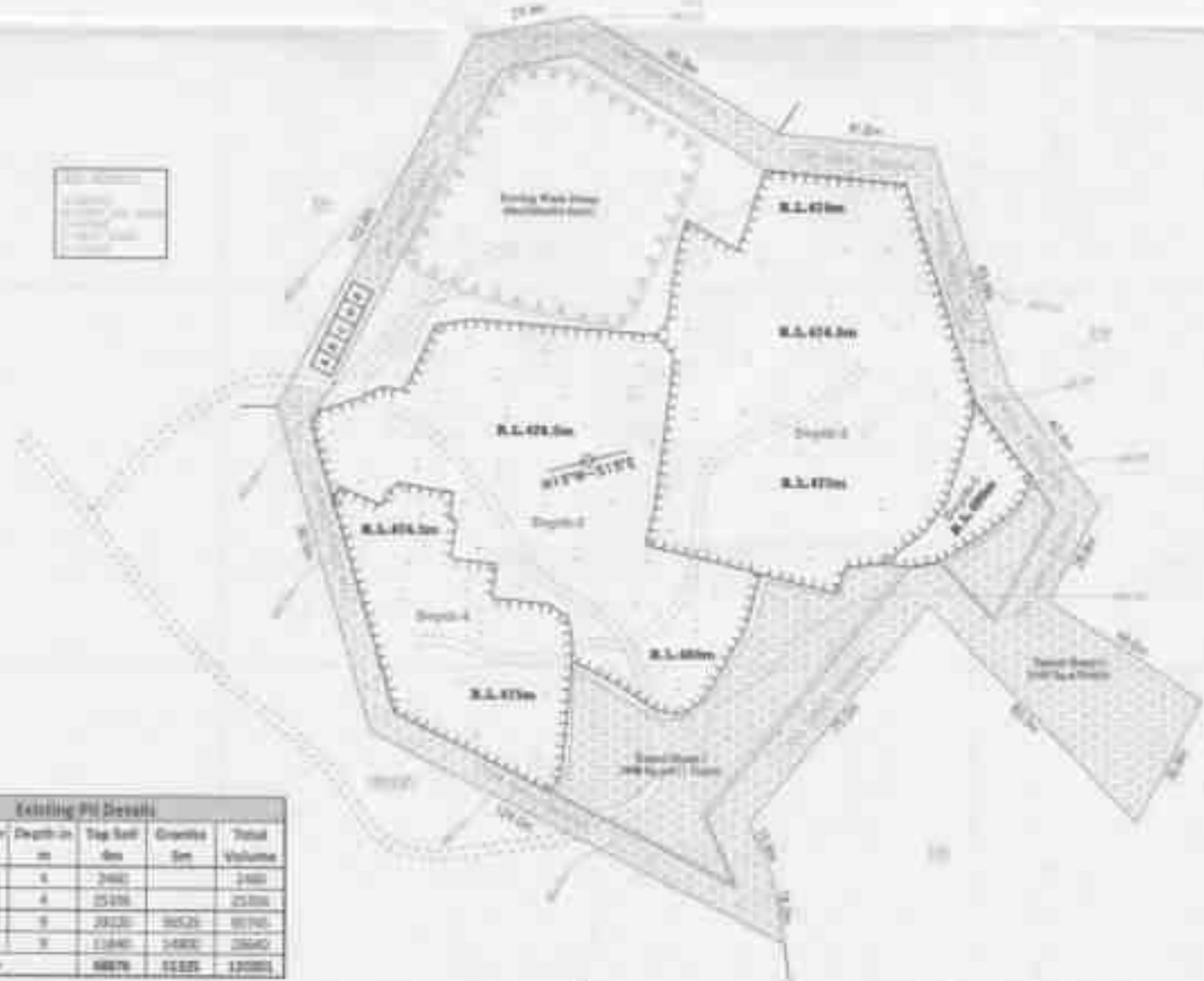


PLATE NO. II
DATE OF SURVEY: 11.11.2009

OWNER:
M.V. ZAI EXPORTS,
No. 35/13 2nd CROSS,
CO-OPERATIVE TALKUR AND DISTRICT
HIGHLIGHTS

LOCATION OF QUARRY:
S.P. No. 3962 (Pvt.)
EXTENT: 3.50 C Ha.
VILLAGE: CHENDRANALLI,
TALUK: BARDOL,
DISTRICT: MADHURAI

SYMBOLS

QUARRY LAKE BOUNDARY	[Symbol]
1.5 METRE SAFETY DISTANCE	[Symbol]
APPROACH ROAD	[Symbol]
TEMPORARY BENCH MARK	[Symbol]
TOPOGRAFICAL CONTOUR	[Symbol]
DRIVE	[Symbol]
TOP GROUND	[Symbol]
STONE & SAND	[Symbol]
SOIL DUMP	[Symbol]
GREY GRANITE	[Symbol]
QUARRY PIT	[Symbol]
QUARRY ROAD	[Symbol]
SEWER	[Symbol]
TOPOG. CONTOUR	[Symbol]

SURFACE PLAN
SCALE: 1:1000

PREPARED BY:
M. V. ZAI EXPORTS
No. 35/13 2nd CROSS
CO-OPERATIVE TALKUR AND DISTRICT
HIGHLIGHTS



Existing Pit Details

Pit No.	Area in Sq.m	Depth in m	Top Soil in cm	Granite in cm	Total Volume
Depth-1	512	4	2400		2048
Depth-2	523	4	2400		2092
Depth-3	705	6	2400	6025	6078
Depth-4	792	6	2400	5480	5544
Total			9678	11505	12064

1000 E
200 N

5000 E

5000 E

5000 E

200 N
3000 N



200 N

200 N

200 N

200 N

1000 E
200 N

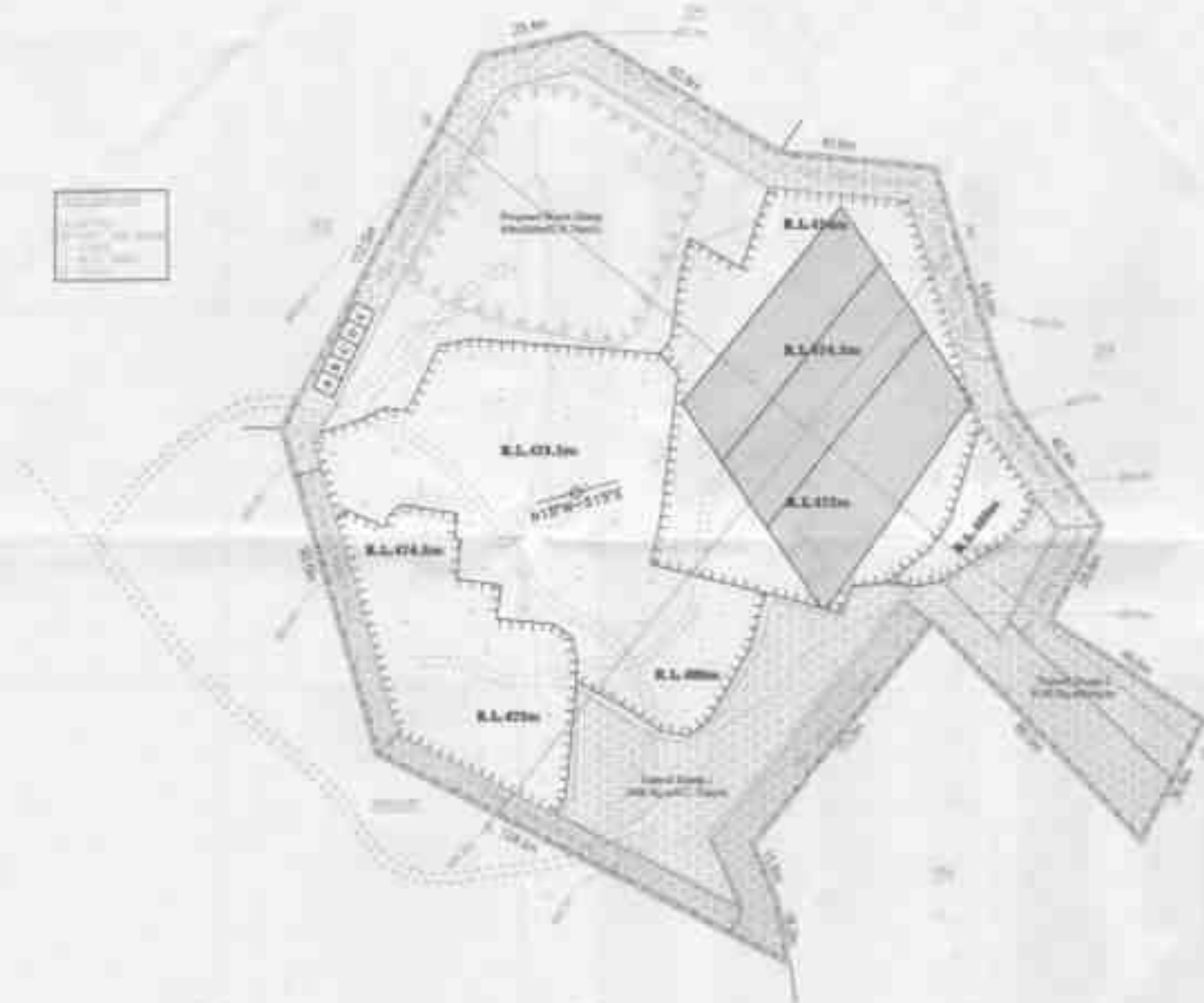
5000 E

5000 E

5000 E

2000 N
3000 E

Proposed Main Canal	1:100
Proposed Branch Canal	1:100
Proposed Drainage Canal	1:100
Proposed Road	1:100
Proposed Field	1:100
Proposed Pond	1:100
Proposed Well	1:100
Proposed Structure	1:100
Proposed Boundary	1:100
Proposed Contour	1:100
Proposed Elevation	1:100
Proposed Area	1:100
Proposed Volume	1:100
Proposed Weight	1:100
Proposed Length	1:100
Proposed Width	1:100
Proposed Height	1:100
Proposed Depth	1:100
Proposed Distance	1:100
Proposed Time	1:100
Proposed Speed	1:100
Proposed Acceleration	1:100
Proposed Force	1:100
Proposed Energy	1:100
Proposed Power	1:100
Proposed Work	1:100
Proposed Heat	1:100
Proposed Mass	1:100
Proposed Density	1:100
Proposed Pressure	1:100
Proposed Temperature	1:100
Proposed Humidity	1:100
Proposed Wind Speed	1:100
Proposed Rainfall	1:100
Proposed Snowfall	1:100
Proposed Ice	1:100
Proposed Fog	1:100
Proposed Clouds	1:100
Proposed Sun	1:100
Proposed Moon	1:100
Proposed Stars	1:100
Proposed Planets	1:100
Proposed Galaxies	1:100
Proposed Universe	1:100



SECTION ALONG 1-1



SECTION ALONG 2-2



Proposed Main Canal	1:100
Proposed Branch Canal	1:100
Proposed Drainage Canal	1:100
Proposed Road	1:100
Proposed Field	1:100
Proposed Pond	1:100
Proposed Well	1:100
Proposed Structure	1:100
Proposed Boundary	1:100
Proposed Contour	1:100
Proposed Elevation	1:100
Proposed Area	1:100
Proposed Volume	1:100
Proposed Weight	1:100
Proposed Length	1:100
Proposed Width	1:100
Proposed Height	1:100
Proposed Depth	1:100
Proposed Distance	1:100
Proposed Time	1:100
Proposed Speed	1:100
Proposed Acceleration	1:100
Proposed Force	1:100
Proposed Energy	1:100
Proposed Power	1:100
Proposed Work	1:100
Proposed Heat	1:100
Proposed Mass	1:100
Proposed Density	1:100
Proposed Pressure	1:100
Proposed Temperature	1:100
Proposed Humidity	1:100
Proposed Wind Speed	1:100
Proposed Rainfall	1:100
Proposed Snowfall	1:100
Proposed Ice	1:100
Proposed Fog	1:100
Proposed Clouds	1:100
Proposed Sun	1:100
Proposed Moon	1:100
Proposed Stars	1:100
Proposed Planets	1:100
Proposed Galaxies	1:100
Proposed Universe	1:100

Proposed Main Canal	1:100
Proposed Branch Canal	1:100
Proposed Drainage Canal	1:100
Proposed Road	1:100
Proposed Field	1:100
Proposed Pond	1:100
Proposed Well	1:100
Proposed Structure	1:100
Proposed Boundary	1:100
Proposed Contour	1:100
Proposed Elevation	1:100
Proposed Area	1:100
Proposed Volume	1:100
Proposed Weight	1:100
Proposed Length	1:100
Proposed Width	1:100
Proposed Height	1:100
Proposed Depth	1:100
Proposed Distance	1:100
Proposed Time	1:100
Proposed Speed	1:100
Proposed Acceleration	1:100
Proposed Force	1:100
Proposed Energy	1:100
Proposed Power	1:100
Proposed Work	1:100
Proposed Heat	1:100
Proposed Mass	1:100
Proposed Density	1:100
Proposed Pressure	1:100
Proposed Temperature	1:100
Proposed Humidity	1:100
Proposed Wind Speed	1:100
Proposed Rainfall	1:100
Proposed Snowfall	1:100
Proposed Ice	1:100
Proposed Fog	1:100
Proposed Clouds	1:100
Proposed Sun	1:100
Proposed Moon	1:100
Proposed Stars	1:100
Proposed Planets	1:100
Proposed Galaxies	1:100
Proposed Universe	1:100

Amrinder Singh
 Amrinder Singh
 CONSULTANT ENGINEER
 CIVIL, CHENNAI-600 017

PLATE NO. V
 DATE: 27/04/2011

LESSOR:
 M/S. ZAK EXPORTS,
 No. 35/13 2nd CROSS
 CO-OPERATIVE COLONY,
 KRISHNAGIRI TALUK AND DISTRICT
 PIN-632 001.

LOCATION OF QUARRY:
 S.P. No. : 380 (194)
 EXTENT : 3.302 HA.
 VILLAGE : CHODIAPALLE,
 TALUK : MADURAI,
 DISTRICT : MADURAI.

INDEX

QUARRY LEASE BOUNDARY	[Symbol]
5 METER SAFE DISTANCE	[Symbol]
APPROACH ROAD	[Symbol]
TERMINAL BENCH MARK	[Symbol]
TOPOGRAPHICAL CONTOUR	[Symbol]
WATER	[Symbol]
TOP SOIL	[Symbol]
STRATA & SSP	[Symbol]
SOIL CORE	[Symbol]
QUARRY GRAB	[Symbol]
QUARRY PIT	[Symbol]
QUARRY ROAD	[Symbol]
SLAB	[Symbol]
FOUNDATION	[Symbol]
FOREST DAM	[Symbol]

YEARWISE DEVELOPMENT AND PRODUCTION PLAN AND SECTIONS
 SCALE: 1:500

DRAWN BY:
 M/S. ZAK EXPORTS
 No. 35/13 2nd CROSS
 CO-OPERATIVE COLONY,
 KRISHNAGIRI TALUK AND DISTRICT
 PIN-632 001.

DATE: 27/04/2011

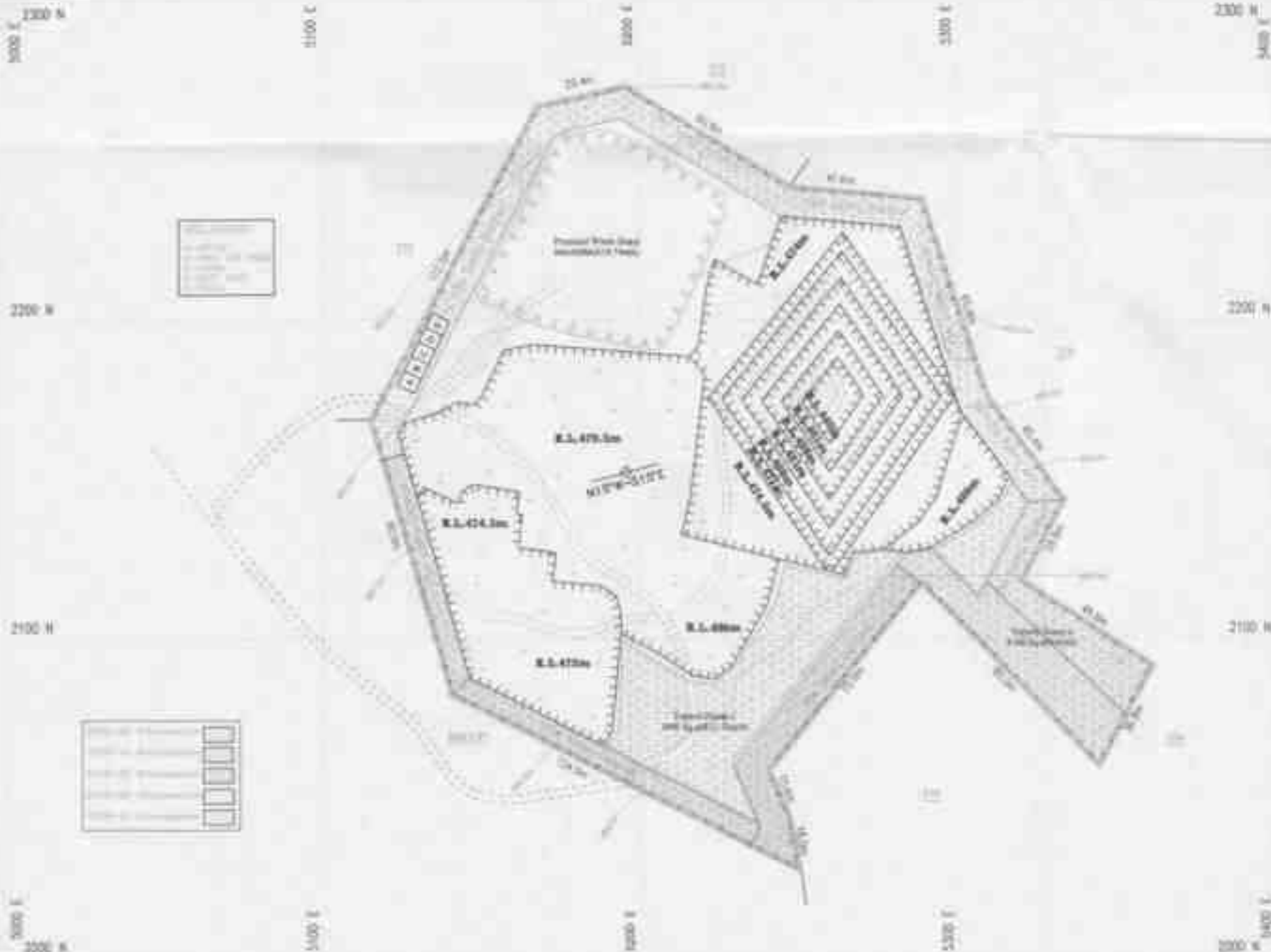


PLATE NO. VI
 SPTS OF SURVEY 1207/2002

PROJECT:
 NULZAR EXPORTS,
 No. 35/13 2nd CROSS,
 CO-OPERATIVE COLONY,
 KRISHNAGIRI TALKIE AND DISTRICT
 PIN-632 002

LOCATION OF QUARRY:
 S.P. No. : 380/1(P/W)
 EXTENT : 3.502 Ha.
 VILLAGE : CHODANAPALLI,
 TALKIE : BARDOL,
 DISTRICT : KRISHNAGIRI.

KEY

QUARRY LEASE BOUNDARY	[Symbol]
1:50000 SAFETY DISTANCE	[Symbol]
APPROACH ROAD	[Symbol]
IMMEDIATE BENCH MARK	[Symbol]
PERMANENT CONTROL	[Symbol]
WATER	[Symbol]
TOP SOIL	[Symbol]
STRIP & SIF	[Symbol]
SILT CLUMP	[Symbol]
GRAVEL QUARRY	[Symbol]
QUARRY PIT	[Symbol]
QUARRY ROAD	[Symbol]
SLUR	[Symbol]
BLASTFRONTS	[Symbol]
TOPSOIL CLUMP	[Symbol]

**QUARRY LAYOUT AND
 AFFORESTATION
 PLAN**
 SCALE 1:1000

PREPARED BY:
 M. S. SURESH KUMAR, P.E., (S) & C
 M. S. SURESH KUMAR, P.E., (S) & C
 M. S. SURESH KUMAR, P.E., (S) & C
 M. S. SURESH KUMAR, P.E., (S) & C

OCTOBER TO DECEMBER



PLATE NO. VIII
DATE OF SURVEY: 11.07.2022

LESSOR:
M/s. ZAK EXPORTS,
No. 35/13 2nd CROSS
CO-OPERATIVE COLONY,
KRISHNAGIRI TALUK AND DISTRICT
PIN-635 001.

LOCATION OF QUARRY:
S. F. No: 380/1 (Part)
EXTENT: 3.50.0 Ha.
VILLAGE: CHENDARAPALLI,
TALUK: BARGUR,
DISTRICT: KRISHNAGIRI.

INDEX

- Q. LEASE BOUNDARY
- 50M RADIUS
- 500m RADIUS
- WIND DIRECTION
- TREES
- PANCHAYAT ROAD
- APPROACH ROAD
- AGRICULTURAL LAND
- HILLOCK
- QUARRY PIT
- OFFICE & INFRASTRUCTURE
- ERI
- DUMP
- NH-56
- TOPSOIL DUMP

ENVIRONMENTAL PLAN

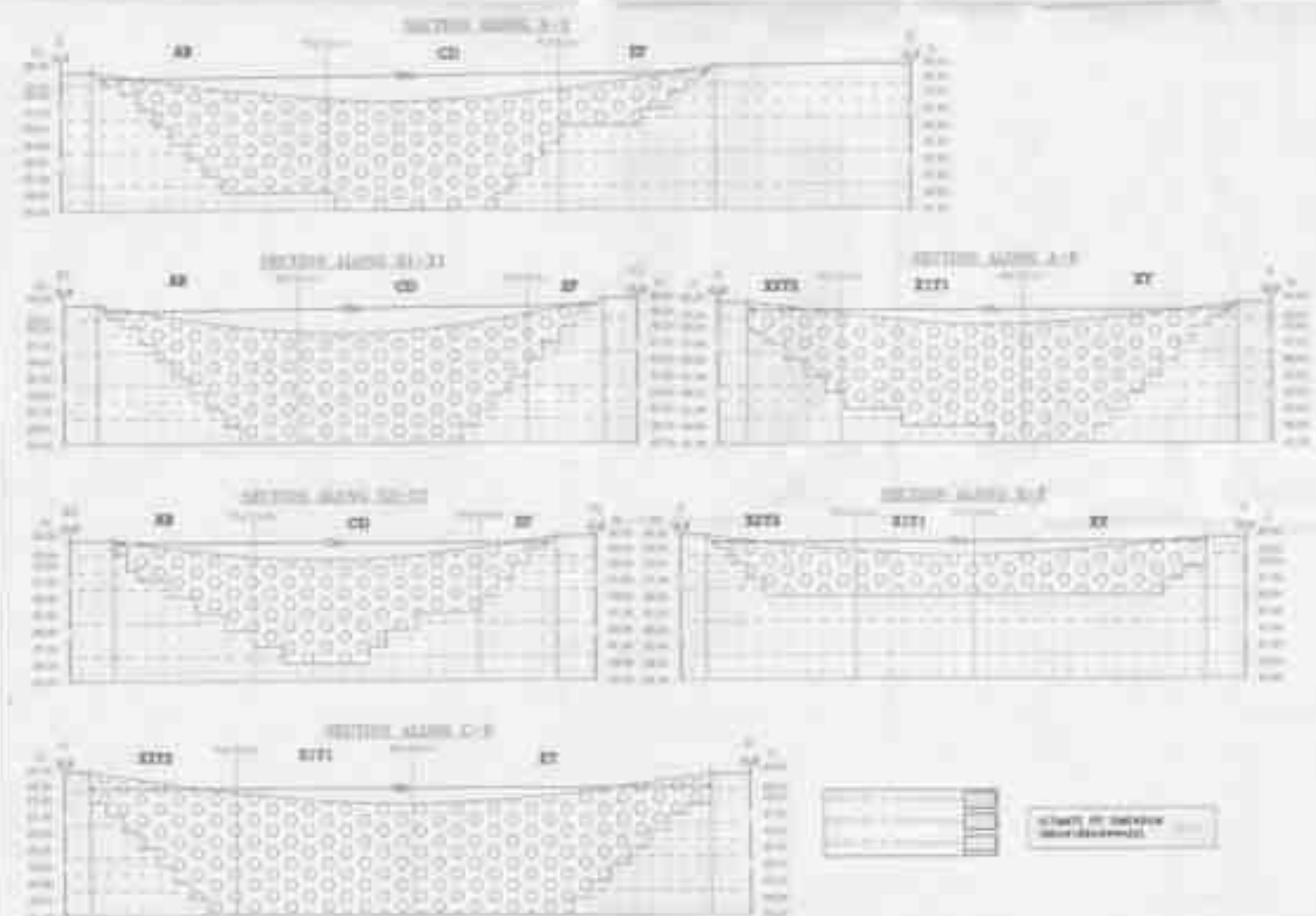
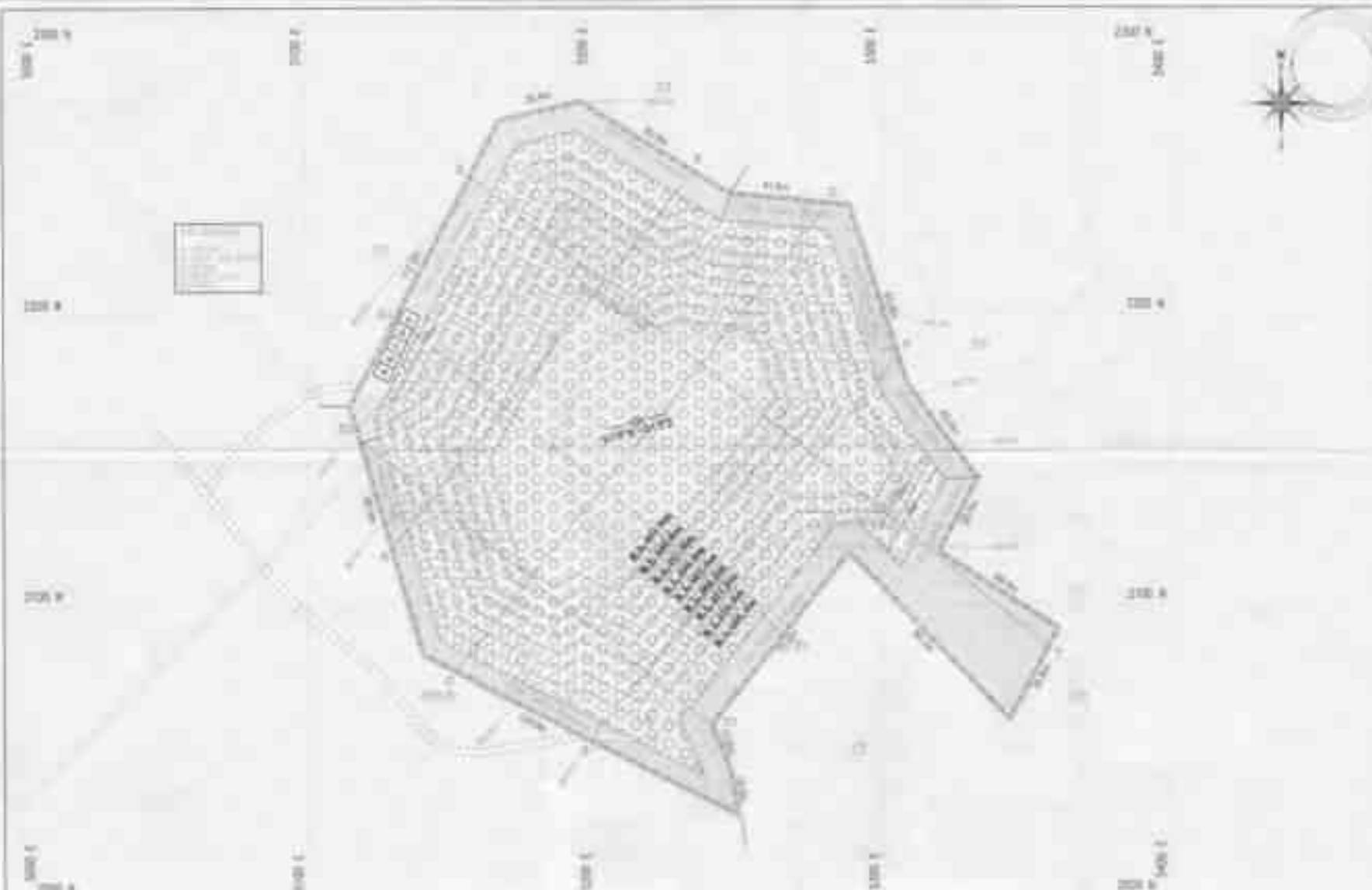
SCALE: 1:5000

PREPARED BY:

S.P. THIRUMALA RAO,
QUALITY CHECK



SCALE TO DISTANCE



DATE BOOK	
NO. 2011 309 410	DATE OF BOOK 10-10-10
PROJECT CITY OF CHICAGO COLLEGEVILLE COUNCIL WASHINGTON TRUST AND DISTRICT AREA 420 201	
LOCATION OF PROJECT 177 W. 31ST ST. CHICAGO, ILLINOIS 60608 TRACT 420 201 DISTRICT 420 201	
SCALE 1" = 20'	
LEGEND (List of symbols and their corresponding features)	
CONCEPTUAL PLAN AND SECTIONS PREPARED BY: (Name of the engineering firm)	

Topographical view of Chendarapalli Grey Granite Quarry Lease Area



Name of the lessee : **M/s Zak Exports.,**
Address : No.35/13, 2nd Cross Co-operative Colony,
Krishnagiri Taluk and District,
Tamil Nadu - 635 001.

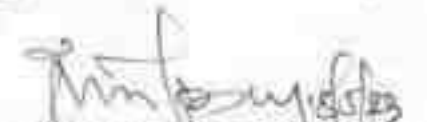
Location of the area:

Extent : 3.50.0Ha
S.F.Nos. : 380/1 (Part)
Village : Chendarapalli
Taluk : Bargur
District : Krishnagiri.

Signature of the Lessee
For M/s Zak Exports


(Mr. Mazaharall)
Partner

Attestation
(Village Administrative Officer)


Village Administrative Officer
63 SENDRAPALI Taluk
District - Krishnagiri



Sri Krishnaa Explosives

"Sri Vishnu Krishna"
Plot No. 7, (Door No. 4/197-1)
Indane Nagar Extension,
Jagir Reddipatti, SALEM-636 302
Phone | 0427-2340738, 94432-44073
E-mail: srivishnumohan.2008@rediffmail.com

Prop. **G. MOHAN, D.E.,**

Date : _____

18.05.2023

To
M/s. Zak Exports,
No.35/13 2nd Cross,
Co-operative Colony,
Krishnagiri Tk.
Krishnagiri District – 635001.

Dear Sir,

Sub: Regarding Blasting Work using Explosives in your proposed quarry.
-oOo-

We are having Explosive Licence in Form LE-3 holding No. E/SC/TN/22/515(E47493) valid upto 31.03.2024 situated in S.F.No. 18/2 Kadirpuram Village, Harur Tk, Dharmapuri-DI and our office functioning at above address. We are enacting Two Explosive Vans for transporting Explosives(Class-2) and Detonators(Class-3) separately from our magazine to your worksite and well experienced licensed blasters, Certified 2nd class Managers and shot-firers for safe blasting works.

We are willing to undertake blasting work on contract basis at your S.F.No. 380/1(P) over an extent of 3.50.0 Hectares in Chendarapalli Village, Bargur Tk, Krishnagiri District, Tamil Nadu.

Thanking you.

Yours faithfully,

For Sri Krishnaa Explosives

Enclosure:

1. Our Explosive Licence copy.

अनुमति प्रथम पत्र, ई.-3 | LICENCE FORM LE-3

विस्फोटक नियम, 2008 की अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) से (ए) देखिए।
(See article 3(a) to (d) of Part 1 of Schedule IV of Explosives Rules, 2008)

(ग) उपयोग के लिए एक समय पर वर्ग 1, 2, 3, 4, 5 या वर्ग 7 के विस्फोटक या किसी मैगजीन में वर्ग 6 के विस्फोटक रखने के लिए
अनुमति

Licence to possess : (c) for use explosives of class 1, 2, 3, 4, 5, 6 or 7 in a mag

अनुमति नं. (Licence No.) : E/SC/TN/22/515(E47493)
वार्षिक फीस रुपए. (Annual Fee Rs): 4800/-

1. Licence is hereby granted to

Shri G. MOHAN, Proprietor M/s. Sri Krishna Explosives (अधिभोगी / Occupier : Shri G. Mohan), Sri Vishnu Kiruba, Plot No.7, (Door No.4/197), Indane Nagar Extension, Jagir Reddipatti, Salem-636302, state: Tamilnadu, Town/Village - Salem, District-SALEM, State-Tamil Nadu, Pincode - 636302

को अनुमति अनुदत्त की जाती है।

2. अनुमतिधारी की प्रस्थिति / Status of licensee : Individual

3. अनुमति निम्नलिखित प्रयोजनों के लिए विधिमान्य है। : possesses for use of Nitrate Mixture, Safety Fuse, Detonating Fuse, Detonators, - के उपयोग के लिए
Licence is valid only for the following purpose.

4. अनुमति विस्फोटकों के निम्नलिखित किस्मों, प्रकार और मात्रा के लिए विधिमान्य है।
Licence is valid for the following kinds and quantity of explosives: - (क) (a)

क्र. सं. Sr. No.	नाम और विवरण Name and Description	वर्ग और प्रभाग Class & Division	उप-प्रभाग Sub-division	मात्रा किसी एक समय में Quantity at any one time
1.	Nitrate Mixture	2.0	0	750 Kg.
2.	Safety Fuse	6.1	0	10000 Mtrs
3.	Detonating Fuse	6.2	0	25000 Mtrs
4.	Detonators	6.3	0	20000 Nos.

(ख) किसी एक क्वॉट्टर मास में खरीदे जाने वाले विस्फोटक की मात्रा (अनुच्छेद 3(ख) और (ग) के अधीन अनुमति के लिए) : 23 times as above.

(b) Quantity of explosives to be purchased in a calendar month (applicable for licence under article 3(b) and (g))

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुमत्त परिसर की पुष्टि होती है। : रेखाचित्र नं. (Drawing No.) E/SC/TN/22/515(E47493)
दिनांक (Dated) 17/10/2008
The licensed premises shall conform to the following drawing(s).

6. अनुमति परिसर निम्नलिखित पते पर स्थित है। The licensed premises are situated at following address:
Survey No(s). 18/2, ग्राम (Town/Village) : Kadripuram village, Harur Taluk पुलिस थाना (Police Station) : Bommidli
ज़िला (District) : DHARMAPURI राज्य (State) : Tamil Nadu पिनकोड (Pincode)
दूरभाष (Phone) : ई.मेल (E-Mail) : फैक्स (Fax)

7. अनुमति परिसर में निम्नलिखित सुविधाएं अंतर्भूत हैं। : A Main Magazine room, Lobby and a Detonator Room
The licensed premises consist of following facilities.

8. अनुमति समय - समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विरचित विस्फोटक नियम, 2004 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपायों के अधीन रहते हुए अनुदत्त की जाती है।
The licence is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2008 framed there under and the conditions, additional conditions and the following Annexures.

1. उपर्युक्त क्रम सं. 5 में यथा कथित रेखाचित्र (स्थान, सन्निर्माण संबंधी और अन्य विवरण दर्शित करते हुए)।
Drawings (showing site, constructional and other details) as stated in serial No. 5 above.
2. अनुमति प्राप्ति के द्वारा हस्ताक्षरित इस अनुमति की शर्तों और अतिरिक्त शर्तों।
Conditions and Additional Conditions of this licence signed by the licensing authority.
3. दूरी प्रथम DE-2 / Distance Form DE-2.

9. यह अनुमति तारीख 31 मार्च 2019 तक विधिमान्य रहेगी। This licence shall remain valid till 31st day of March 2019.

यह अनुमति, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट-VIII के अधीन तथा उपर्युक्त इस अनुमति की शर्तों का अधिग्रहण करने या यदि अनुमत्त परिसर योजना या उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिसंशुद्ध की जा सकती है, जहां यह लागू हो।

This licence is liable to be suspended or revoked for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Set VIII, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and Annexure attached hereto.

तारीख | The Date - 17/10/2008

संयुक्त मुख्य विस्फोटक नियंत्रक | Joint Chief Controller of Explosives

South Circle, Chennai

Amendments :

- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 06/01/2011
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 13/06/2011
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 05/10/2011
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 25/04/2014

Transfers :

- Change in Licensee Name/Address/Status dated : 15/04/2014

नवीनीकरण के मूल्यांकन के लिए स्थान

Space for Endorsement of Renewal

नवीनीकरण की तारीख
Date of Renewalसमाप्ति की तारीख
Date of Expiryअनुमोदन प्राधिकारी के हस्ताक्षर और स्टाम्प
Signature of licensing authority and stamp

25/01/2019

31/03/2024

Controller of Explosives, Vellore

निरफोटक विस्फोटक, वेल्लूर
Controller of Explosives, Vellore

कानूनी चेतावनी : विस्फोटकों को सजात ढंग से पकाने या उनका दुरुपयोग विधि के अधीन गंभीर दंडित अपराध होगा।
Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

From
Dr. S.Vediappan, M.Sc.,Ph.D.,
Deputy Director,
Dept of Geology and Mining,
Krishnagiri.

To
Thiru. Salman Sathar,
No.125, Jagadevi,
Jagadevipalayam Post,
Bargur Taluk,
Krishnagiri District.

Roc.No. 914/2022/Mines dated: .05.2023.

Sir,

Sub: Mines and Minerals – Krishnagiri District – Grey Granite – Bargur Taluk – Soolamalai Village S.F.No.341/1(Part) over an extent of 1.36.8 hecets - Quarry lease application for Grey Granite preferred by Thiru. S.Salman Sathar S/o. Sathar - Mining plan approved – Details of quarries situated within 500 mts radial distance – Requested by the lessee – Details furnished - reg.

- Ref:**
1. The District Collector, Krishnagiri letter Roc. No.914/2022/Mines dated : 21.10.2022.
 2. Mining plan approved by the Commissioner of Geology and Mining in letter No. 7527/MM4/2023 Dated: 26.05.2023.
 3. Thiru. Salman Sathar, letter dated: 29.05.2023.

kind attention is invited to the reference cited.

2) Thiru. Salman Sathar has preferred a quarry lease application for the grant of quarry lease for quarrying Grey Granite over an extent of 1.36.8 Hecets in patta lands in S.F.No.341/1(Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District for a period of 20 years as per Rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959 vide in the reference 1st cited.

3) The Mining plan for the 1st five years which was approved by the Commissioner of Geology and Mining, vide letter dated: 26.05.2023.

4) In this connection, Thiru. Salman Sathar has requested the details of quarries situated within 500mts for the subject quarry vide letter dated: 29.05.2023.

5) As requested by the lessee the details of quarries situated within 500m radius is furnished as follows:

i) Details of Existing quarries


Sl. No.	Name and Address of the Lessee	Village and Taluk	SF No (s).	Extent (In Hecta.)	G.O No. and Date	Lease Period	Last Permit Obtained
1	B.S.Ravi	Soolamalai, Bargur Taluk	339/2	1.190	GO 3D No.30 Ind. (MMB3) Dept dt. 22.2.2005	27.03.2006 to 30.03.2026	19.10.2014
2	B.S.Ravi	Chendrapalli Bargur Taluk	369/2	2.46.5	GO 3D No.35 Ind. (MMB3) Dept dt. 16.09.2003	10.11.2003 to 09.11.2023	09.01.2017
3	D. Pichammal	Soolamalai, Bargur Taluk	335/4A1	1.20.0	GO (3D) No. 24 Ind.(MME-2) Dept. Dt.03.10.2009	14.12.2009 to 13.12.2020	13.12.2013
4	Varalakshmi	Soolamalai, Bargur Taluk	335/4B, 341/4	1.08.5	G.O (3D) No 24 Industries (MME.2) Department Dated 16.04.2018	14.06.2018 to 13.06.2038	29.05.2023
5	M/s. TAMIN	Chendrapalli Bargur Taluk	176/1	15.28.5	G.O.Ms.No.32 Ind. Dept., dated: 15.06.2018	29.12.2018 to 28.12.2038	31.03.2020
6	B.K.Murali	Chendrapalli Bargur Taluk	382/3A etc.,	2.78.5	G.O.Ms.No.34 Ind. Dept., dated: 25.02.2011	28.02.2011 to 27.02.2031	25.10.2016
7	A.Sathar	Chendrapalli Bargur Taluk	375/3A etc.,	1.03.5	G.O.Ms.No.13 Ind. Dept., dated: 03.09.2013	07.10.2013 to 06.10.2033	09.03.2018
			Total	24.99.5			

ii) Details of Expired/ Abandoned quarries

Sl. No	Name of the Lessee and address	GO No & Date	Taluk & Villags	S.F.No	Extent in Hectares	Period of lease
1.	M/s. TAMIN	G.O.Ms.No.237 Ind. Dept., dated: 17.03.1999	Chendrapalli Bargur Taluk	381	1.78.5	21.06.1999 to 20.06.2019

iii) Details of other proposal / Applied quarries

Sl.No	Name of the Lessee and address	GO No & Date	Taluk & Village	S.F.No.	Extent in Hectares	Period of lease
1	Thru. Saiman Sathar	-	Soolamalai, Bargur Taluk	341/1(P)	1.36.8	Instant Proposal Precies area given Mining Plan Approved
2	M/s.Hisnilah Exports	-	Soolamalai, Bargur Taluk	339/1(P)	1.02.0	Precies area given Mining Plan Approved
3	M/s. TAMIN	-	Soolamalai, Bargur Taluk	283	34.35.5	Precies area given


 Deputy Director,
 Dept of Geology and Mining,
 Krishnagiri.

Copy to :-

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

COMMISSIONERATE OF GEOLOGY AND MINING

From

Thiru J. Jayakanthan, I.A.S.,
Commissioner of Geology and
Mining,
Industrial Estate,
Guindy,
Chennai - 600 032.

To

M/s. Bismillah Exports,
No.125, Jagadevi,
Jegadevipalayam,
Krishnagiri- 635 203.

Roc.No.7258/MM4/2022 Dated: .05.2023.

Sir,

Sub: Mines and Minerals - Minor Mineral - Grey Granite-
Krishnagiri District - Bargur Taluk - Soolamalai Village
S.F.No.339/1(P) over an extent of 1.02.0 Hect - Quarry lease
application for Grey Granite preferred by M/s. Bismillah Export
- Precise area Communicated - Draft Mining Plan submitted for
approval- Recommended and forwarded by the Deputy Director
(G&M), Krishnagiri - Approval accorded.

- Ref: 1. Quarry lease application for Grey granite referred by M/s.
Bismillah Export, No.125, Jagadevi, Jagadevipalayam,
Krishnagiri, dated:06.06.2022.
2. The District Collector, Krishnagiri letter Roc.
No.915/2022/Mines dated :21.10.2022.
3. The Commissioner of Geology Chennai, Lr
No.7258/MM4/2022 dated:18.12.2022.
4. The Additional Chief Secretary to Government, Industries
Investment Promotion & Commerce (MME.2) Department
Secretariat, Chennai-600 009 Letter No.3774007/MME-
2/2022-1dated:17.04.2023.
5. Draft Mining plan submitted by M/s. Bismillah Export,
Dated :27.04.2023.
6. Assistant Geologist (Mines), Krishnagiri report dated
13.05.2023.
7. The Deputy Director (G&M), Krishnagiri Letter
Rc.No.915/2022/Mines dated 15.05.2023.

-o0o-

Kind attention is invited to the references cited.

2) M/s. Bismillah Export has preferred a quarry lease application for the grant of quarry lease for quarrying grey granite over an extent of 1.02.0 Hect in patta land in S.F.No.339/1(P) in Soolamalai Village, Bargur Taluk, Krishnagiri District for a period of 20 years as per Rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959 vide in the reference 1st cited.

3) The above said quarry lease application has been recommended and forwarded to Government vide reference 3rd cited. The Government vide letter dated: 17.04.2023 has issued precise area communication over an extent of 1.02.0 hectares in patta land in S.F.No.339/1(P) in Soolamalai Village, Bargur Taluk, Krishnagiri District to furnish the approved Mining Plan and environmental clearance from the competent authority for the above said area. Accordingly, the applicant firm has submitted five copies of the draft mining plan for approval vide reference 5th cited.

4) The Deputy Director (G&M), Krishnagiri has forwarded the mining plan submitted by the applicant firm M/s. Bismillah Export and reported as follows.

- i. The draft Mining Plan submitted by M/s. Bismillah Export has been verified with reference to field conditions. The draft Mining Plan has been prepared by the Recognized Qualified person. The details such as Geological Reserves, Mineable Reserves, Year wise production and Development programme have been incorporated in the draft Mining Plan. The Special conditions imposed in the precise area communication are also incorporated in the draft mining plan.
- ii. The year wise production quantity mention in the mining plan is given as detailed below.

Year	Rom (m ³)	Recovery @ 35 % (m ³)	Granite Waste @ 65 % (m ³)
1 st Year	5100	1785.0	3315.0

2 nd year	5270	1844.5	3425.5
3 rd year	5220	1827.0	3393.0
4 th year	5160	1806.0	3354.0
5 th year	5090	1781.5	3308.5
Total	25840	9044.0	16796.0

- iii. The proposed rate of saleable production of Grey granite is around 1808 cbm per year and by considering the mineable reserves mentioned in the mining plan is 13797 cbm.
- iv. Further, other quarries situated within 500 mts radial distance are as follows.

a. Details of Existing quarries

Sl. No.	Name and Address of the Lessee	Village and Taluk	SF No (s).	Extent (In Hects.)	G.O No. and Date	Lease Period
1	B.S.Ravi	Soolamalai, Bargur Taluk	339/2	1.190	GO 3D No.30 Ind. (MMB3) Dept dt. 22.2.2006	27.03.2006 to 26.03.2026
2	B.S.Ravi	Chendarapalli Bargur Taluk	369/2	2.46.5	GO 3D No.35 Ind. (MMB3) Dept dt. 16.09.2003	10.11.2003 to 09.11.2023
3	D. Rukkammal	Soolamalai, Bargur Taluk	335/4A1	1.20.0	GO (3D) No. 34 Ind.(MME-2) Dept. Dt.03.10.2009	14.12.2009 to 13.12.2029
4	Varalakshmi	Soolamalai, Bargur Taluk	335/4B, 341/4	1.08.5	G.O (3D) No 24 Industries (MME.2) Department Dated 16.04.2018	14.06.2018 to 13.06.2038
5	M/s. TAMIN	Chendarapalli Bargur Taluk	176/1	15.23.5	G.O.Ma.No.32 Ind. Dept., dated: 15.06.2018	29.12.2018 to 28.12.2038
6	B.K.Murali	Chendarapalli Bargur Taluk	382/5A etc.,	2.78.5	G.O.Ma.No.34 Ind. Dept., dated: 25.02.2011	28.02.2011 to 27.02.2031
7	A.Sathar	Chendarapalli Bargur Taluk	375/2A etc.,	1.03.5	G.O.Ma.No.13 Ind. Dept., dated: 03.09.2013	07.10.2013 to 06.10.2033
			Total	24.99.5		

b. Details of Expired/ Abandoned quarries

Sl. No	Name of the Lessee and address	GO No & Date	Taluk & Village	S.F. No	Extent in Hectares	Period of lease
1.	M/s. TAMIN	G.O.Ms.No.237 Ind. Dept., dated: 17.03.1999	Chendaraspalli Bargur Taluk	381	1.78.5	21.06.1999 to 20.06.2019
Total					1.78.5	

c. Details of other proposal / Applied quarries

Sl. No	Name of the Lessee and address	GO No & Date	Taluk & Village	S.F.No.	Extent in Hectares	Period of lease
1	Thiru. Salman Sathar	-	Soolamalai, Bargur Taluk	341/1(P)	1.36.8	Instant Proposal (Precise area given)
2	M/s.Bismillah Exports	-	Soolamalai, Bargur Taluk	339/1(P)	1.02.0	(Precise area given)
3	M/s. TAMIN	-	Soolamalai, Bargur Taluk	283	34.35.5	(Precise area given)
Total					36.74.3	

- v. There are no archeological monuments situated within the radial distance of 300m from the subject area and no wild life sanctuary with in 1.0km radius satisfies Rule 36 (1-A) of amended Tamil Nadu Minor Mineral Concession Rules 1959.
- i. Finally, the Deputy Director, Geology and Mining, Krishnagiri has recommended and forwarded the draft Mining Plan submitted by the applicant firm M/s. Bismillah Export for approval, subject to the condition that the applicant firm should obtain prior environmental clearance from the competent authority.

5) The mining plan is in accordance with the precise area communicated for grant of lease to the subject area. Based on the recommendation of the Deputy Director (G&M), Krishnagiri district, the Mining plan submitted by M/s. Bismillah Export is hereby approved subject to the following conditions in addition to the conditions stipulated in the precise area communication issued by the Government:

- i. This 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. 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 and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- iii. This mining plan including Progressive mine closure plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- iv. Provisions of the Mines Act, 1952 and the Rules and Regulations made there under including submission of notice of opening, appointment of manager and other statutory officials as required under Mines Act, 1952 shall be complied with.
- v. Provisions made under Mines and Minerals (Development & Regulation) Act, 1957, MMDR Amendment Act, 2015 and Granite Conservation and Development Rules, 1999 made there under shall be complied with.

- vi. The applicant firm should provide 7.5 m safety distance to the adjacent patta lands in all the sides.
- vii. Granite waste materials should be dumped within the quarry lease area and should not be dumped outside the boundary of the lease area.
- viii. No hindrance should be caused to the adjacent pattadhars and public while quarrying and transportation of minerals from the subject area.
- ix. Environmental Clearance should be obtained from the authority in respect of the subject area as per rule 42 of the Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the notification of the Ministry of Environment and Forest and any other clearances if any.
- x. The four boundaries of the applied area are fixed and the quarrying activity should be restricted within the area granted on lease.
- xi. The applicant firm should fence the lease granted area with barbed wire before the execution of lease deed as follows: -
 - The pillar post shall be firmly grounded with concrete foundation of height not less than 2mts with a distance between two pillars shall not be more than 3mts.
 - The applicant firm shall incorporate the DGPS readings for the entire boundary pillars of the area and the same should be clearly shown in the mining plan.
 - A soft copy of the digitized map with DGPS readings should be submitted in the CD to the Deputy Director (G&M), Krishnagiri.
- xii. Barbed wire fencing or Compound wall should be erected all along the boundary of the lease granted area.

- xiii. The applicant firm should ensure that while starting the quarry work, all the quarry workers working under their control are registered in the Labour Welfare Board and also enrolled in the ongoing insurance scheme.
- xiv. The conditions mentioned in G.O. (Ms) No.79, Industries (MMC.1) Department, dated 06.04.2015 should be complied with.
- xv. The applicant firm should comply with the conditions stipulated in the Government of India, Ministry of Mines order No.11/02/2020, dated 14.01.2020 issued as per the orders of the Hon'ble Supreme Court of India dated 08.01.2020 that, "the mining leaseholders shall after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to this mining activities and restore the land to a condition which is fit for growth of fodders, flora and fauna etc."
- xvi. The applicant firm shall submit scheme of mining, mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per rules.
- xvii. If any violation is found during quarrying operation, the penal provisions of the Tamil Nadu Minor Mineral Concession Rules, 1959 and other rules and act in force will attract.
- xviii. As per rule 12 (v) of the Mineral (other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016, the applicant firm shall at his own expense, erect, maintain and keep in repair all boundary pillars.
- xix. Quarrying activity should be carried out from 07.00 AM to 05.00 PM only.

- xx. A Green belt should be constructed to prevent sound and air pollution due to the proposed quarrying activity by planting at least 500 seedlings of Neem and Pungan all around the area.
- xxi. The applicant firm may use mild explosives during quarrying, and storing of explosives if required, by obtaining valid licence under Explosive Act and Rules.
- xxii. Child labour should not be engaged in the quarry works.
- xxiii. The applicant firm should carry out DGPS survey and erection of RCC boundary pillars as per the norms stipulated in the EOI notification in Rc.No.2921/MM4/2019 dated.01.02.2018 and subsequent corrigendum dated 13.08.2019 through the empanelled agencies.
- xxiv. The applicant firm should follow the mining method during the quarrying operation as mentioned in the mining plan.

Encl: Two copies of Approved Mining Plan


Commissioner of Geology and Mining
26/5/2023

Copy Submitted to:

The Additional Chief Secretary
to Government,
Industries, Investment Promotion
and Commerce Department,
Secretariat,
Chennai-600009.

Copy to:

1. The District Collector,
Krishnagiri District,



Dr. S. KALYANASUNDARAM ,J.F.S.(Retd.)
CHAIRMAN

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY – TAMIL NADU
3rd Floor, Panagal Maaligai,
No.1 Jeemis Road, Saidapet,
Chennai-15.
Phone No.044-24359974
Fax No. 044-24359975

ENVIRONMENTAL CLEARANCE

Lr. No. SEIAA-TN/F.No.5055/1(a)/ EC.No: 3237/2016 dated:06.07.2016

To

Thiru. A. Sathar
No.151/3, Jagadevipalayam Village & Post
Krishnagiri Taluk
Krishnagiri District - 635201

Sir,

Sub: SEIAA-TN – Proposed Grey Granite quarry located at S.F.No 375/2D, 375/3, 375/2E (P) & 377/1A1 (P), Chendarapalli Village, Krishnagiri Taluk, Krishnagiri District- Issue of Environmental Clearance – Reg.

Ref: 1. Your Application for Environmental Clearance dt: 11.02.2016
2. Minutes of the 76th SEAC held on 30.06.2016, 01.07.2016 & 02.07.2016
3. Minutes of the SEIAA meeting held on 06.07.2016.

Details of Minor Mineral Activity:-

This has reference to your application first cited. The proposal is for obtaining environmental clearance for mining/quarrying of minor minerals based on the particulars furnished in your application as shown below.

1	Name of Project Proponent and address	Thiru. A. Sathar No.151/3, Jagadevipalayam Village & Post Krishnagiri Taluk Krishnagiri District - 635201
2	Location of the Proposed Activity	
	Survey Number	375/2D, 375/3, 375/2E (P) & 377/1A1 (P)
	Latitude and Longitude	12°29'28"N to 12°29'34"N 78°18'20"E to 78°18'26"E
	Village	Chendarapalli
	Taluk	Krishnagiri


CHAIRMAN
SEIAA-TN

214

	District	Krishnagiri
3	Proposed Activity	
	i. Minor mineral	Grey Granite
	ii. Mining Lease Area	1.78.0 Ha
	iii. Approved quantity	2025 cu.m of Grey Granite
	iv. Depth of Mining	9m (2m Gravelly soil + 2m Weathered rock + 5m Grey Granite) m
	v. Type of mining	Opencast Semi Mechanized Method
	vi. Category(B1/B2)	B2
	vii. Precise area communication	Lr.No. 17911/MME.2/2015-1 dated 06.02.2016 by Principal Secretary, Industries (MME.2) Department, Chennai
	viii. Mining plan approval	Commissioner of Geology & Mining, Chennai Lr.No. 9351/MM5/2015 dated 12.02.2016
	ix. Mining lease period	5 Years
4	Whether Project area attracts any General conditions specified in the EIA notification, 2006 as amended:-	Not attracted. Affidavit furnished
5	Man Power requirement per day:	45 Employees
6	Utilities	
	i. Source of Water :	Water vendors/Borehole
	ii. Quantity of Water Requirement in KLD:	
	a. Domestic	0.3KLD
	b. Industrial	} 0.7KLD
	c. Green Belt & Dust Suppression	
	iii. Power Requirement:	
	a. Domestic Purpose	TNEB
	b. Industrial Purpose	12960 Litres of HSD
7	Cost	
	i. Project Cost	Rs.30.68 Lakhs
	ii. EMP Cost	Rs.2.75 Lakhs
8	Public Consultation:-	Not required as per O.M. dated 24.12.2013 of MoEF, Gol.
9	Date of Appraisal by SEAC:- Agenda No:	30.06.2016, 01.07.2016 & 02.07.2016 76-06
10	Date of Review/Discussion by SEIAA and the Remarks:- The proposal was placed before the SEIAA in its 177 th Meeting held on 06.07.2016 and the Authority after careful consideration, decided to grant environmental clearance to the said project Mining of Grey Granite to terms and conditions stipulated under the provisions of Environment Impact Assessment Notification, 2006 as amended.	
11	Validity: The Environmental Clearance will be coterminous with the mine lease period or limited to a maximum period of 5 Years from the date of issue whichever is earlier.	

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Conditions to be Complied before commencing mining operations:-

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
 - I. The project has been accorded Environmental Clearance.
 - II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
 - III. Environmental Clearance may also be seen on the website of the SEIAA.
 - IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.
2. The applicant has to obtain land use classification as industrial use before issue/renewal of mining lease.
3. NDC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
5. A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.
6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
7. The proponent shall ensure that First Aid Box is available at site.
8. The excavation activity shall not alter the natural drainage pattern of the area.
9. The excavated pit shall be restored by the project proponent for useful purposes.
10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 15 mts. From any civil structure shall be kept from the periphery of any excavation area.


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14. Depth of quarrying shall be 2m above the ground water table /approved depth of mining whichever is lesser to be considered as a safe guard against Environmental Contamination and over exploitation of resources.
15. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
16. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
17. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
18. The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.
19. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
20. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
21. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, GoI on 16.11.2009.
22. The following measures are to be implemented to reduce Air Pollution during transportation of mineral.
 - i. Roads shall be graded to mitigate the dust emission.
 - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust.
23. The following measures are to be implemented to reduce Noise Pollution
 - i. Proper and regular maintenance of vehicles and other equipment
 - ii. Limiting time exposure of workers to excessive noise.
 - iii. The workers employed shall be provided with protection equipment and earmuffs etc.
 - iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
24. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoE&F, GoI to control noise to the prescribed levels.
25. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.
26. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
27. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
28. The following measures are to be adopted to control erosion of dumps:
 - i. Retention/ toe walls shall be provided at the foot of the dumps.


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- ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
29. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.
 30. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
 31. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
 32. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
 33. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
 34. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
 35. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic institution.
 36. It shall be ensured that the total extent of nearby quarries (existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 25 hectares within the mining lease period of this application.
 37. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 500m radius from the periphery of the quarry site
 38. Ground water quality monitoring should be conducted once in 3 Months
 39. Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.
 40. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI.
 41. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI.
 42. Bunds to be provided at the boundary of the project site.

43. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.
44. At least 10 Neem trees should be planted around the boundary of the quarry site.
45. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
46. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
47. The Project Proponent shall provide solar lighting system to the nearby villages
48. The Project Proponent shall comply with the mining and other relevant rules and regulations where ever applicable.
49. Rainwater shall be pumped out Via Settling Tank only
50. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
51. As per MoEF&CC, GoI, Office Memorandum dated 30.03.2015, prior clearance from Forestry & Wild Life angle including clearance from standing committee of the National Board for Wild life at applicable shall be obtained before starting the quarrying operation, if the project site is located within 10KM from National Park and Sanctuaries.
52. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.
53. Safety equipments to be provided to all the employees.
54. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
55. The Assistant/Deputy Director, Department of Geology & mining shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.
56. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.
57. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.
58. The Proponent shall furnish the data obtained from the Public Works Department regarding the details of Ground Water table in the quarry site.
59. 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.
60. 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
61. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.


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General Conditions:

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent for Establishment from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, Masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.


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16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance.
18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
19. The SEIAA, Tamil Nadu may cancel the environmental clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this environmental clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the environmental clearance.
20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, draft Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.
22. Any other conditions stipulated by other Statutory/Government authorities shall be complied.
23. Any appeal against this environmental clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.


CHAIRMAN
SEIAA-TN

Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary, Environment and Forests Department, Government of Tamil Nadu, Tamil Nadu.
3. The Additional Chief Secretary, Industries Department, Government of Tamil Nadu, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (S2), 3A, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
6. The Chairman, Tamil Nadu Pollution Control Board, 76, Mount Saha, Guindy, Chennai-32
7. The District Collector, Krishnagiri District
8. The Commissioner of Geology and Mines, Guindy, Chennai-32
9. E1 Division, Ministry of Environment & Forests, Parivaran Bhawan, New Delhi.
10. Spare.

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY
ENVIRONMENTAL CLEARANCE

Dr. H.MALLESHAPPA,I.F.S.,
MEMBER SECRETARY



3rd Floor, Panagal Maaligal,
No.3, Jeenai Road, Saldapet,
Chennai-15.
Telephone :044 - 2435 9974

Lr. No. SEIAA-TN/F.No. 1118 /EC/1(a)/ 686/2013 dated: 19.08.2013

To
Thiru A. Sattar,,
No. 151/3, Jaya Devi Village & PO,
Krishnagiri - 635 201

Sir,

Sub: SEIAA-TN -Proposed Grey Granite Quarrying at S.F No. S.F No. 375/2A, 375/2C1, 375/2E (P), Chendrapalli Village, Krishnagiri Taluk, Krishnagiri District by Thiru A. Sattar, Environmental Clearance - Regarding

Ref: 1. Your Application for Environmental Clearance dt: 16.04.2013
2. Circulation Agenda approved by the SEAC.
3. Minutes of the SEIAA meeting held on 19.08.2013.

1. Preamble:-

This has reference to your application first cited. The proposal is for obtaining environmental clearance for Grey Granite Quarrying at S.F No. S.F No. 375/2A, 375/2C1, 375/2E (P), Chendrapalli Village, Krishnagiri Taluk, Krishnagiri District. The mine lease area of 1.03.5 ha. The proposed mining area is reported as lying in Latitude-12°29'30.42" N Longitude-78°28'30.76" E in Topo Sheet No.57/L-7.

No forest land is involved. No sensitive water bodies, Bio-Spheres, National Parks and Sanctuaries are located within 15 km radius as reported. There is no village within 500 metre of the project site as reported. Mine working will be open cast semi-mechanised mining and is proposed upto a depth of 12 metres. The production would be 5010 cu.m of Granite & 9272 cu.m of Top Soil over a period of 5 Years. Water requirement of 0.4 KLD for drinking purposes will be sourced through Near by Pump and 6 KLD required for dust suppression and green belt will be sourced from Near by Surface water. The proponent has submitted the mining plan approved by the Commissioner, Geology & Mining, Chennai vide Rc. 11224/MM5/2011 dated 08.04.2011. The precise area communication has been approved by the Letter No.4121/MME.2/2012-2 dated 12.03.2013 of the Principal Secretary to Government, Industries (MMB-1) Department, Chennai. There is no State or National boundaries within 15 km radius as reported. The project cost is Rs. 256.32 lakhs. EMP cost is Rs. 3.00 lakhs.

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The proposal was considered and examined by the SEAC on the directions of the Hon'ble Supreme Court on bringing all mines within the fold of prior EC, irrespective of their Mining Lease (ML) size. Thus the present proposal, though of less than 5 ha lease area (and hence not covered under the EIA Notification 2006) was appraised based on the project documents furnished by the proponent to the Committee. The SEAC has recommended for the grant of environmental clearance for the said Grey Granite quarry project by its circulation agenda.

The proposal was placed before the SEIAA in its 84th meeting and the Authority considered the proposal and noted that the size of the mine, production rate, the mineral mined and the eco-sensitivity of the area are such that the operation of the mine will have negligible impact on the surroundings and as such the project deserved to be granted the blanket clearance subject to the mines less than 5 ha area brought under the EC regime on the directions from Hon'ble Supreme Court and hence decided to grant environmental clearance to the said project. Accordingly, the SEIAA hereby accords environmental clearance to the said project under the provisions of Environment Impact Assessment Notification, 2006 subject to strict compliance of the terms and conditions as follows:-

2. Conditions to be Complied before commencing mining operations:-

- i. The project authorities should advertise with basic details at least in two widely circulated local newspapers, one of which shall be in the vernacular language of the locality concerned, within 7 days of the receipt of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at the web site of the SEIAA, TN at <http://seiaa.tn.gov.in> and a copy of the same is being sent to the Regional Office of Ministry of Environment and Forest Government of India located at Bangalore.
- ii. 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.
- iii. copy of the Environmental Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayath/Panchayath 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.
- iv. Provision shall be made for the housing of construction labour nearby the site with all necessary infrastructure and facilities such as fuel for cooking, toilets, safe drinking water, etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

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v. The proponent shall ensure that First Aid Box is available at site.

3 .Specific Conditions:

- i. The environmental clearance will be coterminous with the mine lease period, however limited to a maximum period of 5 (five) years from the date of issue.
- ii. It shall be ensured that quarrying is not carried out within 500m of structures, bridges, dams, weirs, ground water extraction points, water supply head works, extraction points for irrigation and any other cross drainage structures.
- iii. 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.
- iv. It shall be ensured that quarrying shall not be carried out below ground water table under any circumstances. If ground water table occurs/intervenes within the permitted depth, then also quarrying shall be stopped.
- v. At the end of mine closure, the Proponent shall immediately remove all the sheds put up in the quarry and all the equipment in the area at the time of closure of the operation of quarry.
- vi. The critical parameters such as RSPM (Particulate matter with size less than 10micron i.e., PM10) and NOX in the ambient air within the core zone shall be monitored periodically. The monitored data shall be uploaded on the website of the proponent as well as displayed on a display board at the project site .The Circular No. J-20012/1/2005-IA,II (M) dated 27.05.2009 issued by Ministry of Environment and forests, which is available on the website of the Ministry www.envfor.nic.in shall also be referred to in this regard for its compliance.
- vii. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. A copy of action plan shall be submitted to the Regional Office of the Ministry of Environment and Forests, Bangalore.
- viii. 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.
- ix. Drilling and blasting shall be done only either by licensed explosive agent only the proponent after obtaining required approvals from Competent Authorities.
- x. The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.
- xi. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.

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- xiii. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, GoI on 16.11.2009.
- xiii. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
- Roads shall be graded to mitigate the dust emission.
 - Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
- xiv. The following measures are to be implemented to reduce Noise Pollution
- Proper and regular maintenance of vehicles and other equipment
 - Limiting time exposure of workers to excessive noise.
 - The workers employed shall be provided with protection equipment and earmuffs etc.
 - 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.
- xv. 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, GoI to control noise to the prescribed levels.
- xvi. 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.
- xvii. Permission from the competent authority should be obtained for drawal of ground water, if any, required for this project.
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- xviii. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
- xix. The following measures are to be adopted to control erosion of dumps:-
- Retention/ toe walls shall be provided at the foot of the dumps.
 - Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
- xx. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCCB.
- xxi. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

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- xxii. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
- xxiii. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydrogeological 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.
- xxiv. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.

3. General Conditions:

- (i) The project proponent shall obtain Consent to Establish and Consent to Operate from the Tamil Nadu Pollution Control Board and effectively implement all the conditions stipulated therein.
- (ii) No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.
- (iii) No change in the calendar plan including excavation, quantum of mineral should be made.
- (iv) The project proponent shall ensure that the plan of mining is in conformity with the mine lease conditions and the Rules prescribed in this regard, clearly showing the no work zone in the mine lease i.e. the distance from the bridges structures adjacent private land, streams river lake etc.
- (v) The project proponent shall ensure that wherever deployment of labour attracts the Mines Act, the provision insurance thereof shall be strictly followed.
- (vi) The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area and the approach road.
- (vii) The proponent shall maintain the village road through which transportation of mineral is carried out at his own cost. The roads shall be blacktopped to the extent required.
- (viii) Quarrying should enrich rather than deplete the biodiversity as a corollary to their intervention in the ecology of their area of activity.
- (ix) EC is given only on the factual records, documents and details furnished by the Proponent particularly in respect of
- Areal distance of the nearest village is as mentioned in the proposal from the mining site boundary
 - No structure is located within 500 m from the quarry site boundary.

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- (x) 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.
- (xi) 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 Bangalore.
- (xii) The Regional Office of the Ministry located at Bangalore shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.
- (xiii) The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Office Bangalore, the respective Zonal Office of Central Pollution Control Board, SEIAA, TN and the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Bangalore, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board.
- (xiv) The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the Regional Office of the Ministry of Environment and Forests, Bangalore by e-mail.
- (xv) Precise mining area will be jointly demarcated at site by officials of Mining / Revenue department prior to mining operations for all proposals under consideration. Such site plan, duly verified by competent authority shall be submitted to Environment Department.
- (xvi) All necessary statutory clearances shall be obtained before start of mining operations
- (xvii) Mining shall be limited to 7 AM to 5 PM only. The loading shall not be done during night hours.
- (xviii) Waste water, if any, shall be properly collected and treated so as to conform to the standards prescribed by MoEF/CPCB.

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- (xix) No wildlife habitat will be infringed.
- (xx) Environmental clearance is subject to obtaining clearance under the Wildlife (Protection) Act, 1972 from the competent authority, if applicable.
- (xxi) Parking of vehicles should not be made on public places.
- (xxii) Transpiration of materials shall be done by covering the trucks / tractors with tarpaulin or other suitable mechanism so that no spillage of mineral/dust takes place.
- (xxiii) Any change in mining area, SF numbers, entailing capacity addition with change in process and or mining technology, modernization and scope of working shall again require prior Environmental Clearance as per provisions of EIA Notification, 2006 (as amended from time to time)
- (xiv) 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.
- (xv) This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance.
- (xvi) The SEIAA, TN may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.
- (xvii) The SEIAA, TN may cancel the environmental clearance granted to this project under the provisions of EIA Notification, 2006, if, 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.
- (xviii) 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.
- (xix) The above conditions will be enforced Inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, draft Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.

MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY
ENVIRONMENTAL CLEARANCE

- (ix) Hill area conservation Authority approval where ever necessary shall be obtained before commencing the quarrying operation.
- (xii) Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

[Signature]
MEMBER SECRETARY
SEIAA-TN

Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
1. The Secretary, Department of Environment and Forests, Government of Tamilnadu, Tamilnadu.
2. The Secretary, Department of Mines and Geology, Government of Tamilnadu, Tamilnadu.
3. The Chief Conservator of Forests, Ministry of Environment & Forests, (S2) Kendriya Sadan, IV Floor, E&F Wings, 17th Main Road, Koramangala II Block, Bangalore-560034
4. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
5. The Chairman, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-32
6. The District Collector, *District Kanyakumari District*
7. The Controller of Geology and Mines, Guindy, Chennai-32.
8. EI Division, Ministry of Environment & Forests, Parvavaran Bhawan, New Delhi.
9. Spare.

SEIAA
TN

ANNEXURE - VII



CONSENT ORDER NO. 1808112826422

DATED: 05/04/2018.

PROCEEDINGS NO.F.1158HSR/RS/DEE/TNPCH/HSR/W/2018 DATED: 05/04/2018

SUB: Tamil Nadu Pollution Control Board - RENEWAL OF CONSENT - M/s. A.SATHAR GRANITE QUARRY, S.F.No. S.F.Nos.375/2D,3,2E(P) and 377/1A1(P), CHENDRAPPALLI village, Burgur Taluk and Krishnagiri District - Renewal of Consent for the operation of the plant and discharge of sewage and/or trade effluent under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 (Central Act 6 of 1974) - Issued - Reg.

REF: 1. Proc.No. F.1158HSR/RS/DEE/TNPCH/HSR/W&A/2016 dated 26/12/2016
2. Unit's Online Application No. 12826422 dated 05.04.2018
3. IR.No.: F.1158HSR/RS/AE/HSR/2018 dated 05/04/2018

RENEWAL OF CONSENT is hereby granted under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 (Central Act, 6 of 1974) (hereinafter referred to as "The Act") and the rules and orders made there under to

The Proprietor
M/s. A.SATHAR GRANITE QUARRY,
S.F.No. S.F.Nos.375/2D,3,2E(P) and 377/1A1(P),
CHENDRAPPALLI Village,
Burgur Taluk,
Krishnagiri District.

Authorising the occupier to make discharge of sewage and/or trade effluent.

This is subject to the provisions of the Act, the rules and the orders made there under and the terms and conditions incorporated under the Special and General conditions stipulated in the Consent Order issued earlier and subject to the special conditions annexed.

This RENEWAL OF CONSENT is valid for the period ending March 31, 2021

S. PALANISAMY Dist. DEE
Dist. Environmental Engineer,
Tamil Nadu Pollution Control Board,
HOSUR

1. This renewal of consent is valid for operating the facility for the manufacture of products/byproducts (Col. 2) at the rate (Col 3) mentioned below. Any change in the product/byproduct and its quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Sl. No.	Description	Quantity	Unit
Product Details			
1.	Grey Granite- Quarrying in an extent of 1.78.0 Hect at S.F.No.375/2D,3,2E(P) and 377/1A1 (P), Chendarapalli village, Burgur Taluk and Krishnagiri District for a period of 5 Years	2025	Cubic meter/Five Years

2. This renewal of consent is valid for operating the facility with the below mentioned outlets for the discharge of sewage/trade effluent. Any change in the outlets and the quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Outlet No.	Description of Outlet	Maximum daily discharge in KLa)	Point of disposal
Effluent Type : Sewage			
1.	Sewage	0.25	On Industrys own land
Effluent Type : Trade Effluent			



TAMIL NADU POLLUTION CONTROL BOARD

Additional Conditions:

1. The unit shall not generate trade effluent from its manufacturing process.
2. The unit shall treat and dispose the sewage through septic tank and Soak pit arrangement.
3. The reject of the mining activities shall be collected, stored within the unit's area.
4. The unit shall comply with the provisions as laid down in the Tamil Nadu Prevention of illegal mining, transportation and storage of mineral and mineral dealers Rules, 2011.
5. The operation of the unit shall not evoke complaint from neighbours.
6. The unit shall comply with the conditions stipulated in the Environmental Clearance accorded to the unit by the SEIAA, dated 06.07.2016.
7. The unit shall comply the conditions stipulated in the Quarry lease made with the District collector, Krishnagiri.
8. The consents issued are subject to the final outcome of NGT(SZ)-165/2013.
9. In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.

S. PALANISAMY
District Environmental Engineer,
Tamil Nadu Pollution Control Board,
HOSUR

To:

The Proprietor,

M/s A SATHAR GRANITE QUARRY,

S.F.Nos:375/2D,3,2E(P) and 377/1A1(P) Chendarupalli Village, Bargur Taluk, Krishnagiri District,

Pin: 635201

Copy to:

1. The Commissioner, BARGUR Panchayat Union, Bargur Taluk, Krishnagiri District.
2. Copy submitted to the Member Secretary, Tamil Nadu Pollution Control Board, Chennai for favour of kind information.
3. Copy submitted to the ICEE-Monitoring, Tamil Nadu Pollution Control Board, Vellore for favour of kind information.
4. File

1. This renewal of consent is valid for operating the facility for the manufacture of products (Col. 2) at the rate (Col. 3) mentioned below. Any change in the products and its quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Sl. No.	Description	Quantity	Unit
Product Details			
1.	Grey Granite- Quarrying in an extent of 1.78.0 Hect at S.F.No.375/2D,3,2E(P) and 377/1A1 (P), Chendarapalli village, Burgur Taluk and Krishnagiri District for a period of 5 Years	2025	Cubic meter/Five Years

2. This renewal of consent is valid for operating the facility with the below mentioned emission/noise sources along with the control measures and/or stack. Any change in the emission source/control measures/change in stack height has to be brought to the notice of the Board and fresh consent/Amendment has to be obtained.

I Point source emission with stack :				
Stack No.	Point Emission Source	Air pollution Control measures	Stack height from Ground Level in m	Gaseous Discharge in Nm ³ /hr
II Fugitive/Noise emission :				
Sl. No.	Fugitive or Noise Emission sources	Type of emission	Control measures	
1.	Vehicle movement	Fugitive	Water sprinkler system	
2.	Drilling	Fugitive	Water sprinkler system	



TAMIL NADU POLLUTION CONTROL BOARD

Additional Conditions:

1. The unit shall operate and maintain the Air Pollution Control measures efficiently so as to achieve the Ambient Air Quality emission / Ambient Noise level standards prescribed by the Board.
2. The reject of the mining activities shall be collected, stored within the unit's area.
3. The unit shall comply with the provisions as laid down in the Tamil Nadu Prevention of illegal mining, transportation and storage of mineral and mineral dealers Rules, 2011.
4. The operation of the unit shall not evoke complaint from neighbours.
5. The unit shall comply with the conditions stipulated in the Environmental Clearance accorded to the unit by the SEIAA, dated. 06.07.2018.
6. The unit shall comply the conditions stipulated in the Quarry lease made with the District collector, Krishnagiri.
7. The consents issued are subject to the final outcome of NGT(SZ)-165/2013.
8. In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.

S. PALANISAMY CHIEF ENGINEER S. PALANISAMY
Date: 20/08/2018 11:24 AM

**District Environmental Engineer,
Tamil Nadu Pollution Control Board,
HOSUR**

To

The Proprietor,

M/s A.SATHAR GRANITE QUARRY,

S.F.No.375/20, A 3EIP) and 377/1A1(P) Chendaripalli Village, Durgur Taluk, Krishnagiri District,

Pin: 635201

Copy to:

1. The Commissioner, BARCUB, Dandayut Union, Durgur Taluk, Krishnagiri District

2. Copy submitted to the Member Secretary, Tamil Nadu Pollution Control Board, Chennai for favour of kind information.

3. Copy submitted to the JCEE-Monitoring, Tamil Nadu Pollution Control Board, Vellore for favour of kind information.

4. File


S. DHANASEKAR, W. S. S. S. S.
RQP/MAS/225/2011/A

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY
ENVIRONMENTAL CLEARANCE

Dr. H.MALLESHAPPA, I.F.S.,
 MEMBER SECRETARY



3rd Floor, Panagal Maaligai,
 No.1, Jeevitha Road, Saidapet,
 Chennai-15.
 Telephone :044 – 2435 9974

Lr. No. SEIAA-TN/F.No. 1118 /EC/1(a)/ 686/2013 dated: 19.08.2013

To

Thiru A. Sattar,,
 No.151/3, Jaya Devi Village & PO,
 Krishnagiri - 635 201

Sir,

Sub: SEIAA-TN –Proposed Grey Granite Quarrying at S.F No.S.F No. 375/2A, 375/2C1, 375/2E (P), Chendrapalli Village, Krishnagiri Taluk, Krishnagiri District by Thiru A. Sattar, Environmental Clearance – Regarding.

Ref: 1. Your Application for Environmental Clearance dt: 16.04.2013
 2. Circulation Agenda approved by the SEAC.
 3. Minutes of the SEIAA meeting held on 19.08.2013.

1. Preamble:-

This has reference to your application first cited. The proposal is for obtaining environmental clearance for Grey Granite Quarrying at S.F No. S.F No. 375/2A, 375/2C1, 375/2E (P), Chendrapalli Village, Krishnagiri Taluk, Krishnagiri District. The mine lease area of 1.03.5 ha. The proposed mining area is reported as lying in Latitude-12°29'30.42" N Longitude-78°28'30.76" E in Topo Sheet No.57/L-7.

No forest land is involved. No sensitive water bodies, Bio-Spheres, National Parks and Sanctuaries are located within 15 km radius as reported. There is no village within 500 metre of the project site as reported. Mine working will be open cast semi-mechanised mining and is proposed upto a depth of 12 metres. The production would be 5010 cu.m of Granite & 9272 cu.m of Top Soil over a period of 5 Years. Water requirement of 0.4 KLD for drinking purposes will be sourced through Near by Pump and 6 KLD required for dust suppression and green belt will be sourced from Near by Surface water. The proponent has submitted the mining plan approved by the Commissioner, Geology & Mining, Chennai vide Rc. 11224/MM5/2011 dated 08.04.2011. The precise area communication has been approved by the Letter No.4121/MME.2/2012-2 dated 12.03.2013 of the Principal Secretary to Government, Industries (MMB-1) Department, Chennai. There is no State or National boundaries within 15 km radius as reported. The project cost is Rs. 256.32 lakhs. EMP cost is Rs. 3.00 lakhs.

MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY
ENVIRONMENTAL CLEARANCE

The proposal was considered and examined by the SEAC on the directions of the Hon'ble Supreme Court on bringing all mines within the fold of prior EC, irrespective of their Mining Lease (ML) size. Thus the present proposal, though of less than 5 ha lease area (and hence not covered under the EIA Notification 2006) was appraised based on the project documents furnished by the proponent to the Committee. The SEAC has recommended for the grant of environmental clearance for the said Grey Granite quarry project by its circulation agenda.

The proposal was placed before the SEIAA in its 84th meeting and the Authority considered the proposal and noted that the size of the mine, production rate, the mineral mined and the eco-sensitivity of the area are such that the operation of the mine will have negligible impact on the surroundings and as such the project deserved to be granted the blanket clearance subject to the mines less than 5 ha area brought under the EC regime on the directions from Hon'ble Supreme Court and hence decided to grant environmental clearance to the said project. Accordingly, the SEIAA hereby accords environmental clearance to the said project under the provisions of Environment Impact Assessment Notification, 2006 subject to strict compliance of the terms and conditions as follows:-

2. Conditions to be Complied before commencing mining operations:-

- i. The project authorities should advertise with basic details at least in two widely circulated local newspapers, one of which shall be in the vernacular language of the locality concerned, within 7 days of the receipt of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at the web site of the SEIAA, TN at <http://seiaa.tn.gov.in> and a copy of the same is being sent to the Regional Office of Ministry of Environment and Forest, Government of India located at Bangalore.
- ii. 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.
- iii. copy of the Environmental Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayath/Panchayath 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.
- iv. Provision shall be made for the housing of construction labour nearby the site with all necessary infrastructure and facilities such as fuel for cooking, toilets, safe drinking water, etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY
ENVIRONMENTAL CLEARANCE

- v. The proponent shall ensure that First Aid Box is available at site.

3 .Specific Conditions:

- i. The environmental clearance will be coterminous with the mine lease period, however limited to a maximum period of 5 (five) years from the date of issue.
- ii. It shall be ensured that quarrying is not carried out within 500m of structures, bridges, dams, weirs, ground water extraction points, water supply head works, extraction points for irrigation and any other cross drainage structures.
- iii. 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.
- iv. It shall be ensured that quarrying shall not be carried out below ground water table under any circumstances. If ground water table occurs/intervenes within the permitted depth, then also quarrying shall be stopped.
- v. At the end of mine closure, the Proponent shall immediately remove all the sheds put up in the quarry and all the equipment in the area at the time of closure of the operation of quarry.
- vi. The critical parameters such as RSPM (Particulate matter with size less than 10micron i.e., PM10) and NOX in the ambient air within the core zone shall be monitored periodically. The monitored data shall be uploaded on the website of the proponent as well as displayed on a display board at the project site. The Circular No. J-20012/1/2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nic.in shall also be referred to in this regard for its compliance.
- vii. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. A copy of action plan shall be submitted to the Regional Office of the Ministry of Environment and Forests, Bangalore.
- viii. 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.
- ix. Drilling and blasting shall be done only either by licensed explosive agent only the proponent after obtaining required approvals from Competent Authorities.
- x. The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.
- xi. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY
ENVIRONMENTAL CLEARANCE

- xii. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, GoI on 16.11.2009.
- xiii. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
- Roads shall be graded to mitigate the dust emission.
 - Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
- xiv. The following measures are to be implemented to reduce Noise Pollution
- Proper and regular maintenance of vehicles and other equipment
 - Limiting time exposure of workers to excessive noise.
 - The workers employed shall be provided with protection equipment and earmuffs etc.
 - 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.
- xv. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoE&F, GoI to control noise to the prescribed levels.
- xvi. 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.
- xvii. Permission from the competent authority should be obtained for drawal of ground water, if any, required for this project.
-
- xviii. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
- xix. The following measures are to be adopted to control erosion of dumps:-
- Retention/ toe walls shall be provided at the foot of the dumps.
 - Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
- xx. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.
- xxi. 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.

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY
ENVIRONMENTAL CLEARANCE

- xxi. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
- xxii. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydrogeological 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.
- xiv. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.

3. General Conditions:

- (i) The project proponent shall obtain Consent to Establish and Consent to Operate from the Tamil Nadu Pollution Control Board and effectively implement all the conditions stipulated therein.
- (ii) No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.
- (iii) No change in the calendar plan including excavation, quantum of mineral should be made.
- (iv) The project proponent shall ensure that the plan of mining is in conformity with the mine lease conditions and the Rules prescribed in this regard, clearly showing the no work zone in the mine lease i.e. the distance from the bridges structures adjacent private land, streams river lake etc.
- (v) The project proponent shall ensure that wherever deployment of labour attracts the Mines Act, the provision insurance thereof shall be strictly followed.
- (vi) The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area and the approach road.
- (vii) The proponent shall maintain the village road through which transportation of mineral is carried out at his own cost. The roads shall be blacktopped to the extent required.
- (viii) Quarrying should enrich rather than deplete the biodiversity as a corollary to their intervention in the ecology of their area of activity.
- (ix) EC is given only on the factual records, documents and details furnished by the Proponent particularly in respect of
- Areal distance of the nearest village is as mentioned in the proposal from the mining site boundary
 - No structure is located within 500 m from the quarry site boundary.


MEMBER SECRETARY

ENVIRONMENTAL CLEARANCE

- (x) 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.
- (xi) 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 Bangalore.
- (xii) The Regional Office of the Ministry located at Bangalore shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.
- (xiii) The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Office Bangalore, the respective Zonal Office of Central Pollution Control Board, SEIAA, TN and the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Bangalore, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board.
- (xiv) The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the Regional Office of the Ministry of Environment and Forests, Bangalore by e-mail.
- (xv) Precise mining area will be jointly demarcated at site by officials of Mining / Revenue department prior to mining operations for all proposals under consideration. Such site plan, duly verified by competent authority shall be submitted to Environment Department.
- (xvi) All necessary statutory clearances shall be obtained before start of mining operations
- (xvii) Mining shall be limited to 7 AM to 5 PM only. The loading shall not be done during night hours.
- (xviii) Waste water, if any, shall be properly collected and treated so as to conform to the standards prescribed by MoEF/CPCB.

MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY
ENVIRONMENTAL CLEARANCE

- (xix) No wildlife habitat will be infringed.
- (xx) Environmental clearance is subject to obtaining clearance under the Wildlife (Protection) Act, 1972 from the competent authority, if applicable.
- (xxi) Parking of vehicles should not be made on public places
- (xxii) Transpiration of materials shall be done by covering the trucks / tractors with tarpaulin or other suitable mechanism so that no spillage of mineral/dust takes place.
- (xxiii) Any change in mining area, SF numbers, entailing capacity addition with change in process and or mining technology, modernization and scope of working shall again require prior Environmental Clearance as per provisions of EIA Notification, 2006 (as amended from time to time)
- (xxiv) 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.
- (xxv) This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance.
- (xxvi) The SEIAA, TN may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.
- (xxvii) The SEIAA, TN may cancel the environmental clearance granted to this project under the provisions of EIA Notification, 2006, if, 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.
- (xxviii) 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.
- (xxix) The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, draft Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.

MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY
ENVIRONMENTAL CLEARANCE

- (xxx) Hill area conservation Authority approval where ever necessary shall be obtained before commencing the quarrying operation.
- (xxx) Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

[Signature]
MEMBER SECRETARY
SEIAA-TN

Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
1. The Secretary, Department of Environment and Forests, Government of Tamilnadu, Tamilnadu.
2. The Secretary, Department of Mines and Geology, Government of Tamilnadu, Tamilnadu.
3. The Chief Conservator of Forests, Ministry of Environment & Forests, (52) Kendriya Sadan, IV Floor, E&F Wings, 17th Main Road, Koramangala II Block, Banagalore-560034
4. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
5. The Chairman, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-32
6. The District Collector, *District Krishnagiri District*
7. The Controller of Geology and Mines, Guindy, Chennai-32
8. E1 Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
9. Spare.

SEIAA

TN

[Signature]
S.DHANASEKAR, MEMBER
RQP/MAS/225/2011/A



Dr. S. KALYANASUNDARAM ,I.F.S.(Retd.)
CHAIRMAN

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY – TAMIL NADU
3rd Floor, Panagal Maaligai,
No.1 Jeenis Road, Saidapet,
Chennai-15.
Phone No.044-24359974
Fax No. 044-24359975

ENVIRONMENTAL CLEARANCE

Lr. No.SEIAA-TN/F.No.4947/EC/1(a)/2808/2015 dated: 08.02.2016

To
Thiru. A. Ameer
Jagadevipalayam Village & Post
Krishnagiri Taluk
Krishnagiri District-635203

Sir,

Sub: SEIAA-TN – Proposed Grey Granite quarry located at S.F.No 377/1A2, 1A1B, 1B, 2A, 2B, 378/1 & 378/2, Chendarapalli Village, Krishnagiri Taluk, Krishnagiri District- issue of Environmental Clearance – Reg.

Ref: 1. Your Application for Environmental Clearance dt: 25.01.2016
2. Minutes of the 72nd SEAC held on 04.02.2016, 05.02.2016 & 06.02.2016
3. Minutes of the SEIAA meeting held on 08.02.2016

Details of Minor Mineral Activity:-

This has reference to your application first cited. The proposal is for obtaining environmental clearance for mining/quarrying of minor minerals based on the particulars furnished in your application as shown below.

1	Name of Project Proponent and address	Thiru. A. Ameer Jagadevipalayam Village & Post Krishnagiri Taluk Krishnagiri District-635203
2	Location of the Proposed Activity	
	Survey Number	377/1A2, 1A1B, 1B, 2A, 2B, 378/1 & 378/2
	Latitude and Longitude	12°29'27"N to 12°29'35"N 78°18'26"E to 78°18'35"E
	Village	Chendarapalli
	Taluk	Krishnagiri

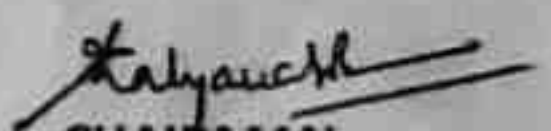
Kalyanath
CHAIRMAN
SEIAA-TN

	District	Krishnagiri
3	Proposed Activity	
	i. Minor mineral	Grey Granite
	ii. Mining Lease Area	2.85.5 Ha
	iii. Approved quantity	5038 cu.m of Grey Granite
	iv. Depth of Mining	8m(5m Grey Granite,2m Weathered Rock & 1m Gravelly soil)
	v. Type of mining	Opencast Semi Mechanised Mining
	vi. Category(B1/B2)	B2
	vii. Precise area communication	Letter No.16120/MME.2/2015-1,dated:23.12.2015 by Additional Chief Secretary to Government
	viii. Mining plan approval	Commissioner of Geology & Mining (i/c), Chennai Lr.No.8543/MM5/2015 Dated:22.01.2016
	ix. Mining lease period	5 Years
4	Whether Project area attracts any General conditions specified in the EIA notification, 2006 as amended:-	Not attracted. Affidavit furnished
5	Man Power requirement per day:	45 Employees
6	Utilities	
	i. Source of Water :	Water vendors/Existing Borehole
	ii. Quantity of Water Requirement in KLD:	
	a. Domestic	0.3KLD
	b. Industrial	}0.7KLD
	c. Green Belt & Dust Suppression	
	iii. Power Requirement:	
	a. Domestic Purpose	TNEB
	b. Industrial Purpose	32240 Liters of HSD
7	Cost	
	i. Project Cost	Rs.47.42 Lakhs
	ii. EMP Cost	Rs.2.75 Lakhs
8	Public Consultation:-	Not required as per O.M. dated 24.12.2013 of MoEF, Gol.
9	Date of Appraisal by SEAC:- Agenda No:	04.02.2016,05.02.2016 & 06.02.2016 72-32
10	Date of Review/Discussion by SEIAA and the Remarks:- The proposal was placed before the SEIAA in its 162 nd Meeting held on 08.02.2016 and the Authority after careful consideration, decided to grant environmental clearance to the said project Mining of Grey Granite to terms and conditions stipulated under the provisions of Environment Impact Assessment Notification, 2006 as amended.	
11	Validity: The Environmental Clearance will be coterminous with the mine lease period or limited to a maximum period of 5 Years from the date of issue whichever is earlier.	

Kalyanath
CHAIRMAN
SEIAA-TN

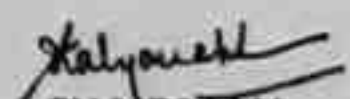
Conditions to be Complied before commencing mining operations:-

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
 - I. The project has been accorded Environmental Clearance.
 - II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
 - III. Environmental Clearance may also be seen on the website of the SEIAA.
 - IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.
2. The applicant has to obtain land use classification as industrial use before issue/renewal of mining lease.
3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
5. A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.
6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
7. The proponent shall ensure that First Aid Box is available at site.
8. The excavation activity shall not alter the natural drainage pattern of the area.
9. The excavated pit shall be restored by the project proponent for useful purposes.
10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 15 mts. From any civil structure shall be kept from the periphery of any excavation area.


CHAIRMAN
SEIAA-TN



14. Depth of quarrying shall be 2m above the ground water table /approved depth of mining whichever is lesser to be considered as a safe guard against Environmental Contamination and over exploitation of resources.
15. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
16. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
17. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
18. The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.
19. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
20. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
21. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, GoI on 16.11.2009.
22. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
 - i. Roads shall be graded to mitigate the dust emission.
 - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
23. The following measures are to be implemented to reduce Noise Pollution
 - i. Proper and regular maintenance of vehicles and other equipment
 - ii. Limiting time exposure of workers to excessive noise.
 - iii. The workers employed shall be provided with protection equipment and earmuffs etc.
 - iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.


CHAIRMAN
SEIAA-TN



From
Thiru L. Suresh, M.Sc.,
Deputy Director,
Geology and Mining,
Collectorate, Krishnagiri.

To
The Chairman,
Tamil Nadu State Environment Impact
Assessment Authority,
3rd Floor, Panakal Maligai,
No. 1 Jeenes Road, Saidapet,
Chennai -15.
dated: 12.09.2019.

Roc.No.06/2018/Mines

Sir,

Sub: Mines and Minerals - Minor Mineral - Grey Granite - Krishnagiri District - Bargur Taluk - Kondappanayanapalli village S.F.No.131/11 over an extent of 3.70.0 Hect - Quarry lease application for Grey Granite preferred by M/s. Tmt. Mariambanu, W/o.Mir Nazim Ali, Jagadevipalayam, Bargur Taluk, Krishnagiri District - Precise area communicated- Details of quarries situated within 500 mts radial distance - Requested by the applicant to obtained Environmental Clearance - Details furnished - reg.

- Ref:
1. The Gazette of India, Ministry of Environment Forest and Climate change Notification, New Delhi dt: 01.07.2016
 2. The District Collector, Krishnagiri letter Roc.No.06/2018/M dated: 20.04.2018.
 3. The Director of Geology and Mining, Chennai, Lr.No.3766/MM5 2018 dated:23.06.2018.
 4. Government Letter No.8521/MME-2/2018-1 dated:09.08.2018.
 5. Quarry lease application for Grey Granite preferred by M/s. Tmt.Mariambanu W/o.Mir Nazim Ali, Jagadevipalayam, Bargur Taluk, Krishnagiri District-635 203 Letter dated:12.09.2018

-oOo-

I invite kind kind attention to the reference cited.

M/s.Tmt.Mariambanu W/o.Mir Nazim Ali, Jagadevipalayam, Bargur Taluk, Krishnagiri District have preferred a quarry lease application for the Grey Granite over an extent of 3.70.0 hect. in patta land S.F.Nos. 131/11 in Kondappanayanapalli village Bargur Taluk, Krishnagiri District for a period of 20 years vide reference cited under the provisions of Rule 19 of Tamil Nadu Minor Mineral Concession Rule 1959.

In the reference 2nd cited, the applicant had been communicated precise area over an extent of 3.70.0 hect. in the Government lands in S.F.Nos.131/11 in Kondappanayanapalli village Bargur Taluk Krishnagiri District and requested to furnish the approved Mining Plan and Environmental Clearance from the Competent Authority for the above said area.

The Mining Plan submitted by the applicant vide reference 3rd cited has been approved by the Deputy Director of Geology and Mining, Krishnagiri vide reference 4th cited.

In the reference 5th cited the applicant has requested to furnish the details of quarries situated within 500 mts radial distance from the said quarry in order to obtain Environmental Clearance.

In the reference 1st cited, The Ministry of Environment Forest and Climate change Notification, New Delhi dt:01.07.2016. The following instruction was given.

The leases not operative for three years or more and leases which have got environmental clearance as on 15th January, 2016 shall not be counted for calculating the area of cluster, but shall be included in the Environmental Management plan and the Regional Environmental Management plan.

In his regard the details of quarries situated within 500mts. Radial distance from the said quarry are furnished as follow.

Details of Existing quarries

Sl. No.	Name of the lessee	Village	S.F.No.	Extent in Hect	G.O No. & Dated	Lease period	Status of the quarry
1	D.Loganathan	Kondappan ayanapalli	133/6& 133/2B1B	1.48.0	---	07.10.2009 to 06.10.2029	Non-Operative With out EC
2	Tvt.S.M.Exports	Kondappan ayanapalli	133/1& 133/5(P)	1.95.0	-	10.11.2008 to 09.11.2028	Non-Operative With out EC
3	Thiru.O.Ulaganathan	Kondappan ayanapalli	134/1 & 134/2	1.72.0	-	01.07.2013 to 30.06.2023	Non-Operative With out EC
4	Tmt.M.Sowdeswari	Kondappan ayanapalli	133/3&2	1.41.5	-	27.03.2006 to 26.03.2026	Non-Operative With out EC
5	Thiru.S.Balaji	Kondappan ayanapalli	133/3D1A & 133/4A	1.42.0	-	22.12.2006 to 21.12.2026	Non-Operative With out EC
			Total	7.99.5			

Details of Abandoned/Old quarries

Sl. No.	Name of the lessee	Village	S.F.No.	Extent in Hect	G.O No. & Dated	Lease period	Status of the quarry
— Nil —							

Details of Proposed quarries

Sl. No.	Name of the lessee	Village	S.F.No.	Extent in Hect	G.O No. & Dated	Lease period	Status of the quarry
1	Tmt.Mariambanu	Kondappanayan apalli	131/11	3.70.0	---	---	Precise area communication letter issued
2	Tmt.Sadhana	Kondappanayan apalli	133/2A(P)& 133/2B1A(P)	1.46.0	---	---	Precise area communication letter issued
3	Tmt.Sadhana	Kondappanayan apalli	133/2A(P), 133/5(P), 133/7(P), 133/8(P), 133/10(P)& 133/11(P)	2.35.0	---	---	Precise area communication letter issued
			Total	7.51.0			

Deputy Director,
Dept of Geology and Mining,
Krishnagiri.

Copy to:-

M/s.Tmt.Mariambanu,
W/o.Mir Nazim Ali,
Jagadevipalayam,
Bargur Taluk,
Krishnagiri District-635 203.



KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0322/TR/N-51		Report Date : 09.03.2022	
Client Name & Address:		Thiru. Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District – 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk , Krishnagiri District, Tamil Nadu , Extent of 2.48.0Ha	
Discipline	Chemical	Sample Reference ID	KGS/0322/N-51
Group	Atmospheric Pollution	Noise Level Monitored By	Chemist
Sample Matrix	Noise	Noise Level Monitored On	03.03.2022
Sample Description	Ambient Noise	Noise Level Received On	04.03.2022
General Sampling Procedure	IS 9989 Methods	Noise Level Calculated On	09.03.2022

Location		N1 – Core Zone – 12°29'22.49"N 78°18'20.10"E			N2 – Near Existing Quarry - 12°29'32.82"N 78°18'25.69"E			N3 – Jagadevipalayam - 12°29'9.31"N 78°19'5.60"E		
S.No	Time (Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)
1.	06:00-07:00	36.4	40.2	38.7	40.5	42.3	41.5	40.2	42.3	41.4
2.	07:00-08:00	38.7	41.6	40.4	41.2	43.7	42.6	41.2	43.1	42.3
3.	08:00-09:00	39.2	42.5	41.2	40.2	42.1	41.3	42.3	44.2	43.4
4.	09:00-10:00	40.9	43.9	42.7	41.3	43.6	42.6	40.2	42.1	41.3
5.	10:00-11:00	41.1	44.6	43.2	42.5	44.2	43.4	39.2	40.2	39.7
6.	11:00-12:00	42.1	46.9	45.1	41.1	43.2	42.3	38.6	40.3	39.5
7.	12:00-13:00	40.3	44.3	42.7	40.2	42.1	41.3	39.2	41.2	40.3
8.	13:00-14:00	41.2	45.7	44.0	41.2	43.5	42.5	36.4	38.2	37.4
9.	14:00-15:00	42.3	46.2	44.7	40.3	42.1	41.3	35.2	36.5	35.9
10.	15:00-16:00	41.8	45.3	43.9	42.5	45.6	44.3	38.2	40.2	39.3
11.	16:00-17:00	40.2	44.6	42.9	40.8	42.3	41.6	39.3	41.2	40.4
12.	17:00-18:00	42.1	44.3	43.3	40.8	42.1	41.5	37.5	39.2	38.4
13.	18:00-19:00	40.2	42.1	41.3	41.3	45.7	44.0	36.5	38.2	37.4
14.	19:00-20:00	41.1	42.6	41.9	42.1	44.6	43.5	35.5	37.2	36.4
15.	20:00-21:00	40.3	42.1	41.3	40.2	42.3	41.4	34.2	36.5	35.5

.....Continue Report.....



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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No:KGS/0322/TR/N-51		Report Date :09.03.2022	
Client Name & Address:		Thiru.Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District – 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk , Krishnagiri District, Tamil Nadu , Extent of 2.48.0Ha	
Discipline	Chemical	Sample Reference ID	KGS/0322/N-51
Group	Atmospheric Pollution	Noise Level Monitored By	Chemist
Sample Matrix	Noise	Noise Level Monitored On	03.03.2022
Sample Description	Ambient Noise	Noise Level Received On	04.03.2022
General Sampling Procedure	IS 9989 Methods	Noise Level Calculated On	09.03.2022

Location		N1 – Core Zone - 12°29'22.49"N 78°18'20.10"E			N2 – Near Existing Quarry - 12°29'32.82"N 78°18'25.69"E			N3 – Jagadevipalayam - 12°29'9.31"N 78°19'5.60"E			
S.No	Time (Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)	
16.	21:00-22:00	38.2	40.2	39.3	37.5	39.2	38.4	36.5	38.2	37.4	
17.	22:00-23:00	36.5	39.2	38.1	36.2	38.5	37.5	38.2	40.2	39.3	
18.	23:00-00:00	35.9	37.5	36.8	35.1	37.4	36.4	33.2	35.2	34.3	
19.	00:00-01:00	34.7	36.5	35.7	33.1	35.6	34.5	36.6	38.9	37.9	
20.	01:00-02:00	33.6	33.8	33.6	32.1	34.2	33.3	31.2	33.2	32.3	
21.	02:00-03:00	32.5	36.4	34.9	30.2	32.5	31.5	30.2	32.4	31.4	
22.	03:00-04:00	32.9	38.2	36.3	31.1	33.6	32.5	33.2	35.2	34.3	
23.	04:00-05:00	31.4	36.9	35.0	30.2	32.4	31.4	31.2	36.2	34.4	
24.	05:00-06:00	30.8	35.4	33.7	31.2	33.2	32.3	30.2	35.2	33.4	
Day Mean dB(A)				42.0	Day Mean dB(A)			41.8	Day Mean dB(A)		39.1
Night Mean dB(A)				35.1	Night Mean dB(A)			33.1	Night Mean dB(A)		34.0

.....End of Report.....



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No.16, Fl, Bharathi Flats, Bharathiyar Street, Cholambedu Main Road, Thirumullaivoyal, Chennai - 600 062.

Ph: 044-2637 1925 | Email: kgs@kgs.com / www.kgs.com



KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0322/TR/N-52		Report Date : 09.03.2022	
Client Name & Address:		Thiru.Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District – 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk , Krishnagiri District, Tamil Nadu , Extent of 2.48.0Ha	
Discipline	Chemical	Sample Reference ID	KGS/0322/N-52
Group	Atmospheric Pollution	Noise Level Monitored By	Chemist
Sample Matrix	Noise	Noise Level Monitored On	03.03.2022
Sample Description	Ambient Noise	Noise Level Received On	04.03.2022
General Sampling Procedure	IS 9989 Methods	Noise Level Calculated On	09.03.2022

Location		N4 – Marutepalli - 12°31'13.55"N 78°16'59.82"E			N5 – Nakkalpatti- 12°27'27.53"N 78°17'49.35"E			N6 – Achamangalam - 12°31'24.69"N 78°19'4.38"E		
S.No	Time (Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)
1.	06:00-07:00	38.9	42.3	40.9	40.2	42.1	41.3	40.2	42.3	41.4
2.	07:00-08:00	39.4	43.2	41.7	43.2	45.3	44.4	41.3	43.5	42.5
3.	08:00-09:00	40.3	43.6	42.3	41	43.1	42.2	40.2	42.6	41.6
4.	09:00-10:00	42.3	44.3	43.4	42.3	44.5	43.5	38.6	40.2	39.5
5.	10:00-11:00	41.5	42.5	42.0	41.2	46.3	44.5	39.5	42.3	41.1
6.	11:00-12:00	42.3	42.1	42.2	40.2	44.2	42.6	34.5	41.2	39.0
7.	12:00-13:00	43.1	44.2	43.7	41.8	44.5	43.4	36.2	38.9	37.8
8.	13:00-14:00	44.8	42.3	43.7	42.6	46.2	44.8	35.5	36.5	36.0
9.	14:00-15:00	43.5	43.8	43.7	41.3	43.5	42.5	38.9	40.2	39.6
10.	15:00-16:00	42.7	44.6	43.8	40.2	42.3	41.4	37.2	39.2	38.3
11.	16:00-17:00	41.6	43.7	42.8	36.2	38.2	37.3	35.6	38.6	37.4
12.	17:00-18:00	40.9	43.1	42.1	34.5	36.3	35.6	34.2	36.5	35.5
13.	18:00-19:00	39.7	42.8	41.5	33.6	35.1	34.4	36.5	38.4	37.6
14.	19:00-20:00	35.6	37.2	36.5	32.1	34.6	33.5	32.1	34.5	33.5
15.	20:00-21:00	34.2	36.3	35.4	33.1	35.2	34.3	33.1	36.5	35.1

.....Continue Report.....




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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0322/TR/N-52		Report Date :09.03.2022	
Client Name & Address:		Thiru.Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District – 635203. Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk , Krishnagiri District, Tamil Nadu , Extent of 2.48.0Ha	
Discipline	Chemical	Sample Reference ID	KGS/0322/N-52
Group	Atmospheric Pollution	Noise Level Monitored By	Chemist
Sample Matrix	Noise	Noise Level Monitored On	03.03.2022
Sample Description	Ambient Noise	Noise Level Received On	04.03.2022
General Sampling Procedure	IS 9989 Methods	Noise Level Calculated On	09.03.2022

Location:		N4 – Marudipalli - 12°31'13.55"N 78°16'59.82"E			N5 – Nakkalputti- 12°27'27.53"N 78°17'49.35"E			N6 – Achamangalam - 12°31'24.69"N 78°19'8.38"E				
S.No	Time (Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)		
16.	21:00-22:00	33.2	35.2	34.3	36.2	38.2	37.3	30.2	33.5	32.2		
17.	22:00-23:00	31	32.5	31.8	35.2	37.2	36.3	32.5	34.5	33.6		
18.	23:00-00:00	32.3	34.6	33.6	34.6	36.2	35.5	33.6	36.2	35.1		
19.	00:00-01:00	33.6	34.2	33.9	32.1	33.1	32.6	34.5	36.5	35.6		
20.	01:00-02:00	34.5	36.5	35.6	33.6	35.2	34.5	35.6	37.2	36.5		
21.	02:00-03:00	36.5	38.2	37.4	34.2	36.2	35.3	35.2	37.4	36.4		
22.	03:00-04:00	32.1	34.5	33.5	33.2	35.2	34.3	36.6	38.9	37.9		
23.	04:00-05:00	33.4	35.6	34.6	34.2	36.1	35.3	37.2	39.2	38.3		
24.	05:00-06:00	31.2	33.2	32.3	33.5	35.2	34.4	32.1	34.5	33.5		
Day Mean dB(A)				40.7	Day Mean dB(A)			40.0	Day Mean dB(A)			37.7
Night Mean dB(A)				34.4	Night Mean dB(A)			34.6	Night Mean dB(A)			36.2

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No: KGS/0322/TR/N-53		Report Date : 09.03.2022	
Client Name & Address:		Thiru.Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendurapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu, Extent of 2.48.0Ha	
Discipline	Chemical	Sample Reference ID	KGS/0322/N-53
Group	Atmospheric Pollution	Noise Level Monitored By	Chemist
Sample Matrix	Noise	Noise Level Monitored On	03.03.2022
Sample Description	Ambient Noise	Noise Level Received On	04.03.2022
General Sampling Procedure	IS: 9989 Methods	Noise Level Calculated On	09.03.2022

Location		N7 - Bagimanoor - 12°29'0.10"N 78°21'28.01"E			N8 - Chinnapanamudlu - 12°29'43.28"N 78°16'45.82"E		
S.No.	Time (Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)
1.	06:00-07:00	38.6	40.2	39.5	36.2	38.2	37.3
2.	07:00-08:00	36.5	41.2	39.5	35.4	37.2	36.4
3.	08:00-09:00	35.4	36.2	35.8	38.2	40.2	39.3
4.	09:00-10:00	34.2	36.5	35.5	39.2	41.2	40.3
5.	10:00-11:00	33.6	35.2	34.5	35.6	37.6	36.7
6.	11:00-12:00	32.5	34.5	33.6	34.2	36.6	35.6
7.	12:00-13:00	31	33.6	32.5	36.5	38.2	37.4
8.	13:00-14:00	34.5	36.5	35.6	34.2	36.5	35.5
9.	14:00-15:00	36.8	38.9	38.0	35.5	37.2	36.4
10.	15:00-16:00	38.2	40.5	39.5	36.2	38.2	37.3
11.	16:00-17:00	35.2	38.6	37.2	36	39.2	37.9
12.	17:00-18:00	34.1	36.2	35.3	34.2	36.2	35.3
13.	18:00-19:00	36.2	38.2	37.3	36.2	38.2	37.3
14.	19:00-20:00	32.1	35.6	34.2	38.2	40.2	39.3
15.	20:00-21:00	31.2	33.2	32.3	36.2	38.6	37.6

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TEST REPORT

Test Report No: KGS/0322/TR/N-53		Report Date : 09.03.2022	
Client Name & Address:		Thiru.Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District – 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu, Extent of 2.48.0Ha	
Discipline	Chemical	Sample Reference ID	KGS/0322/N-53
Group	Atmospheric Pollution	Noise Level Monitored By	Chemist
Sample Matrix	Noise	Noise Level Monitored On	03.03.2022
Sample Description	Ambient Noise	Noise Level Received On	04.03.2022
General Sampling Procedure	IS 9989 Methods	Noise Level Calculated On	09.03.2022

Location		N7 – Bagimanoor – 12°29'0.10"N 78°21'28.01"E			N8 – Chinnapanamudlu - 12°29'43.28"N 78°16'45.82"E		
S.No	Time (Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)
16.	21:00-22:00	36.5	38.6	37.7	34.5	36.3	35.5
17.	22:00-23:00	35.5	38.2	37.1	35.2	37.2	36.3
18.	23:00-00:00	34.2	36.4	35.4	36.1	38.1	37.2
19.	00:00-01:00	33.2	35.2	34.3	34.1	36.5	35.5
20.	01:00-02:00	32.1	34.1	33.2	35.6	37.4	36.6
21.	02:00-03:00	34.2	36.2	35.3	34.2	36.9	35.8
22.	03:00-04:00	33.2	36.2	35.0	31.2	33.5	32.5
23.	04:00-05:00	32.1	34.5	33.5	32.1	34.6	33.5
24.	05:00-06:00	31.2	33.6	32.6	31.2	33.5	32.5
Day Mean dB(A)				36.2	Day Mean dB(A)		37.1
Night Mean dB(A)				34.2	Night Mean dB(A)		34.8

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TEST REPORT

Test Report No.: KGS/0322/TR/S- 54			
Client Name & Address:		Thiru.Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District – 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu. Extent of 2.48.0Ha	
Sample Code :		SI	
Sample Description	SOIL	Sample Reference	KGS/0322/S-54
Sample Mark	Coc Zone	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S. No	Parameters	Units	Test Methods	Result
01.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	8.03
02.	Conductivity @ 25°C	µmhos/cm	IS 14767 - 2000 (Reaff: 2016)	502
03.	Water Holding Capacity	%	By Gravimetric Method	46.3
04.	Bulk Density	g/cm ³	By Cylindrical Method	1.16
05.	Porosity	%	By Gravimetric Method	42.76
06.	Calcium as Ca	mg/kg	Food and Agriculture organization of the united Nation Rome 2007 : 2018	153
07.	Magnesium as Mg	mg/kg		63.4
08.	Chloride as Cl	mg/kg	APHA 23 rd Edn 2019 4500 Cl B	129
09.	Soluble Sulphate as SO ₄	%	IS 2720 Part 27 : 1977 (Reaff:2015)	0.020
10.	Total Phosphorus as P	mg/kg	IS 10158 : 1982 (Reaff: 2019)	1.32
11.	Total Nitrogen as N	mg/kg	IS 14684 : 1999 (Reaff:2019)	349
12.	Organic Matter	%	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.79
13.	Organic Carbon	%	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.04

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TEST REPORT

Test Report No.: KGS/0322/TR/S- 54			
Client Name & Address		Thiru.Mir Tahar AG, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk - Krishnagiri District - 635205 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu. Extent of 2.48.0Ha	
Sample Code :		S1	
Sample Description	SOIL	Sample Reference	KGS/0322/S-54
Sample Mark	Core Zone	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S. No	Parameters	Units	Test Methods	Result
14.	Texture Clay	%	Gravimetric Method.	32.9
	Sand			35.3
	Silt			31.8
15.	Manganese as Mn	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	23.4
16.	Zinc as Zn	mg/kg		1.08
17.	Boron as B	mg/kg		0.98
18.	Potassium as K	mg/kg		21.5
19.	Cadmium as Cd	mg/kg		HDL (DL : 1.0)
20.	Total Chromium as Cr	mg/kg		HDL (DL : 1.0)
21.	Copper as Cu	mg/kg		HDL (DL : 1.0)
22.	Lead as Pb	mg/kg		0.92
23.	Iron as Fe	mg/kg		2.19
24.	Cation Exchange Capacity	meq/100g of soil		USEPA 6080 - 1986

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TEST REPORT

Test Report No.: KGS/0322/TR/S-55			
Client Name & Address		Thiru.Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu. Extent of 2.48.0Ha	
Sample Code :		S2	
Sample Description	SOIL	Sample Reference	KGS/0322/S-55
Sample Mark	Near Existing Quarry	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S. No	Parameters	Units	Test Methods	Result
01.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	7.87
02.	Conductivity @ 25°C	µmhos/cm	IS 14767 -2000 (Reaff: 2016)	496
03.	Water Holding Capacity	%	By Gravimetric Method	45.1
04.	Bulk Density	g/cm ³	By Cylindrical Method	1.08
05.	Porosity	%	By Gravimetric Method	44.7
06.	Calcium as Ca	mg/kg	Food and Agriculture organization of the united Nation Rome 2007 : 2018	148
07.	Magnesium as Mg	mg/kg		51.9
08.	Chloride as Cl	mg/kg	APHA 23 rd Edn 2019 4500 Cl B	129.5
09.	Soluble Sulphate as SO ₄	%	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0019
10.	Total Phosphorus as P	mg/kg	IS 10158 : 1982 (Reaff: 2019)	1.56
11.	Total Nitrogen as N	mg/kg	IS 14684 : 1999 (Reaff:2019)	297
12.	Organic Matter	%	IS - 2720 Part 22: 1972 (Reaff: 2015)	1.87
13.	Organic Carbon	%	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.09

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TEST REPORT

Test Report No: KGS/0322/TRS- 55.

Client Name & Address		Thiru.Mr. Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarupalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu. Extent of 2.48.0Ha	
Sample Code :		S2	
Sample Description	SOIL	Sample Reference	KGS/0322/S-55
Sample Mark	Near Existing Quarry	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S. No	Parameters	Units	Test Methods	Result
14.	Testate -Clay	%	Gravimetric Method	14.9
	Sand			37.9
	Silt			27.2
15.	Manganese as Mn	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	16.7
16.	Zinc as Zn	mg/kg		2.14
17.	Boron as B	mg/kg		1.21
18.	Potassium as K	mg/kg		27.3
19.	Cadmium as Cd	mg/kg		BDL (DL: 1.0)
20.	Total Chromium as Cr	mg/kg		BDL (DL: 1.0)
21.	Copper as Cu	mg/kg		BDL (DL: 1.0)
22.	Lead as Pb	mg/kg		0.84
23.	Iron as Fe	mg/kg		2.97
24.	Cation Exchange Capacity	meq/100g of soil		USEPA 9080 - 1985

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TEST REPORT

Test Report No.: KGS/0322/TR/S-56			
Client Name & Address		Thiru. Mir Tabar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu, Extent of 2.48.0Ha	
Sample Code :		S3	
Sample Description	SOIL	Sample Reference	KGS/0322/S-56
Sample Mark	Jugadevipalayam	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S. No	Parameters	Units	Test Methods	Result
01.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	8.16
02.	Conductivity @ 25°C	µmhos/cm	IS 14767 - 2000 (Reaff: 2016)	486
03.	Water Holding Capacity	%	By Gravimetric Method	42.7
04.	Bulk Density	g/cm ³	By Cylindrical Method	1.16
05.	Porosity	%	By Gravimetric Method	46.3
06.	Calcium as Ca	mg/kg	Food and Agriculture organization of the united Nation Rome 2007; 2018	97.6
07.	Magnesium as Mg	mg/kg		36.2
08.	Chloride as Cl	mg/kg	APHA 23 rd Edn 2019 4500 Cl B	102.4
09.	Soluble Sulphate as SO ₄	%	IS 2720 Part 27 : 1977 (Reaff:2015)	0.017
10.	Total Phosphorus as P	mg/kg	IS 10158 : 1982 (Reaff: 2019)	2.31
11.	Total Nitrogen as N	mg/kg	IS 14684 : 1999 (Reaff:2019)	356
12.	Organic Matter	%	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.27
13.	Organic Carbon	%	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.32

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TEST REPORT

Test Report No.: KGS/0322/TRS-56			
Client Name & Address		Thiru. Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District- 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarupalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu. Extent of 2.48.0Ha	
Sample Code :		S3	
Sample Description	SOIL	Sample Reference	KGS/0322/S-56
Sample Mark	Jagadevipalayam	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S. No	Parameters	Units	Test Methods	Result
14.	Texture - Clay	%	Gravimetric Method	13.2
	Sand			30.7
	Silt			30.7
15.	Manganese as Mn	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	27.3
16.	Zinc as Zn	mg/kg		2.18
17.	Boron as B	mg/kg		1.83
18.	Potassium as K	mg/kg		27.2
19.	Cadmium as Cd	mg/kg		BDL (DL - 1.0)
20.	Total Chromium as Cr	mg/kg		BDL (DL - 1.0)
21.	Copper as Cu	mg/kg		BDL (DL - 1.0)
22.	Lead as Pb	mg/kg		1.09
23.	Iron as Fe	mg/kg		2.73
24.	Cation Exchange Capacity	meq/100g of soil		USEPA 9080 - 1986

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TEST REPORT

Test Report No.: KGS/0322/TR/S- 57			
Client Name & Address		Thiru.Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu. Extent of 2.48.0Ha	
Sample Code :		S4	
Sample Description	SOIL	Sample Reference	KGS/0322/S-57
Sample Mark	Marutepalli	Sample Drawn by:	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S. No	Parameters	Units	Test Methods	Result
01.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	7.89
02.	Conductivity @ 25°C	µmhos/cm	IS 14767 - 2000 (Reaff: 2016)	368
03.	Water Holding Capacity	%	By Gravimetric Method	43.2
04.	Bulk Density	g/cm ³	By Cylindrical Method	0.94
05.	Porosity	%	By Gravimetric Method	40.9
06.	Calcium as Ca	mg/kg	Food and Agriculture organization of the united Nation Rome 2007 : 2018	164
07.	Magnesium as Mg	mg/kg		65.4
08.	Chloride as Cl	mg/kg	APHA 23 rd Edn 2019-4500 Cl B	118.5
09.	Soluble Sulphate as SO ₄	%	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0016
10.	Total Phosphorus as P	mg/kg	IS 10158 : 1982 (Reaff: 2019)	1.81
11.	Total Nitrogen as N	mg/kg	IS 14684 : 1999 (Reaff:2019)	206
12.	Organic Matter	%	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.58
13.	Organic Carbon	%	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.49

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TEST REPORT

Test Report No.: KGS/0322/TRS-57

Client Name & Address		Thiru. Mir. Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu. Extent of 2.48.0Ha	
Sample Code :		S4	
Sample Description	SOIL	Sample Reference	KGS/0322/S-57
Sample Mark	Marutepalli	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S. No	Parameters	Units	Test Methods	Result
14.	Texture -Clay	%	Gravimetric Method	34.1
	Sand			36.4
	Silt			29.5
15.	Magnesium as Mn	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	22.6
16.	Zinc as Zn	mg/kg		1.13
17.	Boron as B	mg/kg		1.63
18.	Potassium as K	mg/kg		38.5
19.	Cadmium as Cd	mg/kg		BDL (DL - 1.0)
20.	Total Chromium as Cr	mg/kg		BDL (DL - 1.0)
21.	Copper as Cu	mg/kg		BDL (DL - 1.0)
22.	Lead as Pb	mg/kg		1.37
23.	Iron as Fe	mg/kg		2.42
24.	Cation Exchange Capacity:	meq/100g of soil		USEPA 9080 - 1986

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No.: KGS/0322/TR/S- 58

Client Name & Address		Thiru, Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk : Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu. Extent of 2.48.0Ha	
Sample Code :		SS	
Sample Description	SOIL	Sample Reference	KGS/0322/S-58
Sample Mark	Nakkalputti	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S. No.	Parameters	Units	Test Methods	Result
01.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	7.78
02.	Conductivity @ 25°C	µmhos/cm	IS 14767 - 2000 (Reaff: 2016)	458
03.	Water Holding Capacity	%	By Gravimetric Method	46.3
04.	Bulk Density	g/cm ³	By Cylindrical Method	1.09
05.	Porosity	%	By Gravimetric Method	42.6
06.	Calcium as Ca	mg/kg	Food and Agriculture organization of the united Nation Rome 2007 : 2018	101
07.	Magnesium as Mg	mg/kg		63.7
08.	Chloride as Cl	mg/kg	APHA 23 rd Edn 2019 4500 Cl B	133
09.	Soluble Sulphate as SO ₄	%	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0036
10.	Total Phosphorus as P	mg/kg	IS 10158 : 1982 (Reaff: 2019)	2.64
11.	Total Nitrogen as N	mg/kg	IS 14684 : 1999 (Reaff:2019)	364
12.	Organic Matter	%	IS : 2720 Part 22: 1972 (Reaff:2015)	2.32
13.	Organic Carbon	%	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.35

.....Continue Report.....



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TEST REPORT

Test Report No.: KGS/0322/TR/S-58

Client Name & Address		Thiru. Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarupalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu. Extent of 2.48.0Ha	
Sample Code :		S5	
Sample Description	SOIL	Sample Reference	KGS/0322/S-58
Sample Mark	Nakkalpatti	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S. No	Parameters	Units	Test Methods	Result
14.	Texture : Clay	%	Gravimetric Method	14.4
	Sand			35.9
	Silt			29.7
15.	Manganese as Mn	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	20.8
16.	Zinc as Zn	mg/kg		1.73
17.	Boron as B	mg/kg		1.23
18.	Potassium as K	mg/kg		29.5
19.	Cadmium as Cd	mg/kg		BDL (DL : 1.0)
20.	Total Chromium as Cr	mg/kg		BDL (DL : 1.0)
21.	Copper as Cu	mg/kg		BDL (DL : 1.0)
22.	Lead as Pb	mg/kg		1.47
23.	Iron as Fe	mg/kg		2.57
24.	Cation Exchange Capacity	meq/100g of soil		USEPA 9080 - 1986

-----End of Report-----




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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/S- 59			
Client Name & Address		Thiru.Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk , Krishnagiri District – 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarupalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu. Extent of 2.48.0Ha	
Sample Code :		S6	
Sample Description	SOIL	Sample Reference	KGS/0322/S-59
Sample Mark	Bagimanoor	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No	Parameters	Units	Test Methods	Result
01.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	8.23
02.	Conductivity @ 25°C	µmhos/cm	IS 14767 - 2000 (Reaff: 2016)	487
03.	Water Holding Capacity	%	By Gravimetric Method	46.5
04.	Bulk Density	g/cm ³	By Cylindrical Method	1.02
05.	Porosity	%	By Gravimetric Method	45.6
06.	Calcium as Ca	mg/kg	Food and Agriculture organization of the united Nation Rome 2007 : 2018	127
07.	Magnesium as Mg	mg/kg		59.7
08.	Chloride as Cl	mg/kg	APHA 23 rd Edn 2019 4500 Cl B	127.5
09.	Soluble Sulphate as SO ₄	%	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0015
10.	Total Phosphorus as P	mg/kg	IS 10158 : 1982 (Reaff: 2019)	1.16
11.	Total Nitrogen as N	mg/kg	IS 14684 : 1999 (Reaff:2019)	368
12.	Organic Matter	%	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.13
13.	Organic Carbon	%	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.24

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TEST REPORT

Test Report No.: KGS/0322/TR/S-59			
Client Name & Address		Thiru. Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chenidarapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu. Extent of 2.48.0Ha	
Sample Code :		S6	
Sample Description	SOIL	Sample Reference	KGS/0322/S-59
Sample Mark	Bagimanoor	Sample Drawn by	Chemist
Sample Quantity	2.0 kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S. No	Parameters	Units	Test Methods	Result
14.	Texture -Clay	%	Gravimetric Method	33.6
	Sand			34.6
	Silt			31.8
15.	Manganese as Mn	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	23.4
16.	Zinc as Zn	mg/kg		1.46
17.	Boron as B	mg/kg		1.37
18.	Potassium as K	mg/kg		23.7
19.	Cadmium as Cd	mg/kg		BDL (DL: 1.0)
20.	Total Chromium as Cr	mg/kg		BDL (DL: 1.0)
21.	Copper as Cu	mg/kg		BDL (DL: 1.0)
22.	Lead as Pb	mg/kg		1.32
23.	Iron as Fe	mg/kg		2.43
24.	Cation Exchange Capacity	meq/100g of soil		USEPA 0080 - 1986

-----End of Report-----



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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No:KGS/0522/TR/A-109			
Client Name & Address		Thiru.Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location		S.F. No. 380/1(Part) at Chendurapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu,Extent of 2.48.0Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-109
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ1- Core zone - 12°29'22.38"N 78°18'19.29"E

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM ₁₀ , µg/m ³	PM _{2.5} , µg/m ³	SO ₂ , µg/m ³	NO ₂ , µg/m ³	NH ₃ , µg/m ³	O ₃ , µg/m ³	CO, mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	100 (24 hrs.)	60 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
03.03.2022	43.3	21.2	5.6	23.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
04.03.2022	42.1	23.1	6.2	24.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
10.03.2022	44.5	22.8	7.3	25.2	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
11.03.2022	45.6	20.3	8.0	24.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
17.03.2022	47.3	21.4	7.4	25.6	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
18.03.2022	46.2	22.3	6.3	23.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
24.03.2022	45.0	22.5	5.3	24.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
25.03.2022	44.2	20.3	6.2	25.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
31.03.2022	47.7	21.2	7.3	25.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
01.04.2022	46.0	22.5	5.0	24.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
07.04.2022	43.0	22.2	6.3	23.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
08.04.2022	42.5	21.0	7.1	23.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
14.04.2022	43.7	22.5	8.4	24.6	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
15.04.2022	46.5	22.0	6.5	25.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No:KGS/0522/TR/A-109			
Client Name & Address		Thiru.Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony , Krishnagiri Taluk, Krishnagiri District – 635203 Mobile No: 9443371793, 9344223717	
Site Location		S.F. No. 380/1(Part) at Chendarupalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu,Extent of 2.48.01Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-109
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQI- Core zone - 12°29'22.38"N 78°18'19.29"E

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ µg/m ³	BaP, µg/m ³
NAAQ Norms*	100 (24 hrs.)	60 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
21.04.2022	37.2	23.5	8.2	24.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
22.04.2022	45.3	21.8	7.5	25.6	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
28.04.2022	44.2	23.0	8.0	24.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
29.04.2022	43.8	22.2	6.3	23.6	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
05.05.2022	44.5	20.6	7.2	23.8	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
06.05.2022	45.2	21.4	6.0	24.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
12.05.2022	46.1	22.8	7.3	25.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
13.05.2022	47.2	23.5	8.0	24.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
19.05.2022	43.2	21.3	5.4	25.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
20.05.2022	42.5	23.5	6.3	23.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
26.05.2022	44.0	22.4	7.4	23.2	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
27.05.2022	45.2	21.0	8.2	24.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0

* NAAQS-National Ambient Air Quality Standards Issued by CPCB (Central Pollution Control Board) in 2009.

.....End of Report.....



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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-110			
Client Name & Address:		Thiru, Mir. Tahaq Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendurapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu, Extent of 2.48.0Ha	
Discipline:	Chemical	General Sampling Procedure:	IS 5182 Part 3&Part 4
Group:	Atmospheric Pollution	Sample Reference Id:	KGS/0522/A-110
Sample Matrix:	AAQ	Sample Collected By:	Chemist
Sample Description:	Ambient Air Quality	Sample Collected On:	March 2022 - May 2022
Sample Mark:	AAQ	Sampling Time:	24 Hours
Sample Received Condition:	Good/PVC Container	Sample Code / Location:	AAQ2- Near Existing Quarry- 12°29'33.08"N 78°18'25.76"E

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, µg/m ³	Ni, µg/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	100 (24 hrs.)	60 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
03.03.2022	45.5	21.3	6.2	23.2	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
04.03.2022	46.3	22.4	5.5	24.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
10.03.2022	47.2	23.6	7.1	25.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
11.03.2022	49.2	20.2	8.3	24.2	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
17.03.2022	48.0	21.3	6.0	25.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
18.03.2022	46.3	22.4	7.3	23.9	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
24.03.2022	47.2	23.5	5.2	25.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
25.03.2022	49.5	22.3	8.4	23.4	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
31.03.2022	48.2	22.0	6.2	25.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
01.04.2022	45.6	20.1	7.3	23.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
07.04.2022	46.3	21.5	8.2	24.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
08.04.2022	47.2	22.4	7.0	25.6	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
14.04.2022	49.1	23.5	8.3	24.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
15.04.2022	48.2	20.3	6.1	25.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-110			
Client Name & Address		Thiru, Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location		S.F. No. 380/1(Part) at Chendurapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu, Extent of 2.48.01Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-110
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ2- Near Existing Quarry- 12°29'33.08"N 78°18'25.76"E

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	PaP, ng/m ³
NAAQ Norms*	100 (24 hrs.)	60 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
21.04.2022	46.2	21.5	7.3	23.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
22.04.2022	47.3	22.6	6.5	25.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
28.04.2022	49.0	23.4	7.2	24.6	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
29.04.2022	47.2	22.0	6.3	25.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
05.05.2022	48.2	23.4	8.0	23.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
06.05.2022	46.3	21.0	7.2	24.6	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
12.05.2022	47.0	22.3	6.4	25.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
13.05.2022	48.2	23.4	8.3	23.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
19.05.2022	49.3	20.3	6.5	24.6	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
20.05.2022	46.2	21.3	7.2	25.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
26.05.2022	47.2	22.4	6.6	25.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
27.05.2022	48.5	23.5	7.4	24.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0

* NAAQS-National Ambient Air Quality Standards Issued by CPCB (Central Pollution Control Board) in 2009.

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-111			
Client Name & Address		Thiru.Mir-Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443571793, 9344223717	
Site Location		S.F. No. 380/1(Part) at Chendurapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu, Extent of 2.48.0Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 4
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-111
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ3- Jagadevipalayam - 12°29'9.63"N 78°19'5.76"E

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	100 (24 hrs.)	60 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8 hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
06.03.2023	44.5	21.2	3.2	24.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
07.03.2023	42.2	22.3	6.3	23.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
13.03.2023	45.0	22.5	7.0	24.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
14.03.2023	46.3	21.0	5.4	25.2	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
20.03.2023	47.1	22.3	6.3	23.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
21.03.2023	48.2	23.4	7.0	24.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
27.03.2023	46.0	22.5	5.2	25.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
28.03.2023	47.2	23.1	6.3	23.2	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
03.04.2023	48.3	21.4	7.1	24.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
04.04.2023	48.0	22.4	6.2	21.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
10.04.2023	45.2	23.5	7.1	25.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
11.04.2023	46.1	20.3	5.2	22.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
17.04.2023	47.2	21.4	6.3	23.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
18.04.2023	48.3	23.5	7.4	24.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No:KGS/0522/TR/A-111			
Client Name & Address		Thiru, Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location		S.F. No. 380/1(Part) at Chendrapatti Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu, Extent of 2.48.0Ha	
Discipline	Chemical	General Sampling Procedure	IS 3182 Part 5&Part 4
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-111
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ3- Jagadevipulayam - 12°29'9.63"N 78°19'5.76"E

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₂ H ₆ µg/m ³	BaP, ng/m ³
NAAQ Norms*	100 (24 hrs.)	60 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
24.03.2023	46.2	21.3	3.2	23.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
25.04.2023	47.3	22.5	6.0	24.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
01.05.2023	48.0	23.4	7.2	25.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
02.05.2023	45.2	20.1	5.4	24.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
08.05.2023	46.3	22.3	7.0	23.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
09.05.2023	47.1	23.5	6.3	25.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
15.05.2023	48.2	20.3	7.2	23.4	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
16.05.2023	46.2	21.4	6.5	24.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
22.05.2023	43.2	23.5	5.5	23.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
23.05.2023	44.3	22.1	6.3	24.6	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
29.05.2023	47.2	20.5	7.4	25.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
30.05.2023	48.3	23.0	6.3	24.6	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0

* NAAQS-National Ambient Air Quality Standards Issued by CPCB (Central Pollution Control Board) in 2009.

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No: KGS/0522/T/A-112			
Client Name & Address		Thiru. Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635205 Mobile No: 9443371793, 9344223717	
Site Location		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu, Extent of 2.48.0Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 4
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-112
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ- Maratepalli - 12°31'13.88"N 78°16'59.76"E

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	Cd, µg/m ³	HAP, ng/m ³
NAAQ Norms*	100 (24 hrs.)	60 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
24.04.2023	42.0	23.4	6.2	24.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
25.04.2023	43.6	22.1	6.8	22.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
01.05.2023	44.5	23.4	5.3	23.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
02.05.2023	49.2	21.0	6.4	24.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
08.05.2023	46.3	22.0	6.0	25.6	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
09.05.2023	44.0	23.5	5.6	26.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
15.05.2023	45.6	21.6	6.3	27.2	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
16.05.2023	46.2	23.4	5.8	25.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
22.05.2023	43.1	22.0	6.3	24.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
23.05.2023	42.1	21.0	5.2	25.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
29.05.2023	45.0	22.8	6.1	26.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
30.05.2023	44.3	23.0	6.3	27.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0

* NAAQS - National Ambient Air Quality Standards Issued by CPCB (Central Pollution Control Board) in 2009.

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TEST REPORT

Test Report No:KGS/0522/TR/A-112			
Client Name & Address		Thiru.Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location		S.F. No. 380/1(Part) at Chendurapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu,Extent of 2.48.01Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 4
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-112
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ4- Marutepalli - 12°31'13.88"N 78°10'59.76"E

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM ₁₀ ug/m ³	PM _{2.5} ug/m ³	SO ₂ ug/m ³	NO ₂ ug/m ³	NH ₃ ug/m ³	O ₃ ug/m ³	CO mg/m ³	Pb, ug/m ³	As, ug/m ³	Ni, ug/m ³	C ₆ H ₆ ug/m ³	PaP, ug/m ³
NAAQ Norms*	100 (24 hrs.)	60 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
06.03.2023	43.7	20.1	5.5	23.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
07.03.2023	44.1	22.3	6.4	23.4	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
13.03.2023	45.0	23.2	5.2	24.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
14.03.2023	46.2	20.0	6.2	25.6	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
20.03.2023	44.1	22.0	5.0	26.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
21.03.2023	45.2	23.4	6.2	27.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
27.03.2023	46.3	21.5	5.3	24.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
28.03.2023	44.2	23.8	6.4	25.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
03.04.2023	42.1	22.5	5.8	26.2	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
04.04.2023	43.5	21.6	6.2	27.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
10.04.2023	45.1	23.5	5.4	22.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
11.04.2023	46.0	21.4	6.3	24.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
17.04.2023	43.1	23.0	5.5	25.6	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
18.04.2023	44.5	22.0	5.0	26.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No: KGS /0522/TR/A-113			
Client Name & Address		Thiru.Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony , Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443571793, 9344223717	
Site Location		S.F. No. 380/1(Part) at Chendurapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu, Extent of 2.48.01Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 4
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-113
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ5- Nakkalpari - 12°27'27.87"N 78°17'49.41"E

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ug/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	100 (24 hrs.)	60 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	0.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
06.03.2023	44.2	20.3	7.2	24.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
07.03.2023	45.7	21.2	6.3	28.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
13.03.2023	46.1	22.5	8.2	23.0	<1.0	<3.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
14.03.2023	47.2	23.1	6.2	25.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
20.03.2023	45.0	22.1	8.3	24.2	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
21.03.2023	46.2	20.3	6.3	22.2	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
27.03.2023	45.5	22.4	8.4	25.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
28.03.2023	47.0	21.0	7.3	23.6	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
03.04.2023	43.2	21.5	6.2	24.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
04.04.2023	44.1	20.3	8.4	25.2	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
10.04.2023	45.0	21.2	7.2	23.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
11.04.2023	46.2	22.3	8.1	24.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
17.04.2023	47.1	21.4	6.6	25.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
18.04.2023	45.0	22.1	8.3	24.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No: KGS/0522/TR/A-113			
Client Name & Address		Thiru. Mir Tahur Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location		S.F. No. 380/1(Part) at Chandrapatti Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu, Extent of 2.48.0Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-113
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQS- Nakkalpatti - 12°27'25.87"N 78°17'40.41"E

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₂ H ₆ , µg/m ³	BaP, ng/m ³
NAAQS Norms*	100 (24 hrs.)	50 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
24.04.2023	46.3	23.4	7.1	24.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
25.04.2023	47.1	21.5	6.5	25.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
01.05.2023	45.0	23.3	8.0	23.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
02.05.2023	44.0	22.6	7.3	24.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
08.05.2023	45.2	23.7	6.2	25.2	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
09.05.2023	46.3	21.6	8.4	22.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
15.05.2023	47.0	23.4	6.0	24.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
16.05.2023	43.0	22.4	7.3	25.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
21.05.2023	42.1	23.5	8.4	23.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
23.05.2023	41.1	22.4	6.3	24.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
29.05.2023	43.5	21.3	7.2	25.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
30.05.2023	42.1	23.5	8.2	24.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0

* NAAQS - National Ambient Air Quality Standards issued by CPCB (Central Pollution Control Board) in 2009.

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No:KGS/0522/TR/A-114			
Client Name & Address		Thiru, Mir Tabar Ali, 18/16, 5 th Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location		S.F. No. 380/1(Part) at Cheesarpalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu, Extent of 2.48.00ha	
Discipline	Chemical	General Sampling Procedure	IS-5182 Part 5&Part 4
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-114
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ6- Achamangalam - 12°31'24.93"N 78°19'8.44"E

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, µg/m ³	Ni, µg/m ³	C ₆ H ₆ µg/m ³	BaP, µg/m ³
NAAQ Norms*	100 (24 hrs.)	40 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
06.03.2023	45.2	21.0	6.2	23.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
07.03.2023	46.3	22.3	7.3	24.2	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
13.03.2023	47.2	23.4	6.4	25.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
14.03.2023	44.2	22.0	7.5	24.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
20.03.2023	43.2	21.3	7.3	25.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
21.03.2023	45.0	22.3	6.2	23.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
27.03.2023	46.2	23.1	7.4	25.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
28.03.2023	47.1	23.0	6.5	24.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
03.04.2023	45.0	22.1	7.1	25.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
04.04.2023	46.3	21.4	7.3	24.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
10.04.2023	47.1	23.5	6.8	25.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
11.04.2023	44.5	22.5	7.2	23.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
17.04.2023	45.3	23.4	6.0	24.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
18.04.2023	46.2	22.5	7.3	25.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No:KGS/0522/TR/A-114			
Client Name & Address:		Thiru.Mir Tahar AB, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendrapadi Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu,Extent of 2.48.0Ha	
Discipline:	Chemical	General Sampling Procedure:	IS 5102 Part 5&Part 4
Group:	Atmospheric Pollution	Sample Reference Id:	KGS/0522/A-114
Sample Matrix:	AAQ	Sample Collected By:	Chemist
Sample Description:	Ambient Air Quality	Sample Collected On:	March 2022 - May 2022
Sample Mark:	AAQ	Sampling Time:	24 Hours
Sample Received Condition:	Good/PVC Container	Sample Code / Location:	AAQ6- Achamangalam - 12°31'24.93"N 78°19'K.44"E

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, µg/m ³	Ni, ng/m ³	Cd, µg/m ³	BaP, ng/m ³
NAAQ Norms*	100 (24 hrs.)	60 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	800 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
24.04.2023	47.1	21.0	7.4	25.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
25.04.2023	45.0	22.3	6.2	24.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
01.05.2023	46.2	23.5	7.3	23.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
02.05.2023	47.3	22.0	6.4	24.6	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
08.05.2023	44.0	23.5	7.2	25.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
09.05.2023	43.2	21.0	6.0	23.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
15.05.2023	44.2	22.6	7.3	24.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
16.05.2023	45.3	23.5	6.0	25.6	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
22.05.2023	46.1	20.2	7.0	24.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
23.05.2023	47.1	22.4	6.5	25.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
29.05.2023	45.0	23.5	7.3	23.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
30.05.2023	46.3	24.1	6.5	24.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0

* NAAQS-National Ambient Air Quality Standards issued by CPCB (Central Pollution Control Board) in 2009.

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No:KGS/0522/TR/A-115			
Client Name & Address		Thiru, Mr. Tabar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443571793, 9344223717	
Site Location		SF. No. 380/1(Part) at Chendrapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu, Extent of 2.48.0Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 4
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-115
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ7- Bagimannur- 12°29'0.16" N 78°21'27.89" E

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM ₁₀ ng/m ³	PM _{2.5} ng/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, µg/m ³	Ni, µg/m ³	C ₆ H ₆ µg/m ³	BaP, ng/m ³
NAAQ Norms*	100 (24 hrs.)	60 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	3.0 (annual)	1.0 (annual)
06.03.2023	44.2	21.3	6.6	23.2	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
07.03.2023	43.1	22.0	6.3	24.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
13.03.2023	45.5	23.4	7.2	23.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
14.03.2023	46.3	22.5	6.1	23.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
20.03.2023	47.1	21.3	7.5	24.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
21.03.2023	45.0	23.2	6.4	25.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
27.03.2023	46.2	22.4	7.3	22.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
28.03.2023	47.3	23.5	6.4	21.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
03.04.2023	45.0	22.4	6.0	23.4	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
04.04.2023	46.2	21.8	7.2	25.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
16.04.2023	47.1	23.6	6.4	23.2	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
17.04.2023	45.3	20.5	7.3	24.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
17.04.2023	46.3	21.6	6.4	25.6	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
18.04.2023	44.2	23.4	7.2	23.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0

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TEST REPORT

Test Report No:KGS/0522/TR/A-115			
Client Name & Address		Thiru.Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony , Krishnagiri Taluk, Krishnagiri District – 635203 Mobile No: 9443371793, 9344223717	
Site Location		S.F. No.380/1(Part) at Chendrapullu Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu,Extent of 2.48.01Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-115
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ7- Baginanoor- 12°29'0.16"N 78°21'27.89"E

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	Cd, µg/m ³	BaP, ng/m ³
NAAQ Norms*	100 (24 hrs.)	60 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
24.04.2023	43.2	22.8	6.3	24.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
25.04.2023	44.5	23.6	7.0	23.6	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
01.05.2023	45.1	20.4	6.2	24.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
02.05.2023	46.3	21.2	7.4	25.6	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
08.05.2023	47.1	22.3	6.5	23.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
09.05.2023	45.0	23.5	7.6	24.2	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
15.05.2023	46.2	22.6	6.1	25.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
16.05.2023	44.3	21.5	7.2	23.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
22.05.2023	45.3	22.3	6.4	25.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
23.05.2023	46.1	23.6	7.0	24.6	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
29.05.2023	47.0	21.4	6.3	25.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
30.05.2023	43.5	24.8	7.4	23.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0

* NAAQS-National Ambient Air Quality Standards issued by CPCB (Central Pollution Control Board) in 2009.

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TEST REPORT

Test Report No: KGS/0522/TR/A-116			
Client Name & Address		Thiru, Mir Tahir Ali, 18/16, 5 th Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location		S.F. No. 380/1(Part) at Chondrapatti Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu, Extent of 2.48.0Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 4
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-116
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ 8 - Chinnapanamudlu - 12°29'43.48"N 78°10'45.70"E

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO _x µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ µg/m ³	BaP, ng/m ³
NAAQ Norms*	100 (24 hrs.)	60 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8 hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
06.03.2023	43.2	21.0	6.2	23.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
07.03.2023	43.5	22.3	7.3	24.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
13.03.2023	42.1	23.1	8.1	25.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
14.03.2023	44.0	20.2	6.0	24.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
20.03.2023	45.3	21.3	8.1	23.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
21.03.2023	43.0	22.4	6.3	24.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
27.03.2023	43.1	23.5	7.4	23.4	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
28.03.2023	46.0	22.0	8.1	24.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
07.04.2023	45.1	23.6	7.0	25.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
04.04.2023	47.2	20.5	8.4	24.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
10.04.2023	46.2	21.6	6.3	25.3	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
11.04.2023	45.2	21.0	8.3	23.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
17.04.2023	42.3	22.4	6.7	24.6	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
18.04.2023	43.3	23.8	3.2	25.8	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0

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TEST REPORT

Test Report No: KGS/0522/TR/A-116			
Client Name & Address:		Thiru. Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony - Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendurupalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu, Extant of 2.48.0Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-116
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ 8 - Chinnapanamudlu - 12°29'43.48"N 78°16'45.76"E

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	Cd,Hg, µg/m ³	BaP, ng/m ³
NAAQ Norms*	100 (24 hrs.)	60 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5/4 (annual)	1.0 (annual)
24.04.2023	31.1	21.6	7.3	23.8	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
25.04.2023	44.5	22.9	7.2	25.6	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
01.05.2023	45.6	23.5	6.3	23.4	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
02.05.2023	46.2	22.1	7.5	25.6	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
08.05.2023	43.2	23.6	8.2	24.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
09.05.2023	41.1	22.0	7.0	23.1	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
15.05.2023	44.2	23.0	8.2	23.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
16.05.2023	48.3	23.1	7.3	23.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
22.05.2023	46.2	23.5	6.4	23.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
23.05.2023	43.0	21.0	8.2	23.0	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
29.05.2023	44.1	22.6	7.3	25.5	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0
30.05.2023	43.3	23.4	6.3	23.2	<1.0	<5.0	<1.14	<0.1	<0.1	<0.1	<1.0	<1.0

* NAAQS - National Ambient Air Quality Standards issued by CPCB (Central Pollution Control Board) in 2008.

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TEST REPORT

Test Report No.: KGS/0322/TR/W-60			
Client Name & Address:		Thiru. Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu - Extent of 2.48.0Ha	
Sample Description	Surface Water (SW-1)	Sample Reference	KGS/0322/W-60
Sample Mark	Narayannapuram Eri	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
1	Color	Hazen	IS 3025 Part 4 :1983	7
2	Odour	-	IS 3025 Part 5 :1983	Agreeable
3	pH @ 25°C	-	IS 3025 Part 11 :1983	7.32
4	Electrical Conductivity @ 25°C	µs/cm	IS 3025 Part 14 :1984	1110
5	Turbidity	NTU	IS 3025 Part 10 :1984	4.1
6	Total Dissolved Solids	mg/l	IS 3025 Part 17 :1984	666
7	Total Hardness as CaCO ₃	mg/l	IS 3025 Part 21 :2009	259.5
8	Calcium as Ca	mg/l	IS 3025 Part 40 :1991	52.8
9	Magnesium as Mg	mg/l	IS 3025 Part 46 :1994	31.0
10	Total Alkalinity as CaCO ₃	mg/l	IS 3025 Part 23 :1984	237
11	Chloride as Cl ⁻	mg/l	IS 3025 Part 32 :1988	143.9
12	Sulphate as SO ₄ ²⁻	mg/l	IS 3025 Part 24 :1986	63.2
13	Iron as Fe	mg/l	IS 3025 Part 53 :2003	0.15
14	Free Residual Chlorine	mg/l	IS 3025 Part 26 :1986	BDL (DL:0.1)
15	Fluoride as F ⁻	mg/l	IS 3025 Part 60 :2008	0.26
16	Nitrate as NO ₃ ⁻	mg/l	IS 3025 Part 34 :1988	12.4

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TEST REPORT

Test Report No.: KGS/0322/TR/W-60			
Client Name & Address:		Thiru. Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District – 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu. Extent of 2.48.00Ha	
Sample Description	Surface Water (SW-1)	Sample Reference	KGS/0322/W-60
Sample Mark	Narayanapuram Eri	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
17	Copper as Cu	mg/l	IS 3025 Part 65:2014	BDL (DL:0.01)
18	Manganese as Mn	mg/l	IS 3025 Part 65:2014	BDL (DL:0.02)
19	Mercury as Hg	mg/l	USEPA 200.8	BDL (DL:0.0005)
20	Cadmium as Cd	mg/l	IS 3025 Part 65:2014	BDL (DL:0.001)
21	Selenium as Se	mg/l	IS 3025 Part 65:2014	BDL (DL:0.005)
22	Aluminium as Al	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005)
23	Lead as Pb	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005)
24	Zinc as Zn	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.05)
25	Total Chromium	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02)
26	Boron as B	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.05)
27	Mineral Oil	mg/l	IS 3025 Part 39:1991 (Reaff:2019)	BDL (DL:0.01)
28	Phenolic Compounds as C ₆ H ₅ OH	mg/l	IS 3025 Part 43:1992(Reaff:2019)	BDL (DL:0.0005)
29	Anionic Detergents as MBAS	mg/l	IS 13428 – 2005 (Reaff:2019)	BDL (DL:0.01)
30	Cyanide as CN	mg/l	IS 3025 Part 27:1986 (Reaff:2019)	BDL (DL:0.01)
31	Biological Oxygen Demand	mg/l	IS 3025 Part 44:1993 (Reaff:2019)	13.2
32	Chemical Oxygen Demand	mg/l	IS 3025 Part 58:2006 (Reaff:2017)	44

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TEST REPORT

Test Report No.: KGS/0322/TR/W-60			
Client Name & Address:		Thiru. Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu. Extent of 2.48.0Ha	
Sample Description	Surface Water (SW-1)	Sample Reference	KGS/0322/W-60
Sample Mark	Narayanapuram Eri	Sample Drawn by	Chemist
Sample Quantity	2.0ltr.	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on:	08.03.2022	Test Reported on:	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
33	Dissolved Oxygen	mg/l	IS 3025 Part 38-1989 (Reaff.2018)	6.5
34	Barium as Ba	mg/l	IS 3025 Part 65-2014 (Reaff.2018)	BDL (DL:0.5)
35	Ammonia (as Total Ammonia-N)	mg/l	IS 3025 Part 34-1988 (Reaff. 2018)	2.8
36	Sulphide as H ₂ S	mg/l	IS 3025 Part 29-1986 (Reaff. 2018)	BDL (DL:0.03)
37	Molybdenum as Mo	mg/l	IS 3025 Part 65-2014 (Reaff.2018)	BDL (DL:0.5)
38	Total Arsenic as As	mg/l	IS 3025 Part 65-2014 (Reaff.2018)	BDL (DL:0.01)
39	Total Suspended Solids	mg/l	IS 3025 Part 17-1984 (Reaff.2017)	17.2
40	Total Coliform	MPN/100ml	APHA 23 rd Edn. 2017:9221B	989
41	E-Coli	MPN/100ml	APHA 23 rd Edn. 2017:9221F	149

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No.: KGS/0322/TR/W-61			
Client Name & Address:		Thiru.Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717.	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu. Extent of 2.48.0Ha	
Sample Description	Surface Water (SW-2)	Sample Reference	KGS/0322/W-61
Sample Mark	Eri Near Nakkalpatti	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	05.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
1	Color	Hazen	IS 3025 Part 4 :1983	6
2	Odour	-	IS 3025 Part 5 :1983	Agreeable
3	pH @ 25°C	-	IS 3025 Part 11 :1983	7.97
4	Electrical Conductivity @ 25°C	µs/cm	IS 3025 Part 14 :1984	1907
5	Turbidity	NTU	IS 3025 Part 10 :1984	3.9
6	Total Dissolved Solids	mg/l	IS 3025 Part 17 :1984	604
7	Total Hardness as CaCO ₃	mg/l	IS 3025 Part 21 : 2009	271.9
8	Calcium as Ca	mg/l	IS 3025 Part 40 :1991	56.1
9	Magnesium as Mg	mg/l	IS 3025 Part 46 :1994	32.0
10	Total Alkalinity as CaCO ₃	mg/l	IS 3025 Part 23 :1984	201
11	Chloride as Cl ⁻	mg/l	IS 3025 Part 32 :1988	132.5
12	Sulphate as SO ₄ ²⁻	mg/l	IS 3025 Part 24:1986	58.7
12	Iron as Fe	mg/l	IS 3025 Part 53 :2003	0.36
14	Free Residual Chlorine	mg/l	IS 3025 Part 26: 1986	BDL (DL 0.1)
15	Fluoride as F ⁻	mg/l	IS 3025 Part 60 : 2008	0.23
16	Nitrates as NO ₃ ⁻	mg/l	IS 3025 Part 34: 1988	12.7

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TEST REPORT

Test Report No.: KGS/0322/TR/W-61			
Client Name & Address:		Thiru. Mir Tabar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District – 635205 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendurapulli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu . Extent of 2.48.0Ha	
Sample Description	Surface Water (SW-2)	Sample Reference	KGS/0322/W-61
Sample Mark	Eri Near Nakkalpatti	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
17	Copper as Cu	mg/l	IS 3025 Part 65:2014	BDL (DL:0.01)
18	Manganese as Mn	mg/l	IS 3025 Part 65:2014	BDL (DL:0.02)
19	Mercury as Hg	mg/l	USEPA 200.8	BDL (DL:0.0005)
20	Cadmium as Cd	mg/l	IS 3025 Part 65:2014	BDL (DL:0.001)
21	Selenium as Se	mg/l	IS 3025 Part 65:2014	BDL (DL:0.005)
22	Aluminium as Al	mg/l	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.005)
23	Lead as Pb	mg/l	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.005)
24	Zinc as Zn	mg/l	IS 3025 Part 65:2014 (Reaff.2019)	BDL(DL:0.05)
25	Total Chromium	mg/l	IS 3025 Part 65:2014 (Reaff.2019)	BDL(DL:0.02)
26	Boron as B	mg/l	IS 3025 Part 65:2014 (Reaff.2019)	BDL(DL:0.05)
27	Mineral Oil	mg/l	IS 3025 Part 39:1991 (Reaff. 2019)	BDL(DL:0.01)
28	Phenolic Compounds as C ₆ H ₅ OH	mg/l	IS 3025 Part 43:1992(Reaff. 2019)	BDL (DL:0.0005)
29	Anionic Detergents as MBAS	mg/l	IS 13429 – 2005 (Reaff.2019)	BDL (DL:0.01)
30	Cyanide as CN	mg/l	IS 3025 Part 27:1990 (Reaff. 2019)	BDL (DL:0.01)
31	Biological Oxygen Demand	mg/l	IS 3025 Part 44:1993 (Reaff.2019)	10.1
32	Chemical Oxygen Demand	mg/l	IS 3025 Part 58:2006 (Reaff.2017)	33.9

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TEST REPORT

Test Report No.: KGS/0322/TR/W-61			
Client Name & Address:		Thiru. Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu - Extent of 2.48.0Ha	
Sample Description	Surface Water (SW-2)	Sample Reference	KGS/0322/W-61
Sample Mark	Eri Near Nakkalpatthi	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
33	Dissolved Oxygen	mg/l	IS 3025 Part 38:1989 (Reaff:2019)	8.9
34	Barium as Ba	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.5)
35	Ammonia (as Total Ammonia-N)	mg/l	IS 3025 Part 34:1986 (Reaff:2019)	3.7
36	Sulphide as H ₂ S	mg/l	IS 3025 Part 29:1986 (Reaff:2019)	BDL (DL:0.05)
37	Molybdenum as Mo	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.5)
38	Total Arsenic as As	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01)
39	Total Suspended Solids	mg/l	IS 3025 Part 17:1994 (Reaff:2017)	23.4
40	Total Coliform	MPN/100ml	APHA 23 rd Edn. 2017:9221B	865
41	E-Coli	MPN/100ml	APHA 23 rd Edn. 2017:9221F	187

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TEST REPORT

Test Report No.: KGS/0322/TR/W-62			
Client Name & Address:		Thiru.Mr Tuhar AB, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District -- 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu. Extent of 2.48.0Ha	
Sample Description	Ground Water (WW-1)	Sample Reference	KGS/0322/W-62
Sample Mark	Near Project Area	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
1	Color	Hazen	IS 3025 Part 4:1983 (Reaff:2017)	5
2	Odour	-	IS 3025 Part 5:2018	Agreeable
3	pH @ 25°C	-	IS 3025 Part 11:1983 (Reaff:2017)	7.21
4	Electrical Conductivity @ 25°C	µs/cm	IS 3025 Part 14:2012 (Reaff:2019)	904
5	Turbidity	NTU	IS 3025 Part 10:1984 (Reaff:2017)	1.6
6	Total Dissolved Solids	mg/l	IS 3025 Part 15:1984 (Reaff:2017)	542
7	Total Hardness as CaCO ₃	mg/l	IS 3025 Part 21:2009 (Reaff:2019)	218.3
8	Calcium as Ca	mg/l	IS 3025 Part 40:1991 (Reaff:2019)	42.9
9	Magnesium as Mg	mg/l	IS 3025 Part 46:1994 (Reaff:2019)	27.1
10	Total Alkalinity as CaCO ₃	mg/l	IS 3025 Part 23:1986 (Reaff:2019)	186.5
11	Chloride as Cl ⁻	mg/l	IS 3025 Part 32:1988 (Reaff:2019)	143.8
12	Sulphate as SO ₄ ²⁻	mg/l	IS 3025 Part 24:1986 (Reaff:2019)	53.7
13	Iron as Fe	mg/l	IS 3025 Part 53:2003 (Reaff:2019)	0.29
14	Free Residual Chlorine	mg/l	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1)
15	Fluoride as F ⁻	mg/l	APHA 23 rd Edn. 2017:4500 F.D	0.18
16	Nitrates as NO ₃	mg/l	IS 3025 Part 34:1988 (Reaff:2019)	5.8
17	Copper as Cu	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01)
18	Manganese as Mn	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02)
19	Mercury as Hg	mg/l	USEPA 200.8	BDL (DL:0.0005)

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TEST REPORT

Test Report No.: KGS/0322/TR/W-62			
Client Name & Address:		Thiru, Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District – 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendurapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu. Extent of 2.48.0Ha	
Sample Description	Ground Water (WW-1)	Sample Reference	KGS/0322/W-62
Sample Mark	Near Project Area	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
20	Cadmium as Cd	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001)
21	Selenium as Se	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005)
22	Aluminium as Al	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.05)
23	Lead as Pb	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005)
24	Zinc as Zn	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.05)
25	Total Chromium	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02)
26	Boron as B	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.05)
27	Mineral Oil	mg/l	IS 3025 Part 39-1991 (Reaff:2019)	BDL (DL:0.01)
28	Phenolic Compounds as C ₆ H ₅ OH	mg/l	IS 3025 Part 43-1992 (Reaff:2019)	BDL (DL:0.0005)
29	Anionic Detergents as MBAS	mg/l	IS 13428 – 2005 (Reaff:2019)	BDL (DL:0.01)
30	Cyanide as CN	mg/l	IS 3025 Part 27-1986 (Reaff:2019)	BDL (DL:0.01)
31	Barium as Ba	mg/l	IS 3025 Part 44-1993 (Reaff:2019)	BDL (DL:0.5)
32	Ammonia (as Total Ammonia-N)	mg/l	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01)
33	Sulphide as H ₂ S	mg/l	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.05)
34	Molybdenum as Mo	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.5)
35	Total Arsenic as As	mg/l	IS 3025 Part 34-1988 (Reaff:2019)	BDL (DL:0.01)
36	Total Suspended Solids	mg/l	IS 3025 Part 29-1986 (Reaff:2019)	BDL (DL:1.0)
37	Total Coliforms	MPN/100ml	APHA 23 rd Edn. 2017:9221B	132
38	E-Coli	MPN/100ml	APHA 23 rd Edn. 2017:9221F	< 1.8

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TEST REPORT

Test Report No.: KGS/0322/TR/W-63			
Client Name & Address:		Thiru. Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk - Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu. Extent of 2.48.0Ha	
Sample Description	Ground Water (WW-2)	Sample Reference	KGS/0322/W-63
Sample Mark	Baginanoor	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
1	Color	Hazen	IS 3025 Part 4:1983 (Reaff 2017)	5
2	Odour	-	IS 3025 Part 5:2018	Acceptable
3	pH @ 25°C	-	IS 3025 Part 11:1983 (Reaff 2017)	7.73
4	Electrical Conductivity @ 25°C	µs/cm	IS 3025 Part 14:2013 (Reaff 2019)	788
5	Turbidity	NTU	IS 3025 Part 10:1984 (Reaff 2017)	2.2
6	Total Dissolved Solids	mg/l	IS 3025 Part 16:1984 (Reaff 2017)	465
7	Total Hardness as CaCO ₃	mg/l	IS 3025 Part 21:2009 (Reaff 2019)	201.8
8	Calcium as Ca	mg/l	IS 3025 Part 40:1991 (Reaff 2019)	49.5
9	Magnesium as Mg	mg/l	IS 3025 Part 46:1994 (Reaff 2019)	19.0
10	Total Alkalinity as CaCO ₃	mg/l	IS 3025 Part 23:1986 (Reaff 2019)	194
11	Chloride as Cl	mg/l	IS 3025 Part 32:1986 (Reaff 2018)	112.5
12	Sulphate as SO ₄	mg/l	IS 3025 Part 24:1986 (Reaff 2019)	46.7
13	Iron as Fe	mg/l	IS 3025 Part 53:2003 (Reaff 2019)	0.28
14	Free Residual Chlorine	mg/l	IS 3025 Part 26:1986 (Reaff 2019)	BDL (DL:0.1)
15	Fluoride as F	mg/l	APHA 23 rd Edn. 2017.4500 F.D	0.21
16	Nitrates as NO ₃	mg/l	IS 3025 Part 34:1988 (Reaff 2018)	7.3
17	Copper as Cu	mg/l	IS 3025 Part 65:2014 (Reaff 2019)	BDL (DL:0.01)
18	Manganese as Mn	mg/l	IS 3025 Part 65:2014 (Reaff 2019)	BDL (DL:0.02)
19	Mercury as Hg	mg/l	USEPA 200.8	BDL (DL:0.0005)

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TEST REPORT

Test Report No.: KGS/0322/TR/W-63			
Client Name & Address:		Thiru. Mir Tabar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu, Extent of 2.48.0Ha	
Sample Description	Ground Water (WW-2)	Sample Reference	KGS/0322/W-63
Sample Mark	Bagimanoor	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
20	Cadmium as Cd	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001)
21	Selenium as Se	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005)
22	Aluminium as Al	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.008)
23	Lead as Pb	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005)
24	Zinc as Zn	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.05)
25	Total Chromium	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02)
26	Boron as B	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.05)
27	Mineral Oil	mg/l	IS 3025 Part 39:1991 (Reaff:2019)	BDL (DL:0.01)
28	Phenolic Compounds as C ₆ H ₅ OH	mg/l	IS 3025 Part 43:1992 (Reaff:2019)	BDL (DL:0.0005)
29	Anionic Detergents as MBAS	mg/l	IS 13428 - 2005 (Reaff:2019)	BDL (DL:0.01)
30	Cyanide as CN	mg/l	IS 3025 Part 27:1986 (Reaff:2019)	BDL (DL:0.01)
31	Barium as Ba	mg/l	IS 3025 Part 44:1993 (Reaff:2019)	BDL (DL:0.5)
32	Ammonia (as Total Ammonia-N)	mg/l	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01)
33	Sulphide as H ₂ S	mg/l	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.05)
34	Molybdenum as Mo	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.5)
35	Total Arsenic as As	mg/l	IS 3025 Part 34:1988 (Reaff:2010)	BDL (DL:0.01)
36	Total Suspended Solids	mg/l	IS 3025 Part 29:1986 (Reaff:2019)	BDL (DL:1.0)
37	Total Coliform	MPN/100ml	APHA 27 th Edn. 2017-9221B	163
38	E-Coli	MPN/100ml	APHA 27 th Edn. 2017-9221F	< 1.8

-----End of Report-----



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TEST REPORT

Test Report No.: KGS/0322/TR/W-64			
Client Name & Address:		Thiru.Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635205 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu. Extent of 2.48.0Ha	
Sample Description	Ground Water (BW-1)	Sample Reference	KGS/0322/W-64
Sample Mark	Near Project Area	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
1	Color	Hazen	IS 3025 Part 4:1983 (Reaff:2017)	5
2	Odour	-	IS 3025 Part 5:2018	Agreeable
3	pH @ 25°C	-	IS 3025 Part 11:1983 (Reaff:2017)	7.31
4	Electrical Conductivity @ 25°C	µs/cm	IS 3025 Part 14:2013 (Reaff:2019)	934
5	Turbidity	NTU	IS 3025 Part 10:1984 (Reaff:2017)	1.6
6	Total Dissolved Solids	mg/l	IS 3025 Part 16:1984 (Reaff:2017)	363
7	Total Hardness as CaCO ₃	mg/l	IS 3025 Part 21:2009 (Reaff:2019)	210.1
8	Calcium as Ca	mg/l	IS 3025 Part 40:1991 (Reaff:2019)	51.1
9	Magnesium as Mg	mg/l	IS 3025 Part 46:1994 (Reaff:2019)	20.1
10	Total Alkalinity as CaCO ₃	mg/l	IS 3025 Part 23:1986 (Reaff:2019)	184.5
11	Chloride as Cl ⁻	mg/l	IS 3025 Part 32:1986 (Reaff:2019)	137
12	Sulphate as SO ₄ ²⁻	mg/l	IS 3025 Part 24:1986 (Reaff:2019)	54.5
13	Iron as Fe	mg/l	IS 3025 Part 53:2003 (Reaff:2019)	0.16
14	Free Residual Chlorine	mg/l	IS 3025 Part 28:1986 (Reaff:2019)	BDL (DL:0.1)
15	Fluoride as F ⁻	mg/l	APHA 23 rd Edn, 2017:4500 F.D	0.11
16	Nitrates as NO ₃ ⁻	mg/l	IS 3025 Part 34:1985 (Reaff:2019)	7.4
17	Copper as Cu	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01)
18	Manganese as Mn	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02)
19	Mercury as Hg	mg/l	IS:ISEPA 200.8	BDL (DL:0.0005)

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TEST REPORT

Test Report No.: KGS/0322/TR/W-64			
Client Name & Address:		Thiru.Mir Tabar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu, Extent of 2.480Ha	
Sample Description	Ground Water (BW-1)	Sample Reference	KGS/0322/W-64
Sample Mark	Near Project Area	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
20	Cadmium as Cd	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	HDL (DL:0.001)
21	Selenium as Se	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	HDL (DL:0.005)
22	Aluminium as Al	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	HDL (DL:0.005)
23	Lead as Pb	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	HDL (DL:0.005)
24	Zinc as Zn	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.05)
25	Total Chromium	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02)
26	Boron as B	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.05)
27	Mineral Oil	mg/l	IS 3025 Part 39-1991 (Reaff:2019)	BDL (DL:0.01)
28	Phenolic Compounds as C ₆ H ₅ OH	mg/l	IS 3025 Part 43-1992 (Reaff:2019)	HDL (DL:0.0005)
29	Anionic Detergents as MBAS	mg/l	IS 13428 - 2005 (Reaff:2019)	HDL (DL:0.01)
30	Cyanide as CN	mg/l	IS 3025 Part 27-1986 (Reaff:2019)	BDL (DL:0.01)
31	Barium as Ba	mg/l	IS 3025 Part 44-1993 (Reaff:2019)	HDL (DL:0.5)
32	Ammonia (as Total Ammonia-N)	mg/l	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01)
33	Sulphide as H ₂ S	mg/l	IS 3025 Part 38-1989 (Reaff:2019)	HDL (DL:0.05)
34	Molybdenum as Mo	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.5)
35	Total Arsenic as As	mg/l	IS 3025 Part 34-1988 (Reaff:2019)	HDL (DL:0.01)
36	Total Suspended Solids	mg/l	IS 3025 Part 29-1986 (Reaff:2019)	BDL (DL:1.0)
37	Total Coliform	MPN/100ml	APHA 23 rd Edn. 2017:9221B	178
38	E-Coli	MPN/100ml	APHA 23 rd Edn. 2017:9221F	< 3.8

-----End of Report-----



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TEST REPORT

Test Report No.: KGS/0322/TR/W-65			
Client Name & Address:		Thiru, Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu. Extent of 2.48,0Ha	
Sample Description	Ground Water (BW-2)	Sample Reference	KGS/0322/W-65
Sample Mark	Maratepalli	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
1	Color	Hazen	IS 3025 Part 4:1983 (Reaff:2017)	5
2	Odoir	-	IS 3025 Part 5:2018	Agreeable
3	pH @ 25°C	-	IS 3025 Part 11:1983 (Reaff:2017)	7.66
4	Electrical Conductivity @ 25°C	µs/cm	IS 3025 Part 14:2013 (Reaff:2018)	960
5	Turbidity	NTU	IS 3025 Part 10:1984 (Reaff:2017)	1.8
6	Total Dissolved Solids	mg/l	IS 3025 Part 16:1984 (Reaff:2017)	878
7	Total Hardness as CaCO ₃	mg/l	IS 3025 Part 21:2009 (Reaff:2019)	306
8	Calcium as Ca	mg/l	IS 3025 Part 40:1991 (Reaff:2019)	17.8
9	Magnesium as Mg	mg/l	IS 3025 Part 46:1994 (Reaff:2019)	21.0
10	Total Alkalinity as CaCO ₃	mg/l	IS 3025 Part 23:1986 (Reaff:2019)	183
11	Chloride as Cl	mg/l	IS 3025 Part 32:1988 (Reaff:2019)	157
12	Sulphate as SO ₄	mg/l	IS 3025 Part 24:1986 (Reaff:2019)	56.4
13	Iron as Fe	mg/l	IS 3025 Part 53:2003 (Reaff:2019)	0.24
14	Free Residual Chlorine	mg/l	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1)
15	Fluoride as F	mg/l	APHA 23 rd Edn. 2017.4500 F.D	0.16
16	Nitrate as NO ₃	mg/l	IS 3025 Part 34:1988 (Reaff:2019)	4.7
17	Copper as Cu	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01)
18	Manganese as Mn	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02)
19	Mercury as Hg	mg/l	USEPA 200.8	BDL (DL:0.0005)

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/W-65			
Client Name & Address:		Thiru. Mir Tahar Ali, 18/16, 3 rd Cross, Co-Operative Colony, Krishnagiri Taluk, Krishnagiri District - 635203 Mobile No: 9443371793, 9344223717	
Site Location:		S.F. No. 380/1(Part) at Chendarapalli Village of Krishnagiri Taluk, Krishnagiri District, Tamil Nadu. Extent of 2.48.0Ha	
Sample Description	Ground Water (BW-7)	Sample Reference	KGS/0322/W-65
Sample Mark	Marutepalli	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
20	Cadmium as Cd	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001)
21	Selenium as Se	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005)
22	Aluminium as Al	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005)
23	Lead as Pb	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005)
24	Zinc as Zn	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.05)
25	Total Chromium	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02)
26	Boron as B	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.05)
27	Mineral Oil	mg/l	IS 3025 Part 39:1991 (Reaff:2019)	BDL (DL:0.01)
28	Phenolic Compounds as C ₆ H ₅ OH	mg/l	IS 3025 Part 43:1992 (Reaff:2019)	BDL (DL:0.0005)
29	Anionic Detergents as MBAS	mg/l	IS 13428 - 2005 (Reaff:2019)	BDL (DL:0.01)
30	Cyanide as CN	mg/l	IS 3025 Part 27:1986 (Reaff:2019)	BDL (DL:0.01)
31	Barium as Ba	mg/l	IS 3025 Part 44:1993 (Reaff:2019)	BDL (DL:0.5)
32	Ammonia (as Total Ammonia-N)	mg/l	IS 3025 Part 38:2006 (Reaff:2017)	BDL (DL:0.01)
33	Sulphide as H ₂ S	mg/l	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.05)
34	Molybdenum as Mo	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.5)
35	Total Arsenic as As	mg/l	IS 3025 Part 34:1988 (Reaff:2019)	BDL (DL:0.01)
36	Total Suspended Solids	mg/l	IS 3025 Part 29:1986 (Reaff:2019)	BDL (DL:1.0)
37	Total Coliform	MPN/100ml	APHA 23 rd Edn. 2017:9221B	185
38	E-Coli	MPN/100ml	APHA 23 rd Edn. 2017:9221F	< 1.8

.....End of Report.....



Authorized Signatory

Note: 1. Test Results shown in this report relate only to the items tested. 2. This test report shall not be reproduced anywhere except in full and same format without the approval of the laboratory. 3. Unless informed by the customer the test items will not be retained for more than 10 days from the date of issue of test report.

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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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