Application For Environmental Clearance (Public Hearing)

September 2022

Draft Environmental Impact Assessment Report

For

Existing Rough stone Quarry – 2.13.0 Ha

(Brownfield Project)

at

S.F. No. 4/3A,4/4B,7/4A and 7/4B Padalur (East) Village, Alathur Taluk, Perambalur District, Tamil Nadu State

Sector No. 1(a) (Sector No. 1 as per NABET)

Category of the Project: B1 Cluster Mining

Baseline Period: January, February and March 2021

Environmental Consultant & Laboratory details:

Ecotech Labs Pvt Ltd,

No 48, 2nd Main road,
South extension Ram nagar,
Pallikaranai,
Chennai -600100.

Proponent details:

Thiru.M.Baskaran
S/o. Thiru. Muthureddiyar
Thiruvallakurichi,
Alathur Taluk
Perambalur District.

ETL/EAQM/28/September/1(a)/M.Baskaran

Thiru.M.Baskaran
S/o. Thiru. Muthureddiyar
Thiruvallakurichi,
Alathur Taluk
Perambalur District.

UNDERTAKING

I, Thiru.M.Baskaran, undertaking that the Environmental Impact Assessment (EIA) Report for Existing Rough stone quarry over an extent of 2.13.0 Ha at S.F.No. 4/3A,4/4B,7/4A and 7/4B Padalur (East) Village, Alathur Taluk, Perambalur District, Tamil Nadu State under project category B1 and Schedule S.No.1(a)

TOR issued by the State Expert Appraisal Committee, TN vide letter SEIAA-TN/F. No. F.No.7165/SEAC/TOR-714/2020 Dated 02.06.2020.

I, hereby assure that all the information and dataprovided in the EIA report is accurate, true and correct and owns responsibility for the same

Place : Perambalur

Date :

Yours faithfully

Thiru.M.Baskaran

Plot No.48A, 2nd Main Road,
Ram Nagar, South Extension,
Pallikkaranai, Chennai - 600 100
GST NO. 33AADCE6103A2ZH
PAN NO. AADCE6103A

Eco Tech Labs Pvt Ltd

Cell No. 98400 87542
Email : info@ecotechlabs.in
Website www.ecotechlabs.in
CIN : U74900TN2014PTC094895

UNDERTAKING

I, Dr. A. Dhamodharan, Managing Director confirms that this EIA Report of Existing Rough stone quarry over an extent of 2.13.0 Ha at S.F.No. 4/3A, 4/4B, 7/4A and 7/4B Padalur (East) Village, Alathur Taluk, Perambalur District, Tamil Nadu State has been prepared at M/s. Ecotech Labs Pvt. Ltd., Chennai.

I also confirm that I shall be fully accountable for any miss-leading information mentioned in this Report.

Signature:

Name: Dr. A. Dhamodharan

Designation: Managing Director

Name of the EIA Consultant Organization: M/s. Ecotech Labs Pvt Ltd.,

Chennai. NABET Certificate No: NABET/EIA/2124/SA 0147

Place: Chennai

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Abbreviation

LU –Land use

AP – Air Pollution monitoring, prevention and control

AQ- Meterology, Air quality modeling and prediction

WP – Water pollution monitoring, prevention and control

EB- Ecology and Biodiversity

NV- Noise & Vibration

SE- Socio-economics

HG- Hydrology, ground water and water conservation

GEO –Geology

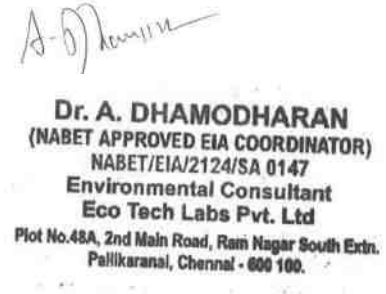
RH – Risk assessment and hazards management

SHW –Soild and Hazardous waste management

SC- Soil conservation

Declaration of Experts contributing to the EIA

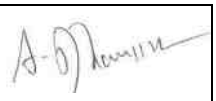
Declaration by experts contributing to the EIA report for Existing Rough stone quarry (minor mineral) mining project of Thiru.M.Basakaran over an extent of 2.13.0 Ha is situated at Survey. No. 4/3A, 4/4B, 7/4A & 7/4B Padalur (E) Village, Alathur Taluk, Perambalur District. Tamil Nadu State I, hereby, certify that I was a part of the EIA team in the following capacity that developed the above EIA.

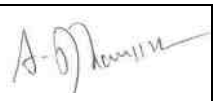
Project	Existing Rough stone quarry-2.13.0 Ha
Type & Category	1 (a) Mining of Minerals
Project Proponent	Thiru.M.Baskaran
Environment Consultant with their Accreditation Status	M/s. Eco Tech Labs Pvt. Ltd., QCI Accreditated
NABET Certificate No.	NABET/ EIA/2124/ SA 0147
EIA Coordinator Name **Signature** **Period of Involvement**	Dr. Dhamodharan (Mining of Minerals)  January to March 2021
Contact Information	**M/s. Eco Tech Labs Pvt. Ltd.** No. 48, 2nd Main Road, Ram Nagar South Extension, Pallikaranai, Chennai - 600 100 Mobile: +91 9789906200 E-mail: dhamo@ecotechlabs.in

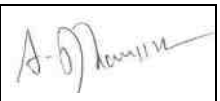
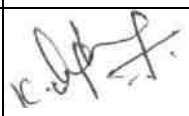
Functional Area Experts

The basic fact division that environment and laboratory are accredited by NABL and Ministry of Environment and Forests, India and by other international bodies, stand testimony to its emphasis

S. No.	Functional areas	Name of the expert/s	Involvement (Period and task)	Signature and date
1	AP	Mrs. K. Vijayalakshmi	Selection of Baseline Monitoring stations based on the wind direction, Interpretation of Baseline data by comparing it with standards prescribed by CPCB against the type of area. Identification of sources of air pollution and suggesting mitigation measures to minimize impact.	
2	WP	Dr. A. Dhamodharan	Selection of baseline Monitoring Locations for Ground water analysis and also identifying nearest surface to be studied, Preparing water balance for the project based on the anticipated occupancy load. Interpretation of baseline data collected, Identification of impacts based on the baseline. study	

3	SHW	Dr. A. Dhamodharan	Identification of nature of solid waste generated, Categorization of the generated waste and estimating the quantity of waste to be generated based on the per capita basis. Identification of impacts of SHW on Environment, Suggesting suitable mitigation measures by recommending appropriate disposal method for each category of waste generated.	
4	SE	Mr. S. Pandian	Primary data collection through the census questionnaire, Secondary data interpretation from authenticated sources, Impact assessment & proposing suitable mitigation plan. CSR budget allocation	

5	EB	Dr. A. Dhamodharan	Primary data collection through field survey and sheet observation for ecology and biodiversity, Secondary Collection through various authenticated sources, Prediction of anticipated impacts and suggesting appropriate mitigation measures.	
6	HG	Dr. T. P. Natesan	Field survey for assessing regional and local geology, aquifer distribution, water resource evaluation, change in ground water level throughout the year. Determination of groundwater use pattern, development of rainwater harvesting program, estimation of ground water direction.	
7	GEO	Dr. T. P. Natesan	Field survey for assessing regional and local geology, aquifer distribution. Determination of groundwater use pattern, development of rainwater harvesting program.	

8	SC	Dr. A. Dhamodharan	Interpretation of baseline report, Identification of possible impacts on soil, prediction of soil conservation and suggesting suitable mitigation measures.	
9	AQ	Mrs. K. Vijayalakshmi	Collection of Meteorological data for the baseline study period, Plotting wind rose diagram and thereby selecting the monitoring locations based on the wind pattern, estimation	
	AQ	Mrs. K. Vijayalakshmi	estimation of sources of air emissions and air quality modeling is done. Interpretation of the results obtained, Identification of the impacts and suggesting suitable mitigation measures.	
10	AP	Mrs. K. Vijayalakshmi	Design of Ambient air quality monitoring network, interpretation of ambient air quality, identification of sources of air pollution and its impact on air quality during operation phase, suggesting mitigation measures to minimize impact to ambient air quality.	

11	N/V	Mrs. Neha Singh	Selection of monitoring locations, Interpretation of baseline report, Prediction of impacts due to noise pollution and suggestion of appropriate mitigation measures.	
12	LU	Dr. T. P. Natesan	Preparation of land use, land cover maps for the study area using satellite imagery.	
13	RH	Mr. Pinaki Dasgupta	Identification of the risk and Interpreting consequence contours.	

Declaration by the Head of the accredited consultant organization/ authorized person

I, Dr. A. Dhamodharan, hereby, confirm that the above mentioned experts prepared the EIA report of mining project at survey number. 4/3A, 4/4B, 7/4A & 7/4B Padalur (E) Village, Alathur Taluk, Perambalur District,Tamil Nadu State.

I also confirm that the consultant organization shall be fully accountable for any misleading information mentioned in this statement.

Signature:

ECO TECH LABS PRIVATE LIMITED CHENNAI 600 100

Name: Dr. A. Dhamodharan

Designation: Managing Director

Name of the EIA consultant organization: M/s. Eco Tech Labs Private Limited

NABET Certificate No: NABET/EIA/2124/SA 0147

1 Introduction

1.1 Preamble

Environment Impact Assessment (EIA) is a process used to identify the environmental, social & economic impacts of a project prior to decision making. It is a decision-making tool, which guides the project proponent in taking appropriate decisions for proposed projects. It aims to predict environmental impacts at an early stage of project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the prediction options to the proponent. By using EIA, both environmental & economic benefits can be achieved. By considering environmental effects - prediction & mitigation, early benefits in project planning, protection of the environment, optimum utilization of resources, thus saving overall time & cost of the project. EIA also lessens conflicts by promoting community participation, informs project proponent, and helps to lay the base for environmentally sound projects.

The Ministry of Environment & Forests, Govt. of India, made environmental clearance (EC) for certain development projects mandatory through its notification of 27/01/1994 under the Environment Protection Act, 1986 and subsequently the MoEF came out with Environment Impact Notification, S.O.1533(E), and dt.14/09/2006. It has been made mandatory to obtain environmental clearance for different kinds of developmental projects (Schedule-1 of notification). The proposed project falls under item 1(a) of the EIA notification, 2006.

1.2 General Information on Mining of Minerals

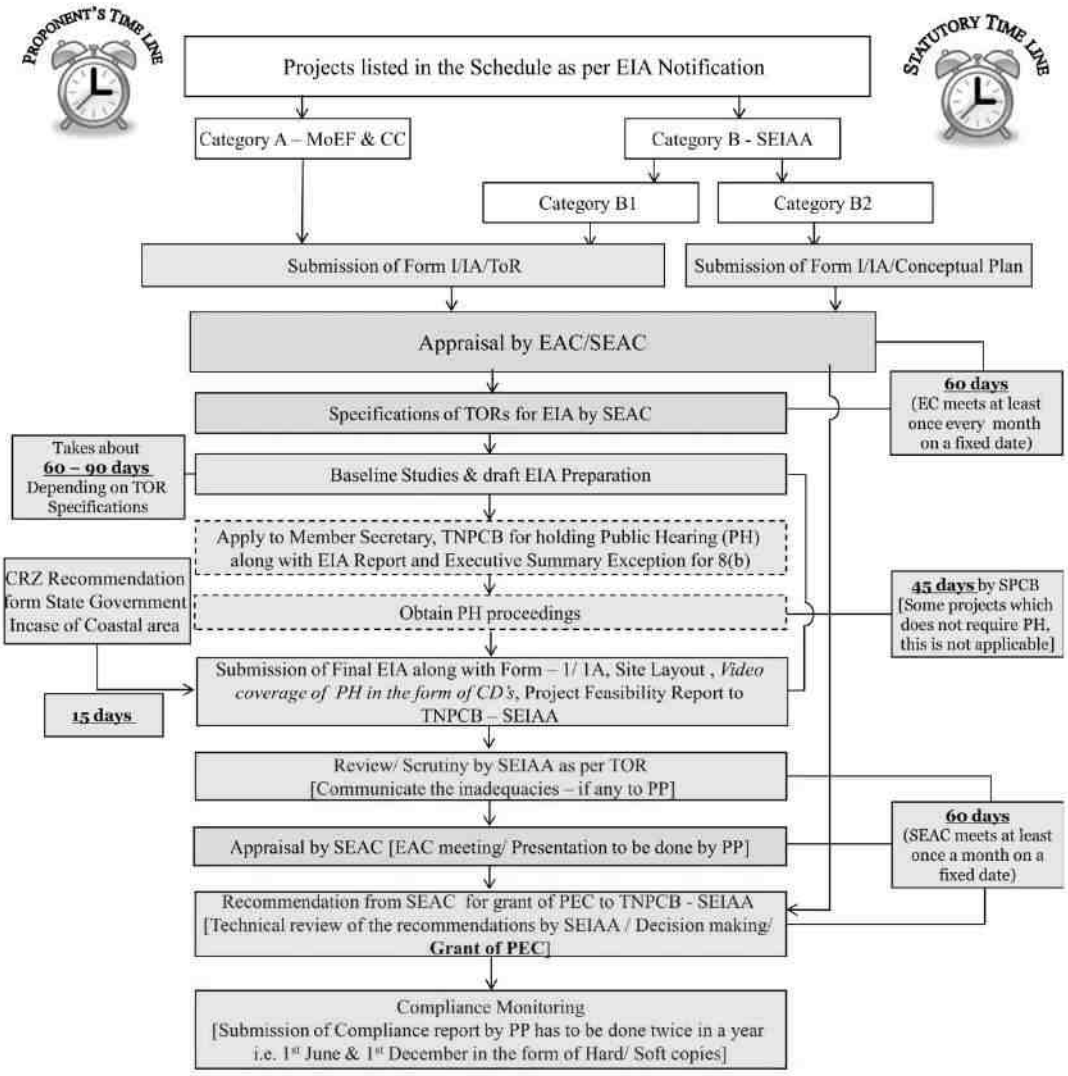
Minerals of Economic importance found in Perambalur District are mainly Gypsum, Kankar, varieties of black granites (Dimensional stones), Rough stone(aggregates), limestone, fireclay and gravel/earth. Mining activities based on these minerals are very less. However, numerous Rough Stone quarries are under operation for production of construction materials in Esanai, Kalpadi, Nattarmangalam, Naranamangalam, Padalur in the district. In addition to above, 'Dimensional Stones' (Granite) is also available in Neikuppai, V.Kalathur and Kilapuliyur villages.

Limestone mines are located in the eastern part of the district over the Cretaceous Fomration. Limestone mines are located around Varagupadi, Olaipadi, Perali, Paravoi, Vayalapadi, Kalpadi and Azur villages. Fire clay mines are located mainly around Karai village, Kunnam Taluk. Gypsum mines are not active.

1.3 Environmental Clearance

As per EIA Notification, 2006 and its subsequent amendments (O.M vide No.F.No.L - 11011/175/2018 - IA-II(M) Govt of India MOEF & CC on December 12th 2018) project comes under category B1 cluster & schedule 1(a) under item 1

The proposed project is categorized under Category "B1" 1(a) (Cluster) - {Mining of Minerals} as the 500m radius area is more than 5 Ha including the mine lease area. Hence, the project will be considered at SEAC, Tamil Nadu.



SEIAA : State Level EIA Authority
EIA : Environmental Impact Assessment
TNPCB : Tamil Nadu Pollution Control Board
SEAC : State Level Expert Appraisal Committee
TOR : Terms of Reference
PEC : Prior Environmental Clearance
PP : Project Proponent
: TNPCB - SEIAA
: SEAC
: PP

1.4 Terms of Reference (ToR)

The terms of Reference has been issued by SEAC TN vide Letter No. SEIAA-TN/F. No. 7165/SEAC/ToR-714/2020 Dated: 02.06.2020. 9 additional ToR points were recommended by SEAC TN in addition to the Standard ToR Points. The replies for the same were addressed in this report.

1.5 Post Environmental Clearance Monitoring

1.5.1 Methodology adopted

Post project monitoring will be carried out as per conditions stipulated in environmental clearance letter issued by SEIAA, consent issued by SPCB as well as according to CPCB guidelines. The lease area is considered as core zone and the area lying within 10 km radius from the lease boundary is considered as buffer zone, where some impacts may be observed on physical and biological environment. In the buffer zone slight impact may be observed and that too is occasional.

Table 1-1: Post Environmental Clearance Monitoring

S. No.	Description	Frequency of Monitoring
1.	Ambient Air Quality Monitoring	Quarterly/ Half Yearly
2.	Water level & Quality Monitoring	Quarterly/ Half Yearly
3.	Noise Level Monitoring	Quarterly/ Half Yearly
4.	Soil Quality Monitoring	Yearly
5.	Medical Check-up	Yearly

1.6 Generic Structure of the EIA Document

Chapter 1: Introduction This chapter contains the general information on the mining of minerals, major sources of environmental impacts in respect of mining projects and details of environmental clearance process.

Chapter 2: Project Description In this chapter the proponent should also furnish detailed description of the proposed project, such as the type of the project, need for the project, project location, layout, project activities during construction and operational phases, capacity of the project, project operation i.e., land availability, utilities (power and water supply) and infrastructure facilities such as roads,

railways, housing and other requirements. If the project site is near a sensitive area it is to be mentioned clearly why an alternative site could not be considered. The project implementation schedule estimated cost of development as well as operation etc should be also included.

Chapter 3: Analysis of Alternatives (Technology and Site) This chapter gives details of various alternatives both in respect of location of site and technologies to be deployed, in case the initial scoping exercise considers such a need.

Chapter 4: Description of Environment This chapter should cover baseline data in the project area and study area.

Chapter 5: Impact Analysis and mitigation measures This chapter describes the anticipated impacts on the environment and mitigation measures. The method of assessment of impacts including studies carried out, modelling techniques adopted to assess the impacts where pertinent should be elaborated in this chapter. It should give the details of the impacts on the baseline parameters, both during the construction and operational phases and suggests the mitigation measures to be implemented by the proponent.

Chapter 6: Environmental Monitoring Program This chapter should cover the planned environmental monitoring program. It should also include the technical aspects of monitoring the effectiveness of mitigation measures.

Chapter 7: Additional Studies This chapter should cover the details of the additional studies required in addition to those specified in the ToR and which are necessary to cater to more specific issues applicable to the particular project.

Chapter 8: Project Benefits This chapter should cover the benefits accruing to the locality, neighbourhood, region and nation as a whole. It should bring out details of benefits by way of improvements in the physical infrastructure, social infrastructure, employment potential and other tangible benefits.

Chapter 9: Environmental Cost Benefit Analysis This chapter should cover on Environmental Cost Benefit Analysis of the project.

Chapter 10: Environmental Management Plan This chapter should comprehensively present the Environmental Management Plan (EMP), which includes the administrative and technical setup, summary matrix of EMP, the cost involved to implement the EMP, both during the construction and

operational phase and provisions made towards the same in the cost estimates of project construction and operation. This chapter should also describe the proposed post-monitoring scheme as well as inter-organizational arrangements for effective implementation of the mitigation measures.

Chapter 11: Summary and Conclusions This chapter gives the summary of the full EIA report condensed to ten A-4 size pages at the maximum. It should provide the overall justification for implementation of the project and should explain how the adverse effects have been mitigated.

Chapter 12: Disclosure of Consultants This chapter should include the names of the consultants engaged with their brief resume and nature of consultancy rendered.

1.7 Details of Project Proponent

Project Proponent : Thiru.M.Baskaran
Status of the Proponent : Private & Individual
Proponent's Name & Address : S/o. Thiru. Muthureddiyar
Thiruvallakurichi,
Alathur Taluk
Perambalur District.

1.8 Brief Description of the Project

1.8.1 Project Nature, Size & Location

As per EIA Notification, 2006 and its subsequent amendments (O.M vide No.F.No. L-11011/175/2018-IA-II(M) Govt of India MOEF&CC on December 12th, 2018) project comes under category B1 cluster & schedule 1(a) under item 1.

Proposed proposal pertains to rough stone mining project by semi mechanized open cast method on allotted mine lease area at Padalur (East) Village, Alathur Taluk of Perambalur District, Tamil Nadu. It is a plain terrain. The total allotted mine lease for the proposed project is 2.13.0 Ha with their maximum annual production capacity i.e., 157655m^3 of Rough stone for (Sixty months) Five years only.

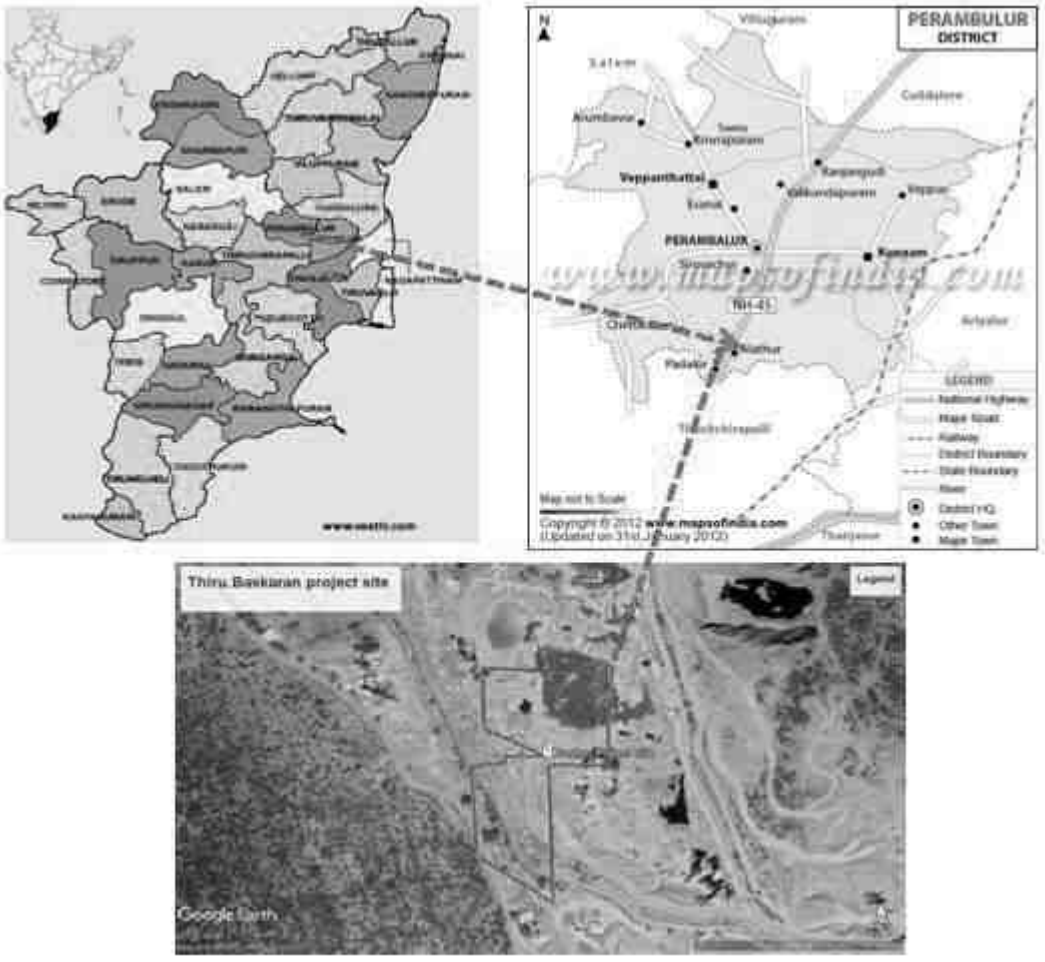


Figure 1.1: Location Map of the Project site

2 Project Description

This chapter furnishes detailed description of the proposed project, such as the type of the project, need for the project, project location, layout, project activities during mining, capacity of the project, project operation i.e., land availability, utilities (power and water supply) and infrastructure facilities such as roads, railways, housing and other requirements. The project implementation schedule estimated cost for carrying out entire mining activity is included.

2.1 General

❖ Thiru Basakaran was operating mine quarry from 2006 to 2013, based on the approval taken from Perambalur District Collector, Quarrying of rough stone in S.F.No.7/4B

❖ Another, Tmt.Karpagam was operating mine from 2010 to 2015 in S.F.No 4/3A, 4/4B and 7/4A

❖ Thiru.M.Baskaran for quarrying of rough stone over an extent of 5.40.5 Ha of patta land in S.F.Nos.4/1,4/2,7/3,7/4B and 7/5 in Padalur (E) village for a period of five years vide district collector, Perambalur proceedings Rc.No.136/2011/G&M dated 23.05.2011. The lease period was from 31.05.2011 to 30.05.2016.

❖ Old quarrying pits are noticed in S.F No. 4/3A,4/4B,7/4A and 7/4B with the following dimensions.

S.F No	**Length (in m)**	**Width (in m)**	**Depth (in m)**	**Volume (in m3)**
4/3A & 4/4B	120	92	13	143520
7/4A & 7/4B	111	67	12	89244
Total				**232764**

❖ We have obtained fresh mining plan from 2020 to 2025 from Department of Geology and Mining, Perambalur District for 2.13.0Ha land area in the S.F.Nos. 4/3A, 4/4B, 7/4A & 7/4B for a proposed mining depth of 30m below ground level and five years production of 1,49,773m^3 of Rough stone.

Proposed proposal pertains to rough stone mining project by semi mechanized open cast method on allotted mine lease area at Padalur (East) Village, Alathur Taluk of Perambalur District, Tamil Nadu. It is a plain terrain. The total allotted mine lease for the proposed project is 2.13.0 Ha with their maximum annual production capacity i.e. 1,57,655 m^3 of Rough stone to be mined for (Sixty months) Five years only.

2.1.1 Type of the project:

As per EIA Notification, 2006 and its subsequent amendments (O.M vide No.F.No.L-11011/175/2018-IA-II(M) Govt of India MOEF&CC on December 12th 2018) project comes under category B1 cluster & schedule 1(a) under item 1. The project required to be appraised at state level by State Environment Impact Assessment Authority, Tamil Nadu. Environment Clearance study will involve preparation of draft EIA report on the basis of baseline & impact assessment study is carried out. Also, before appraisal, under 7(III) of EIA notification 2006, the project involves the Public Consultation and the same will be conducted under SPCB (TN) in Perambalur District. The proceedings of the same will be incorporated in the Final EIA Report.

The mines within 500m radius from the project site is listed below

Table 2-1: Quarry within 500m Radius

S. No.	Quarry detail	Village	S.F No	Extent (Ha)
I. Existing Quarry				
1	Panneerselvam	Alathur & Padalur East	10/1, Block No.22	1.00.0
2	M.Baskaran	Alathur & Padalur East	4/1 (P) 4/2 (P) & 7/3 (P)	2.00.0
3	B.Karpagam	Alathur & Padalur East	3/5 (P), 3/6 (p)	1.45.0
4	Natarajan	Alathur & Irur	713/5,6,7,8 & 9	1.34.0
II. Abandoned Quarry				
5	B.Ravichandran	Alathur & Padalur East	10/1 Block 21	1.00.0
6	M.Ravi	Alathur & Padalur East	10/1 Block 20	1.00.0

7	K.Mathiyalagan	Alathur & Padalur East	10/1 Block 18	1.00.0
8	R.Sureshbabu	Alathur & Padalur East	10/1 Block 22	1.00.0
9	R.Ravichandran	Alathur & Padalur East	10/1 Block 19	1.00.0
III. Proposed Quarry				
10	Thiru.M.Baskaran	Alathur & Padalur East	4/3A, 4/4B, 7/4A,7/4B	2.13.0
Total				**12.92**

2.1.2 Need for the project:

The said project plays a significant role in the domestic as well as infrastructural market. To achieve a huge infrastructure being envisaged by Government of India, particularly in road and housing sector, there is a need for basic building materials. The rough stone form the primary building material.

Rough stone is one of the most valuable natural building materials. Aggregates are mostly used for building roads and footpaths Aggregates – stone used for its strong physical properties – crushed and sorted into various sizes for use in concrete, coated with bitumen to make asphalt or used 'dry' as bulk fill in construction. Mostly used in roads, concrete and building products. Aggregates represent about 98% of quarry output, most of which is used in road construction, maintenance and repair. Much of this goes to the production of asphalt; the remainder is used 'dry' without the addition of other materials to provide a sturdy base for roads.

Since Perambalur, a city known for its small-scale industries and also the soil in the area near project site is not very fertile making it unsuitable for carrying out agricultural activities. The topography near the lease area is barren dry lands showing only less chance for crop growth and development of vegetation. Perambalur is endowed with minor mineral resources like, granite (Leptynite), blue metal, gravel, brick soil, Limekankar, Clay (others) and sand deposit and the crystalline limestone is major mineral resource in the District. As a result of developmental activities and market demand for minor

minerals, mining of minor mineral is vital. In addition to that, geological reserves of rough stone is abundant in the lease area which is evident from the mine activities carried out in the nearby sites.

2.2 Brief Description of the project

Table 2-2 Salient Features of the Project

S. No.	Description	Details
1	Project Name	Existing Rough stone quarry-2.13.0 ha
2	Proponent	Thiru.M.Baskaran
3	Mining Lease Area Extent	2.13.0Ha
4	Location	S.F 4/3A,4/4B,7/4A & 7/4B -2.13.0 Ha , Padalur (East) Village,
5	Latitude	$11^0$6'51.10" N to $11^0$6'58.93" N
6	Longitude	$78^0$50'17.38" E to $78^0$50'21.64" E
7	Topography	Plain terrain
8	Site Elevation above MSL	≃130 m from above MSL
9	Topo sheet No.	58 I/16
10	Minerals of Mine	Rough stone
11	Proposed production of Mine	Proposed capacity of Rough stone: 157655 m3
12	Ultimate depth of Mining	30m below ground level
13	Method of Mining	Open cast, mechanized mining
14	Water demand	2.0 KLD
15	Source of water	Water will be supplied through tankers supply
16	Manpower	Direct :8, Indirect :12nos
17	Mining Lease	Precise Area Communication Letter Rc.No. 66/G&M/2018, dated 06.03.2019, issued by District Collector, Perambalur.

18	Mining Plan Approval	Mining plan was approved by Deputy Director, Geology and Mining, Perambalur with Letter No. 66/G&M/2018, dated 08.03.2019,
19	Production details	Geological reserves of Roughstone: 5,41,640 m^3 Proposed year wise reserves of Roughstone: 1,49,773 m^3
20	Boundary Fencing	7.5m barrier all along the boundary Fencing will be provided
21	Disposal of overburden	The overburden is in the form of topsoil and weathered rock formation. It will be quarried for filling purpose to nearby end users and part of soil will be preserved all along the boundary as barrier for afforestation.
22	Ground water	The quarry operation is proposed up to a depth of **30m** below ground level. The water table is below **50m** from ground level which is observed from the nearby bore wells. Hence the ground water will not be affected in any manner due to the quarrying operation during the entire lease period.
23	Habitations within 500m radius of the Project Site	There is no Habitation within 500m radius
24	Drinking water	Water will be supplied through tankers from Padalur(E) Village which is 1km in NW side of the area.

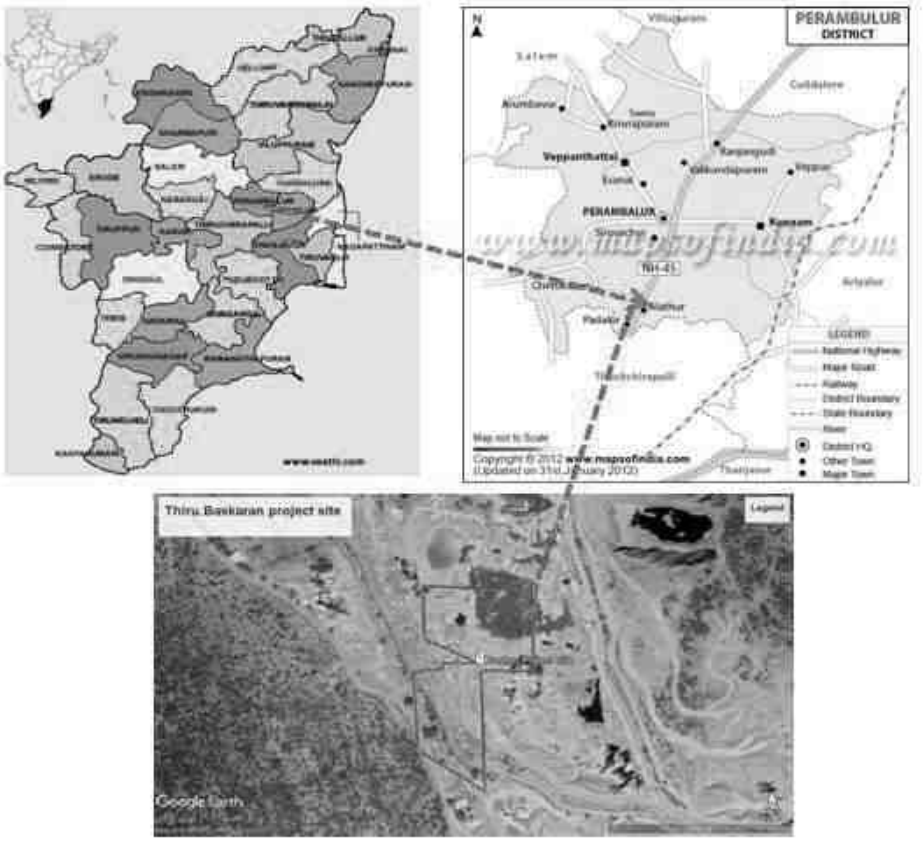


Figure 2.1: Location Map of the Project Site

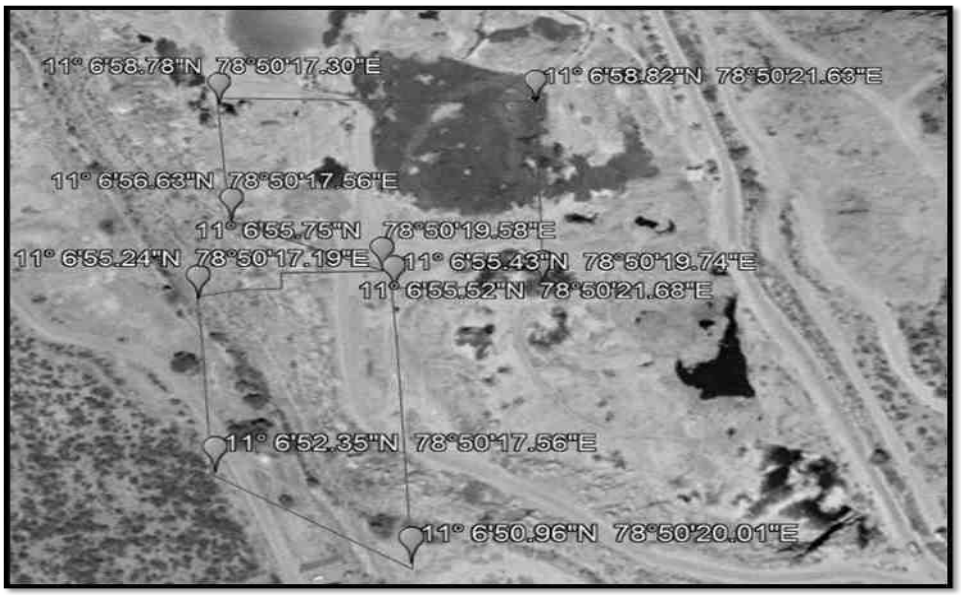


Figure 2.2: Google Earth Image and Coordinates of the Project Site

2.2.1 *Site Connectivity:*

The site is connected to (NH 45)- Srinagar to Kanyakumari – 0.59 km towards West side

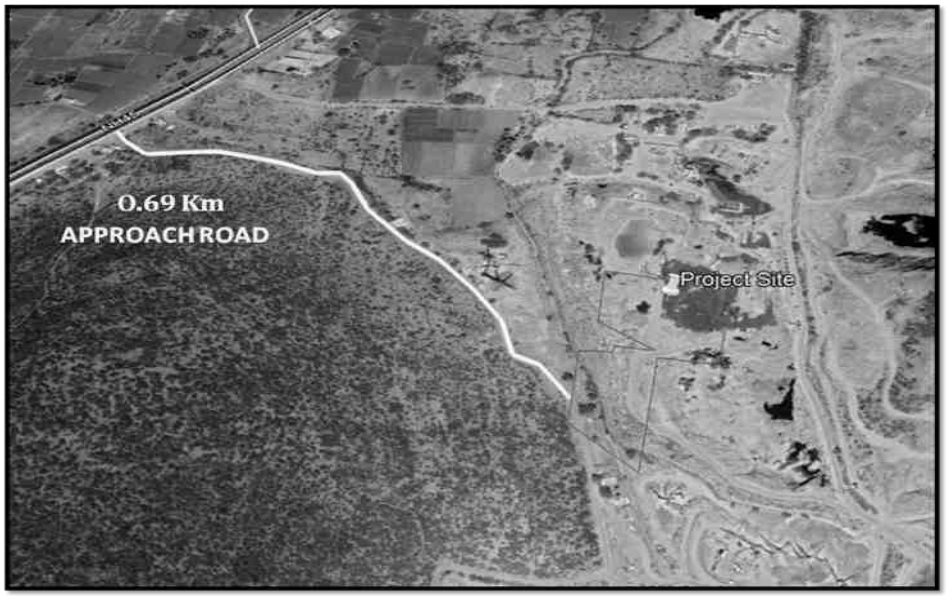


Figure 2.3: Site Connectivity

2.3 Location Details:

Table 2-3: Location Details

S. No	Particulars	Details
1.	Latitude	$11^0$6’51.10” N to $11^0$6’58.93” N
2.	Longitude	$78^0$50’17.38” E to $78^0$50’21.64” E
3.	Site Elevation above MSL	130m from MSL
4.	Topography	Plain terrain
5.	Land use of the site	Own Patta land
6.	Extent of lease area	2.13.0 Ha

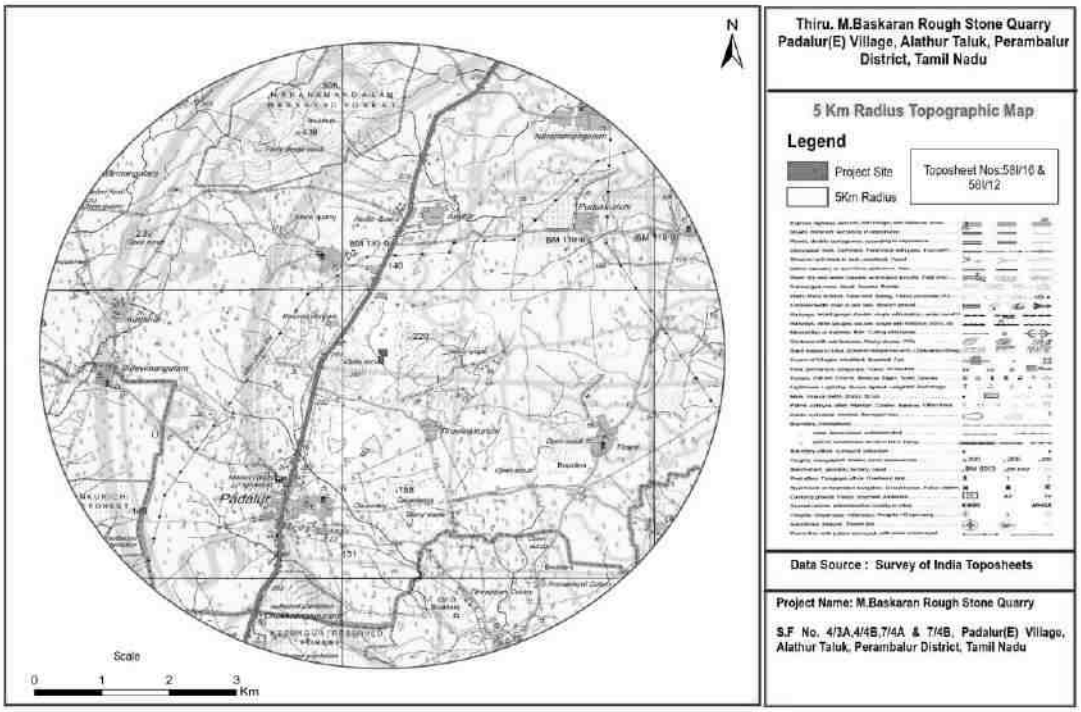


Figure 2.4: Topo Map of Project Site

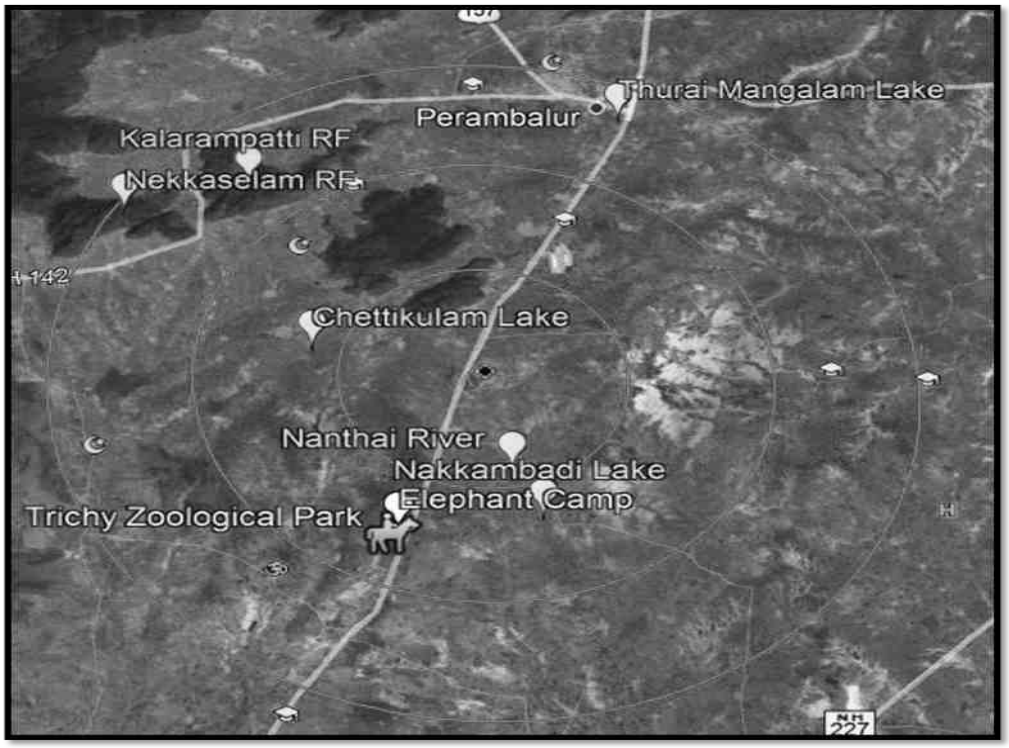


Figure 2.5: Environmental Sensitivity within 15km radius

2.3.1 *Site Photographs*

The site photographs of the project site are as follows

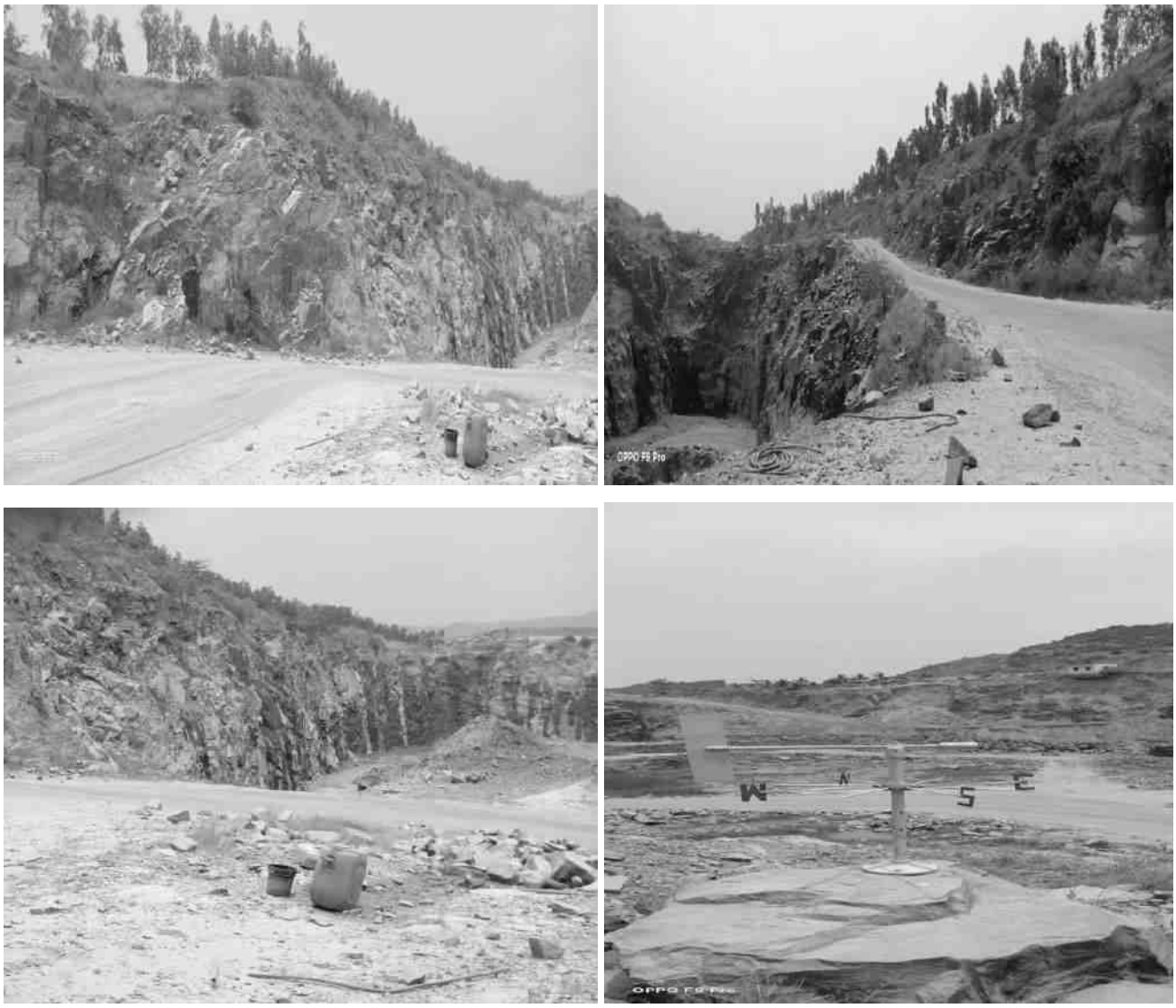


Figure 2.6: Site Photographs

2.3.2 *Land Use Breakup of the Mine Lease Area*

The Mine Lease area is plain terrain with very gentle undulations. There is existing pit available in the quarry.

Table 2-4: Land use pattern

S.No	Land Use	Present Area (Ha)	Area at the end of the quarrying period(Ha)
1	Quarry Pit	2.03.0	2.03.0
2	Infrastructure	Nil	0.01.0
3	Roads	0.01.0	0.01.0
4	Green Belt	Nil	0.08.0
5	Un utilized area	0.09.0	Nil
	Total	**2.13.0**	**2.13.0**

2.3.3 *Human Settlement*

There are no habitations within the radius of 500m. the nearby habitations are as follows

Table 2-5: Habitation

S.No	direction	village	Distance	Population
1	North	Perumapalayam	1.0 km	100
2	South	Karai	4.4 km	200
3	East	Thiruvilakurchy	1.3 km	600
4	West	Koothanur	4.2 km	800

2.4 Leasehold Area

The Existing Rough Stone Quarry mine of 2.13.0 Ha is a own patta land of M.Baskaran. The lease area falls in S.F No : 4/3A,4/4B,7/4A & 7/4B of Padalur (East) Village, Alathur Taluk, Perambalur District. There is no reserve forest or protected forest land within the lease area. There is neither human settlement within 500m radius from the lease area.

2.5 Geology

The north and western part of the district is mainly covered (> 80 %) with Archaean rocks and is mainly comprises of Hornblende Gneiss and Chaornockite and the eastern part is covered with cretaceous sediments

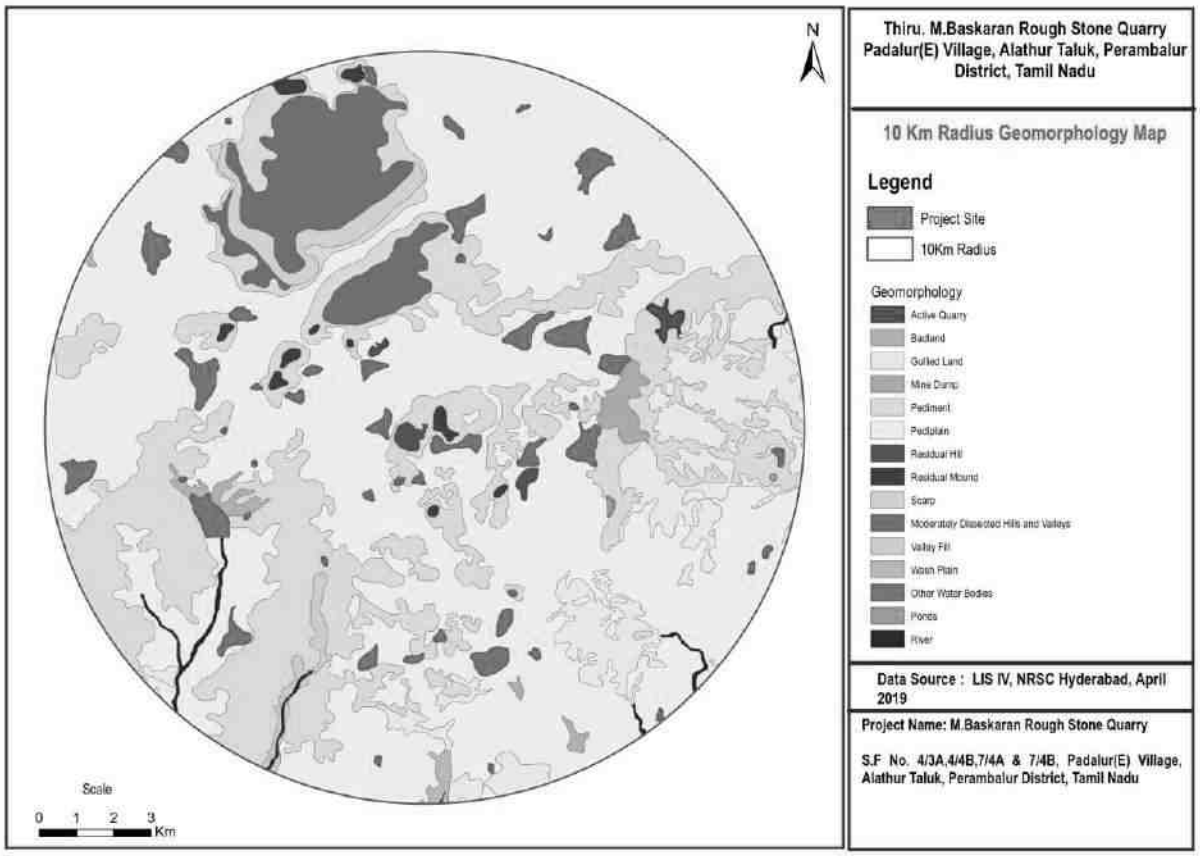


Figure 2.7: Geomorphology

The area applied for quarry lease is plain terrain with very gentle elevation of 1 or 2m above the ground level and sloping towards southeast and covered with Rough stone which does not sustain any type of vegetation.

Perambalur district is underlain by the wide range of metamorphic rocks of peninsular gneissic complex. These rocks are extensively weathered and overlain by the recent valley fills and alluvium at places. The geological formations found in the district are Archaean rocks like Genisses, Granit,

Charnokite basis granulites and calc-gneisses. The younger formation are Quartz and pegmatite. The generalized stratigraphic succession of the geological formations.

Water table is found at a depth of 50m below ground level. Average annual rainfall is about 835mm during SW and NE monsoons. Peninsular gneiss forms the oldest rock formations of Archean age, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale the Charnockite formations trends along NE-SW with a dip of 70° towards SE.

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

AGE FORMATION

Recent - Soil, Alluvium

Archean - Granite, basis granulites, Peninsular Gneiss, Calc Gneiss and Charnokite

No exploration was carried out. Massive Rough stone formation visible from the existing pits in the nearby quarry operations and dry open wells.

2.6 Quality of Reserves:

The mining lease area is of 2.13.0 Ha, with production capacity of **1,49,773 m^3** of Rough stone Due to significant role in the domestic as well as infrastructural market, making the mining of Stone along with associated minor minerals is economically viable.

Table 2-6: Details of Mining

S.No	Particulars	Details
1	Method of Mining	Open Cast Semi-mechanized
2	Geological Reserves	Rough stone – 5,41,640 m^3
3	Mineable Reserves	Rough stone – 1,49,773 m^3
4	Proposed Production	Rough stone – 1,49,773 m^3
5	Elevation Range of the Mine Site	130m MSL

2.6.1 *Estimation of Reserves*

The practical method of the systematic geological mapping and delineation of Rough stone (Charnockite) within the field was done and careful evaluation of body luster, physical properties, engineering properties, commercial aspects, etc.

Totally four sections have been drawn, two sections along length wise as (XY-AB) & (XY-CD) and (X1Y1-EF)

The Topographical, Geological plan and sections demarcated the commercial marketable Rough stone (Charnockite) deposit has been prepared in 1:1000 scale and the estimated balance Geological Reserves as 570145 Cum of Rough stone

2.6.2 *Geological Reserves*

The geological reserves have been calculated based on the cross section method. Availability of Geological Resources is given below.

Table 2-7: Geological Reserves

Section	Bench	Length	Width	Height	Volume (m^3)	Mineable Reserves 95% (m^3)	Mine Waste 5% (m^3)	Top soil
XY-AB	IV	69	87	5	30015	28514	1501	
	V	69	87	5	30015	28514	1501	
	VI	69	87	5	30015	28514	1501	-
	VII	69	87	5	30015	28514	1501	-
	VIII	69	87	5	30015	28514	1501	-
XY-CD	IV	59	104	5	30680	29146	1534	-
	V	59	104	5	30680	29146	1534	-
	VI	59	104	5	30680	29146	1534	-
	VII	59	104	5	30680	29146	1534	-
	VIII	59	104	5	30680	29146	1534	-
	I	2	11	2				44
	II	2	11	5	110	105	5	-
	III	2	31	5	310	295	15	-

X1Y1-EF	IV	75	142	5	53250	50588	2662	-
	V	75	142	5	53250	50588	2662	-
	VI	75	142	5	53250	50588	2662	-
	VII	75	142	5	53250	50588	2662	-
	VIII	75	142	5	53250	50588	2662	-
	Total Geological Reserves				**570145**	**541640**	**28505**	**-**

2.6.3 *Mineable Reserves*

The available mineable reserves are calculated for the proposed lease period of 5 years based on the total minable reserves calculated by deducting 7.5m safety distances to the boundary

Table 2-8: Mineable Reserves

Section	Bench	Length	Width	Height	Volume (m^3)	Mineable Reserves 95% (m^3)	Mine Waste 5% (m^3)
XY-AB	IV	59	72	5	21240	20178	1062
	V	54	62	5	16740	15903	837
	VI	49	52	5	12740	12103	637
	VII	44	42	5	9240	8778	462
	VIII	39	32	5	6240	5928	312
XY-CD	IV	52	89	5	23140	21983	1157
	V	47	79	5	18565	17637	928
	VI	42	69	5	14490	13766	724
	VII	37	59	5	10915	10369	546
	VIII	32	49	5	7840	7448	392
X1Y1-EF	III	1	20	5	100	95	5
	IV	18	119	5	10710	10175	535
	V	8	109	5	4360	4142	218
	VI	1	99	5	495	470	25
	VII	1	89	5	445	423	22

	VIII	1	79	5	395	375	20
	Total Mineable Reserves				**157655**	**149773**	**7882**

2.6.4 *Year wise Production Plan*

The production of minerals for the next five years as per the mining plan is given Table

Table 2-9: Year wise Production Plan

Section	Bench	Length	Width	Height	Volume (m^3)	Mineable Reserves 95% (m^3)	Mine Waste 5% (m^3)
I-YEAR	IV	59	72	5	21240	20178	1062
	IV	54	89	5	23140	21983	1157
	III	1	20	5	100	95	5
	IV	18	119	5	10710	10175	535
II-YEAR	V	54	62	5	16740	15903	837
	V	47	79	5	18565	17637	928
	V	8	109	5	4360	4142	218
III-YEAR	VI	49	52	5	12740	12103	637
	VI	42	69	5	14490	13766	724
	VI	1	99	5	495	470	25
IV-YEAR	VII	44	42	5	9240	8778	462
	VII	37	59	5	100915	10369	546
	VII	1	89	5	445	423	22
V-YEAR	VIII	39	32	5	6240	5928	312
	VIII	32	49	5	7840	7448	392
	VIII	1	79	5	395	375	20
	Total Yearwise production Reserves				**157655**	**149773**	**7882**

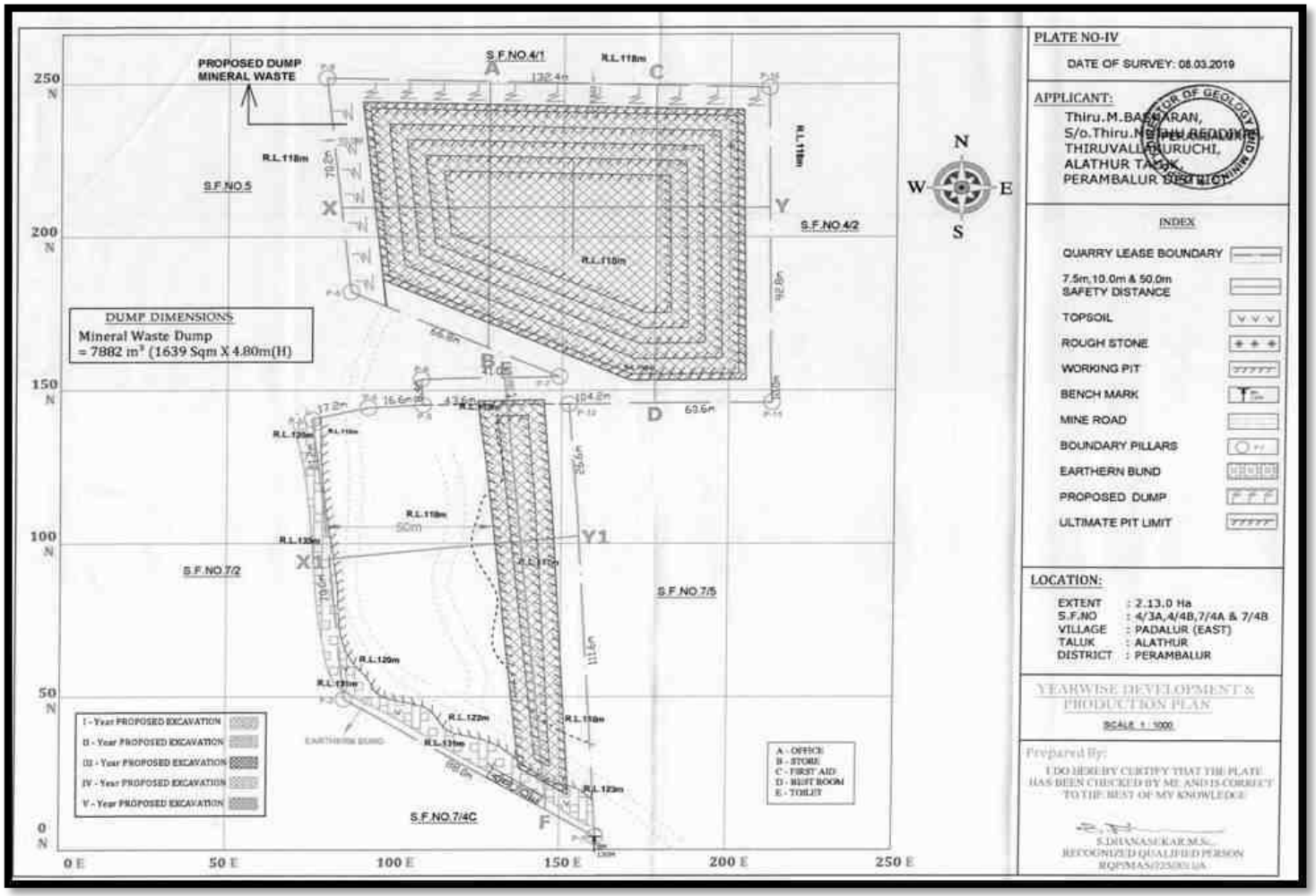


Figure 2.8 Year wise Production Plan

2.7 Type of Mining

The proposed project is an open cast semi mechanized mining with one 6.0 m bench for Top soil & Gravel followed by 5.0m vertical bench with a bench width not less than the bench height. However, as far as the quarrying of Rough stone is concerned, observance of the provisions of regulations 106(2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence, it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety for which necessary provision is available with the Regulation 106(2) (b) of MMR-1961, under Mines Act- 1952.

2.7.1 *Method of Working:*

The rough stone is proposed to quarry at 5m bench height & width with conventional Open cast semi mechanized method. The quarry operation involves Shallow jack hammer drilling, Slurry Blasting, Loading & transportation of Rough Stone to the nearby crusher units/road formation works. The production of Rough Stone in this quarry involves the following method which is typical for Rough Stone quarrying in contrast to other major mineral mining

Splitting of rock mass of considerable volume from the parent rocks by jackhammer drilling and blasting by manually braking and loading the Rough Stone from pit head to the needy crushing units/civil works for the needy sectors

2.7.2 *Overburden*

The overburden is in the form of top soil and weathered rock formation; it will be removed during the quarrying operation, the same will be preserved all along the 7.5m boundary barrier for afforestation. Hence there is no waste anticipated during the Rough stone quarry operation.

2.7.3 *Machineries to be used*

Type of machineries proposed for quarrying operation for the entire project is listed below.

Table 2-10: List of Machineries used

For Mining operation	Excavator of 0.90cbm bucket capacity (With Rock bre attachment)

	Jack Hammer (30-32mm dia) Tractor mounted compressor (2 Jack Hammer Capacity)
Loading Equipment	Excavator of 0.90cbm bucket capacity (With Rock bre attachment)
Transportation	Tipper 1 No of 10/20 tons capacity (from quarry to n people and local crushers)

2.7.4 *Blasting:*

2.7.4.1 Blasting Pattern:

The quarrying operation will be carried out by Semi Mechanized Opencast method in conjunction with conventional method of mining using jack hammer drilling and blasting for shattering effect and loosen the rough stone

2.7.4.2 Drilling & Blasting:

Drilling and Blasting Parameters are as follows

Table 2-11: Drilling and Blasting Parameters

Parameters	**Details**
Depth of each hole	1.2m to 1.5m
Diameter of hole	30-32mm
Spacing between holes	0.5 m
Burden for hole	0.5 m
Pattern of hole	Zigzag
Inclination of holes	80° from horizontal
Use of delay detonators	25 milli seconds delays
Detonating fuse	"Detonating" Cord
Hole pattern	Staggered in two to three rows

2.7.4.3 Types of Explosives to be used:

Small diameter of 25mm Slurry explosives are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling or primary blasting is proposed

2.7.4.4 Measures to minimize ground vibration due to blasting:

The quarry is situated more than 1km from the nearby villages. Controlled blasting measures will be adopted for minimizing the ground vibration and fly of rocks. Shallow depths jackhammer drilling & blasting is proposed to be carried out with minimum use of explosive mainly to give shattering effect in rough stone for easy excavation and to control fly of rock.

Table 2-12: Blasting Details

Parameters	Details
No. of holes	32 holes
Yield	96 tons
Powder factor	6 tons/kg of explosives
Total explosive required	16kg of Slurry explosives
Charge/hole	0.5 kg
Blasted at day time	1.30 to 5.30 PM (or whenever required)

2.7.4.5 Storage & Safety measures taken during blasting:

The project proponent "Thiru.M.Baskaran" will engage an authorized explosive agency to carry out the small amount of blasting and it will be supervised by Permit Mines Manager. The copy of the explosive certificate is attached as ***Annexure.***

2.8 Man Power Requirements

The manpower requirement to meet out the production Schedule and the machinery strength envisaged in the mining plan and to comply with the statutory provisions of the Mines Safety Regulations is as follows.

Table 2-13: Man Power Requirements

S. No.	Name of the Employment	No. of Employee
I.	**Skilled Labors**	
1.	Permit Manager	3
2.	Mines Manager/Mate	2
II.	**Semi-Skilled Labours**	
	Driller	2
III.	**Unskilled – Helpers**	
	Labors	13
Total		20

No child less than 21 years will be entertained during quarrying operations.

2.9 Water Requirement

Total water requirement for the mining project is 2.0 kLD. The 90% water will be required for the suspension of dust and green belt development domestic water will be sourced from nearby Padalur (East) Village and other water will be source from nearby road tankers supply

Table 2-14: Water Requirment

Purpose	Quantity	Sources
Drinking Water	1.0KLD	Packaged Drinking water vendors available in Padalur(E) village which is about 2.28 km on SE side of the area.
Green belt	0.5KLD	Other domestic activities through road tankers supply
Dust suppression	0.5KLD	From road tankers supply
Total	**2.0 KLD**	

2.10 Project Implementation Schedule

The implementation schedule of the proposed Mine Lease of Thiru.M.Baskaran (2.13.0 ha) is as follows

Table 2-15: Mining Schedule

MINING SCHEDULE					
Activity	Sep-21	Sep-22	Sep-23	Sep-24	Sep-25
Site Clearance					
Excavation - Top Soil Removal/Overburden					
I Year Production – 55,190 Cum - Rough Stone					
II Year Production – 39,665 Cum - Rough Stone					
III Year Production – 27,725 Cum - Rough Stone					
IV Year Production - 20,600 Cum - Rough Stone					
V Year Production - 14,475 Cum - Rough Stone					

2.11 Soild Waste Management

Table 2-16: Solid Waste Management

S.No	Type	Quantity	Disposal Method
1	Organic	4.0 kg/day	Municipal bin including food waste
2	Inorganic	3.0 kg/day	TNPCB authorized recyclers

As per CPCB guidelines: MSW per capita/day =0.45 kg/day

2.12 Mine Drainage

The quarry operation is proposed up to a depth of 30m below ground level. The water table is below 60m from the ground level which is observed from the nearby bore wells and the data obtained

from the existing panchayat and private boreholes. Hence the ground water will not be affected in any manner due to the quarrying operation during the entire lease period.

2.13 Power Requirement

This rough stone quarry project does not require huge water and electricity for the project.

16 Litre diesel per hour for excavator for mining and loading for Rough stone needed.

2.14 Project Cost

a. Project Cost/Investment Cost

Sl. No	DETAILS	Cost of lakhs
i)	Own patta land	Own patta land
ii)	Hired machinery	Hired machinery
iii)	Land cost	20,00,000
iv)	Labourers Shed	50,000
v)	Sanitary facility	1,00,000
vi)	Fencing	2,00,000
TOTAL		**23,50,000**

b. Expenditure/Production Cost Machinery cost: 20,00,000

c. EMP Cost

Sl. No.	DETAILS	COST in (Rs.)
1	Drinking Water facility for Labourers	1,00,000
2	Air Quality test	25,000
3	Safety kits	50,000
4	Water Sprinkling	50,000
5	Afforestation, Plantation & Maintenance	50,000
6	Noise/vibration	25,000
7	Cost towards charity	25,000
8	Water quality test	50,000
	Total	3,50,000

Investment Cost = Rs.23,50,000/-

Mining Cost up to Lease period = Rs. 20,00,000/-

Total EMP Cost = Rs. 3,50,000/-

Grand Total project Cost = Rs. 47,00,000/-

Project Cost

1.The development of greenbelt in the peripheral buffer zone of the mine area.

2.Green belt has been recommended as one of the major components of environmental Management plan, which will improve ecology, environment, and quality of the surrounding area.

3.Local trees like, Neem, Pungam, Naval etc will be planted along the south side lease boundary and avenues as well as over non-active dumps at a rate of 150 trees per annum with interval 5m.

4.The rate of survival expected to be 80% in this area

Table 2-17 Plantation/ Afforestation Program

Year	Name of species	Place of planted	No of species	Spacing	Survival
2022	Neem/Pungam	North	150	5m	80%
2023	Naval	South	150	5m	80%
2024	Poovarasu/Pungam	East	150	5m	80%
2025	Naval/Pungam	South	150	5m	80%
2026	Neem	West	150	5m	80%
Total			**750**		

3. Description of Environment

3.1 General:

The method of mining for extracting rough stone quarry is required to be selected in such a manner to ensure sustainable development. Mining activities invariably affect the existing environmental status of the site. It has both adverse and beneficial effects. 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 and sustainable resource extraction.

To understand the existing environmental scenario, Baseline data helps in identification, prediction and evaluation of impacts in Environmental Impact assessment. Through field study, baseline data are collected considering various factors of the project. This includes-

- Physical- the area, the soil properties, the geological characteristics, the topography, etc
- Chemical- water, air, noise and soil pollution levels, etc.
- Biological- the biodiversity of the area, types of flora and fauna, species richness, species distribution, types of ecosystems, presence or absence of endangered species and/or sensitive ecosystems etc.
- Socioeconomic- demography, social structure, economic conditions, developmental capabilities, displacement of locals, etc.

3.1.1 *Study Area:*

The study area for the mining projects is as follows:

- Mine lease area as the "core zone"
- A study area of 5km radius from the project boundary is designated as buffer Zone and for the study of Socio-economic status, 10 km radius from the boundary limits of the mine lease area has been selected.

We have obtained Terms of Reference from SEIAA vide Letter No. SEIAA – TN/F. No 7165/SEAC/ToR- 714/2020 dated 02.06.2020. The baseline monitoring is carried out in January to

March 2021 and the analysis is briefed in the EIA report. The proponent has engaged M/s. Ecotechlabs Pvt. Ltd for carrying out the existing baseline study.

3.1.2 *Instruments Used*

The following instruments were used at the site for baseline data collection.

1. Respirable Dust Sampler with attachment for gaseous Pollutants, Envirotech APM 460, APM411.
2. Fine Particulate Matter (FPM) Sampler, APM 550
4. Sound Level Meter Model SL–4010
5. 2000 series watchdog automatic weathering monitoring station

3.1.3 *Baseline Data Collection Period:*

The baseline data is collected in accordance with the CPCB Guidelines. The Baseline study is carried out from January to March 2021.

3.1.4 *Frequency of Monitoring*

Table 3-1: Frequency of Sampling and Analysis

Atributes	Sampling	Frequency
Air environment – Meteorological (wind speed, wind direction, rainfall, humidity, temperature)	Project site	1 hourly continuous
Air environment – Pollutants PM 10 PM 2.5 SO_2 NO_X	5 locations	24 hourly twice a week 4 hourly. Twice a week, One non-monsoon season 8 hourly, twice a week 24 hourly, twice a week
Noise	5 locations	24 hourly Once in 5 locations

Water (Ground water) pH, Temperature, Turbidity, Magnesium Hardness, Total Alkalinity, Chloride, Sulphate, Fluoride, Nitrate, Sodium, Potassium, Salinity, Total nitrogen, Total Coliforms, Fecal Coliforms	5 locations	Once in 5 locations
Water (surface water) pH, Temperature, Turbidity, Magnesium Hardness, Total Alkalinity, Chloride, Sulphate, Fluoride, Nitrate, Sodium, Potassium, Salinity, Total nitrogen, Total Coliforms, Fecal Coliforms	Sample from nearby lakes/river	One-time Sampling
Soil (Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	5 locations	Once in 5 locations
Ecology and biodiversity Study	Study area covering 10 km radius	One-time Sampling
Socio- Economic study (Population, Literacy Level, employment, Infrastructure like school, hospitals & commercial establishments)	Villages around 10 km radius	One-time Sampling

3.1.5 *Secondary data Collection*

Apart from the primary data, Secondary data is also used for the collection; collation; synthesis and interpretation

- Flora & Faunal Study
- Land use study
- Demography and socio-economic analysis
- Meteorological data, from Indian Meteorological Department (IMD)

3.1.6 *Study area details*

Table 3-2 Study area details

S. No	Description	Details	Source
1.	Project Location	4/3A,4/4B,7/4A & 7/4B -2.13.0 Ha, Padalur (East) Village, Alathur Taluk, Perambalur District, TamilNadu State	Field Study
2.	Latitude & Longitude	$11^0$6'51.10" N to $11^0$6'58.93" N $11^0$6'51.10" N to $11^0$6'58.93" N	Topo Sheet
3.	Topo Sheet No.	58 I/16	Survey of India Toposheet
4.	Mine Lease Area	2.13.0 Ha	--
Demography in the study area (as per Census 2011)			
5.	Total Population	1666	Census Survey of India
6.	Total Number of Households	446	
7.	Maximum Temperature (°C)	36	IMD

8.	Minimum Temperature (°C)	32	
9.	Ecological Sensitive Areas - Wetlands, watercourses or other waterbodies, coastal zone, biospheres, mountains, forests	❖ Nanthai River -4.37 Km-SE ❖ Nakkambadi Lake – 6.38Km-SE ❖ Chettikulam Lake -5.95Km-NW ❖ Thurai Mangalam Lake-13.02Km-NE ❖ Kalarampatti R.F- 11.96 Km-NW ❖ Nekkaselam R.F- 14.53 Km-NW ❖ Trichy Zoological Park- 8.61Km-SW ❖ Elephant Camp- 7.5 Km-SW	Survey of India Toposheet
10.	Densely Populated area	Pallapatti (9.3km, NW)	
11.	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Govt school Karai village– 1.35 Km NE Govt school, Therani – 3.30 SE Govt Hr Sec school -1.40 km NW	Google Earth/ Field study

3.1.7 *Site Connectivity:*

The site is connected to (NH 45)- Srinagar to Kanyakumari – 0.59 km towards West side

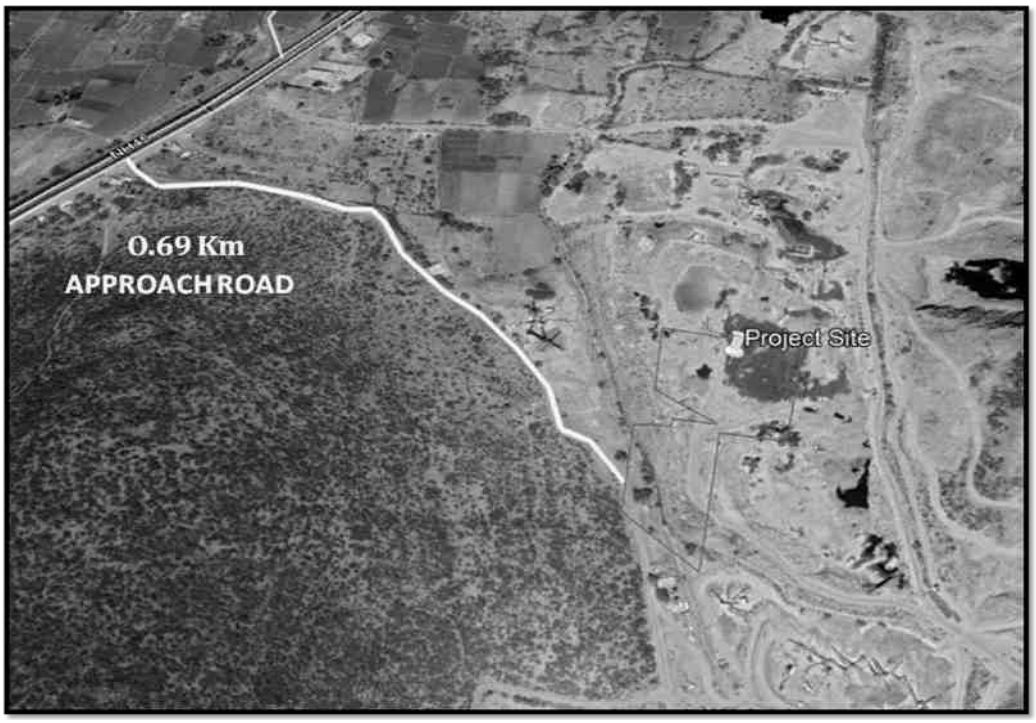


Figure 3.1: Site Connectivity

3.2 Land use Analysis

3.2.1 *Land Use Classification*

Land Use / Land Cover - Land Use refers to man's activity and the various uses, which are carried on land. Land Cover refers to natural vegetation, water bodies, rock/soil, artificial cover and others, resulting due to land transformation. The present Land Use/Land Classification map is developed with following objectives. The main objective of the study is to classify the different land use within 10 km from the project boundary.

3.2.2 *Methodology*

Information of land use and land cover is important for many planning and management activities concerning the surface of the earth (Agarwal and Garg, 2000). Land use refers to man's activities on land, which are directly related to land (Anderson et al., 1976). The land use and the land cover determine the infiltration capacity. Barren surfaces are poor retainers of water as compared to grasslands and forests, which not only hold water for longer periods on the surface, but at the same time allow it to percolate down.

The terms 'land use' and 'land cover' (LULC) are often used to describe maps that provide information about the types of features found on the earth's surface (land cover) and the human activity that is associated with them (land use). Satellite remote sensing is being used for determining different types of land use classes as it provides a means of assessing a large area with limited time and resources. However, satellite images do not record land cover details directly and they are measured based on the solar energy reflected from each area on the land. The amount of multi spectral energy in multi wavelengths depends on the type of material at the earth's surface and the objective is to associate particular land cover with each of these reflected energies, which is achieved using either visual or digital interpretation. In the present study the task is to study in detail the land use and land cover in and around the project site. The study envisages different LULC around the proposed project area and the procedure adopted is as below

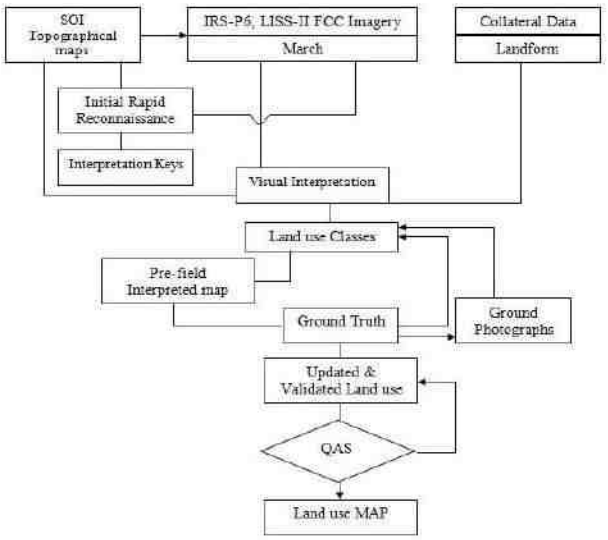


Figure 3.2 Flow Chart showing Methodology of Land use mapping

3.2.3 *Satellite Data*

IRS Resourcesat-2 LISS-III multispectral satellite data of 05th March 2016 was utilized for the present study. Details of satellite data is given below. The rectification of imagery was carried out on to bring the digital data on the earth coordinate system by means of ground control point (GCP) assignments/SOI topo sheets.

3.2.4 *Scale of mapping*

Considering the user defined scale of mapping, 1:50000 IRS-P6, LISS-III data on 1:50000 Scale was used for Land use / Land cover mapping of 10 km radius for proposed site. The description of the land use categories for 10 km radius and the statistics are given for 10 km radius.

3.2.5 *Interpretation Technique*

Standard on screen visual interpretation procedure was followed. The various Land use / Land cover classes interpreted along with the SOI topographical maps during the initial rapid reconnaissance of the study area. The physiognomic expressions conceived by image elements of color, tone, texture, size, shape, pattern, shadow, location and associated features are used to interpret the FCC imagery. Image interpretation keys were developed for each of the LU/LC classes in terms of image elements.

February 2016 FCC imagery (Digital data) of the study area was interpreted for the relevant land use classes. On screen visual interpretation coupled with supervised image classification techniques are used to prepare the land use classification.

1. Digitisation of the study area (10 km radius from the proposed site) from the topo maps

2. In the present study the IRS –P6 satellite image and SOI topo sheets of 47-F/01,02,03have been procured and interpreted using the ERDAS imaging and ARC-GIS soft ware adopting the necessary interpretation techniques.

3. Satellite data interpretation and vectorisation of the resulting units

4. Adopting the available guidelines from manual of LULC mapping using Satellite imagery (NRSA, 1989)

5. Field checking and ground truth validation

6. Composition of final LULC map

The LULC Classification has been done at three levels where level -1 being the broad classification about the land covers that is Built-up land, agriculture land, waste land, wet lands, and water bodies. These are followed by level –II where built-up land is divided into towns/cities as well villages. The Agriculture land is divided into different classes such as cropland, Fallow, Plantation, while wastelands are broadly divided into, Land with scrub and without Scrub and Mining and Industrial wasteland. The wetlands are classified into inland wetlands, coastal wetlands and islands. The water bodies are classified further into River/stream, Canal, Tanks and bay. In the present study level II classification has been undertaken. The SOI Topo map is presented in Annexure and Satellite imagery of 10 km radius from the project site is presented Annexure

3.2.6 *Field Verification*

Field verification involved collection, verification and record of the different surface features that create specific spectral signatures / image expressions on FCC. In the study area, doubtful areas identified in course of interpretation of imagery is systematically listed and transferred on to the corresponding SOI topographical maps for ground verification. In addition to these, traverse routes were planned with reference to SOI topographical maps to verify interpreted LU/LC classes in such a manner that all the different classes are covered by at least 5 sampling areas, evenly distributed in the area. Ground truth details involving LU/LC classes and other ancillary information about crop growth stage, exposed soils, landform, nature and type of land degradation are recorded and the different land use classes are taken the Land use map is presented in Annexure

3.2.7 *Description of the Land Use / land cover classes*

3.2.7.1 Built-up land

It is defined as an area of human settlements composed of houses, commercial complex, transport, communication lines, utilities, services, places of worships, recreational areas, industries etc. Depending upon the nature and type of utilities and size of habitations, residential areas can be aggregated into

villages, towns and cities. All the man-made construction covering land belongs to this category. The built- up in 10 km radius from the proposed project site is as follows.

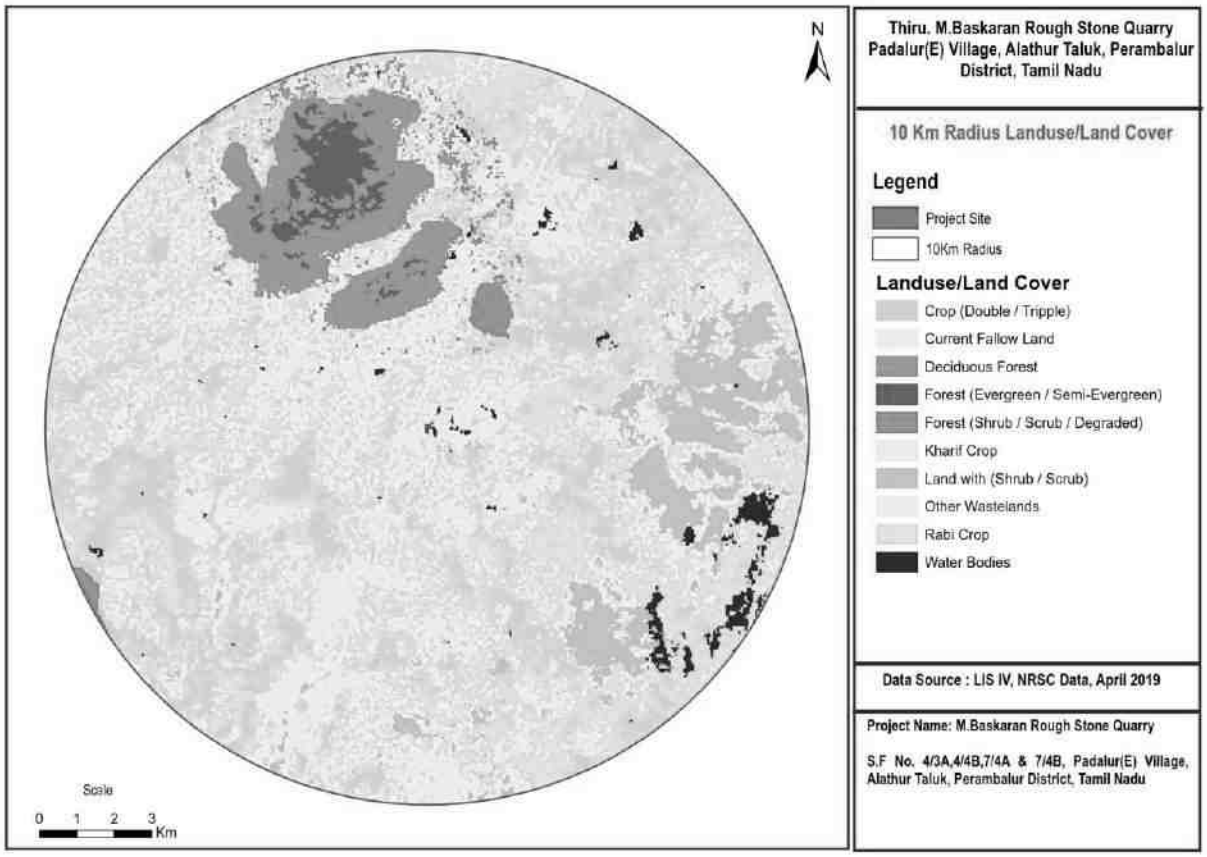


Figure 3.3 Land use classes around 10 km radius from the project site

3.2.7.2 Different Land use classes around 10 km radius from the project site

Table 3-3 Land use pattern in Perambalur district

Sl.No	Categories	Area in Hectares
	Forests	16506.94
2	Area under Non- agricultural uses	26889.97
3	Barren and uncultivable land	2686.74
4	Permanent pastures and other grazing land	152.25

5	Land under Miscellaneous tree crops etc.,	1290.69
6	Cultivable waste land	4930.03
7	Fallow lands and other than current fallows	10198.75
8	Current Fallows	16069.1
9	Net Area Sown(Rural)	89126.26
10	Total (Rural)	167850.73
11	Total Irrigated Land Area sown	24727.74
12	Total Un-irrigated Land Area sown	64398.52

3.2.8 *Agricultural land*

Agriculture is the primary occupation of Perambalur district. Perambalur district is having 1,75,739 Ha of geographical area, of which 93,581 Ha is cropped area. Perambalur district receives average annual rainfall of 861 mm. Maize and Cotton is the important crops of Perambalur district which accounts 80% of the total cultivated area. Perambalur district stands first in Maize and Cotton cultivation in TamilNadu. Being a rainfed district, Perambalur district produces an average of 4.0 lakh metric tons of food grains per year. Major horticulture crops cultivated in this district are fruits crops like mango, banana and acid lime, vegetables like tomato, brinjal, onion, gourds and tapioca, spices like chillies and turmeric and flowers like tuberose and chrysanthemum.

Table 3-4 Agricultural land

S.No	Name of the Crop	Area	Prodn.	Provty.
1	Fruits	711	11562	16.26
2	Vegetables	8782	124025	14.12
3	Plantation Crops	36	66	1.83
4	Spices & Condiments	1598	4229	2.65
5	Flowers	62	637	10.28
6	Medicinal & Aromatic Crops	78	1720	22.05
	TOTAL	**11267**	**142239**	**12.62**

3.3 Water bodies

3.3.1 *Contour & Drainage*

The project site is 130m AMSL. The drainage pattern within in the 5 km of the project site is dendritic.

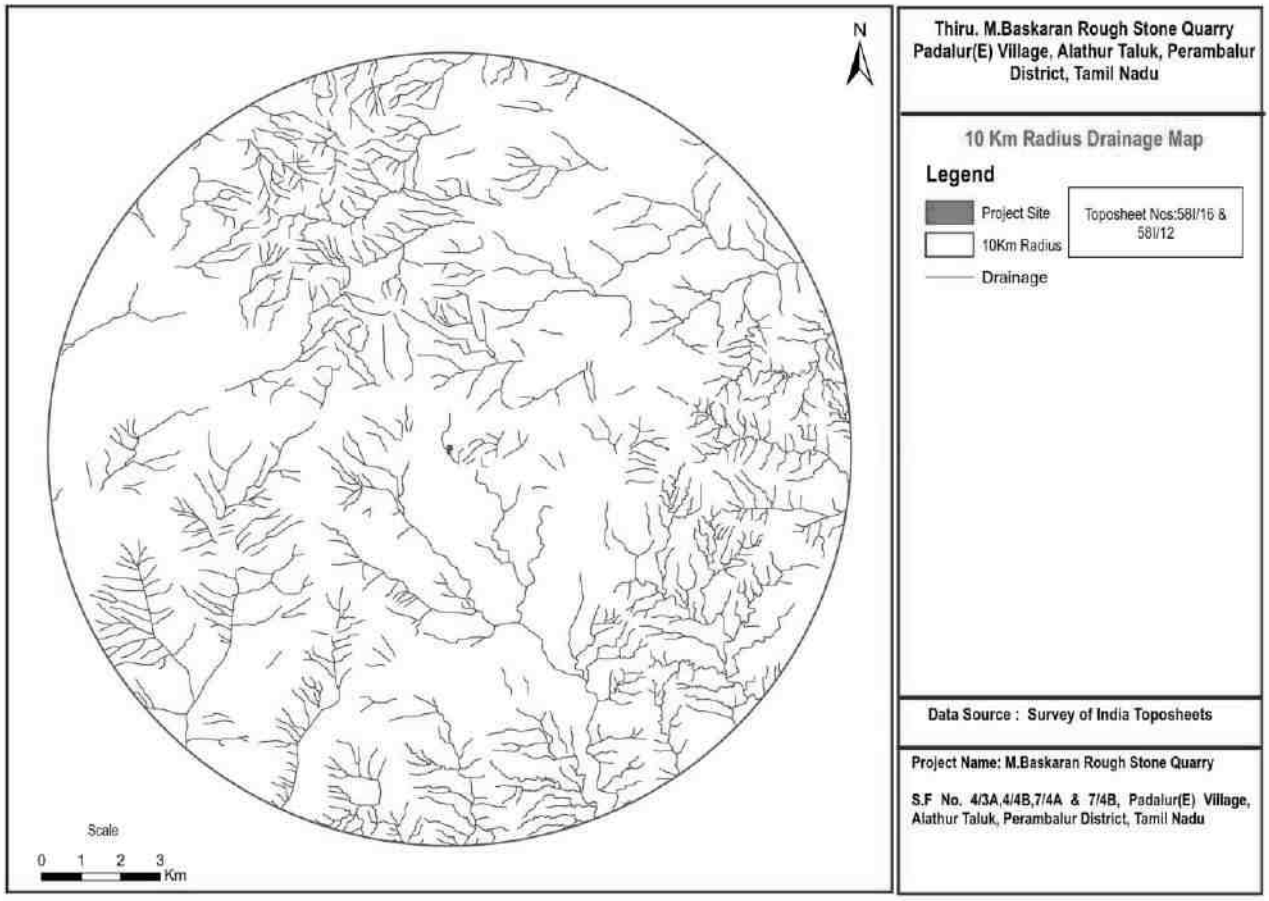


Figure 3.4 10 km Drainage Map

3.3.2 *Geomorphology*

The geomorphologic study is done within 5 km from the project site. The major formations are

- Denudational Origin- Pediment Pediplain Complex: The groundwater condition in pediments generally varies depending upon the type of underlying folded structures, fracture systems and degree of weathering. Groundwater prospecting in pediments is considered as normal to poor.

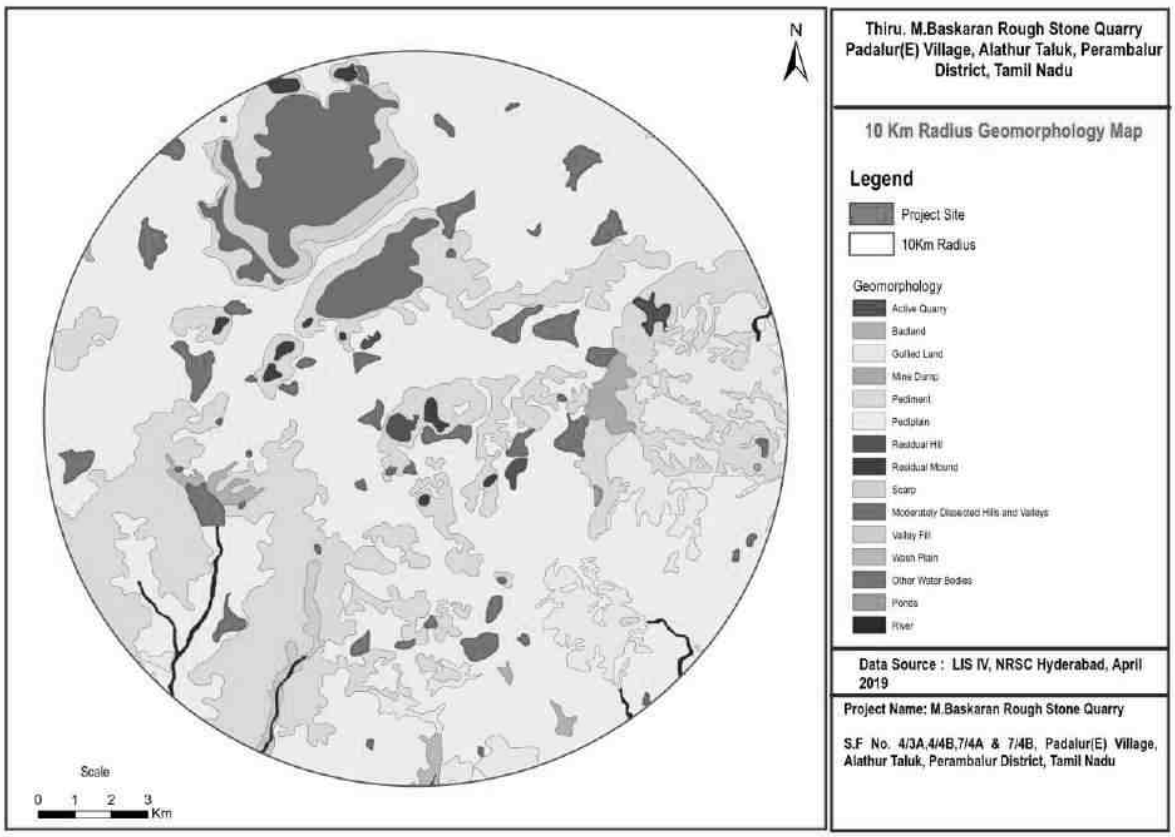


Figure 3.5 Geomorphology within 10km from the project site

3.3.3 *Geology:*

The north and western part of the district is mainly covered (> 80 %) with Archaean rocks and is mainly comprises of Hornblende Gneiss and Chaornockite and the eastern part is covered with cretaceous sediments . The Sathyamangalam rocks are distributed along the east-west tract in central Tamil Nadu confined between Bhavani – Attur lineament in the north and Noyil – Cauvery lineament in the south (Subramanian and Selvan, 2001). Similar rocks are also known in the northwestern part of the state in Dharmapuri district. The equivalents of Sakarsanahalli (Sargur) supracrustals are described in Dimbam–Tattakarai areas of Kollegal – Krishnagiri terrane (GSI, 1998).Though the Sathyamangalam Group of rocks are said to be exposed within the Bhavani gneiss in the E-W trending belt in central Tamil Nadu in parts of Coimbatore, Salem, Namakkal, Perambalur and Tiruchirapalli districts

3.3.4 *Charnokite Group:*

The Charnockite Group, comprising of charnockite, pyroxene granulite, banded magnetite quartzite and thin pink quartzo-feldspathic granulite are extensively developed in the north-eastern sector of the state and are well exposed in many prominent hill ranges such as Pallavaram – Chengleput, Javadi, Shevroy, Chitteri and Kalrayan. In central Tamil Nadu, Kollimalai and Pachaimalai hills and Nilgiri hills in west central Tamil Nadu represent Charnockite Group of rocks. The pyroxene granulite of Charnockite Group are considered to represent mafic volcanics, the banded magnetite quartzite indicates a volcanic exhalative origin, while the pink granulite is interpreted to represent the associated acid volcanic (Gopalakrishnan et. al., 1976, Suganvanam et.al., 1978). In contrast to the essentially sedimentary parentage of the Khondalite Group, the Charnockite Group appears to be of igneous / volcanic parentage derivatives. Charnockite which occur in different provinces of Tamil Nadu are different not only in age and space but also in the geological milieu. The charnockites falling to the north of Bhavani shear zone and west of Mettur shear zone, (Dimbam-Talawadi and Tattakarai-Tamarakkarai areas) enclose linear bands of fuchsite quartzite, kyanite-sillimanite-garnet schist/gneiss, magnetite quartzite and meta ultramafics. These charnockites are considered to have been derived from the prograde metamorphism of the Peninsular gneiss and the associated Sargur type supracrustals of Dharwar craton (Srivastava and Kanishkan, 1977). This association is seen in the Nilgiri hills also.

3.3.5 *Hydrogeology*

Geologically in Perabalur district, western part is covered by hard rocks, south east by cretaceous formation, thin fringe of Gondwana in south and north Alluviuma

Hard Rock Formation

The western part of the district is covered by Granitic gneiss, Hornblends gneiss, harnockite with intrusions of Dolerite – dykes and pegmatites. These rocks are highly metamorphosed and have been subjected to very severed folding, crushing and faulting.

Sedimentary Formation

Nearly 75% of the area in this district is covered by sedimentary formations like the ancient upper thin fringe of Gondwana (underlined by hard rock), cretaceous, Tertiary and Recent alluvial deposits. The Upper Gondwana occurs as a thin fringe composing of clay sandstone underlain by the hard rock.

The cretaceous formation deposited under marine conditions. The sequence of cretaceous beds commences with Uttatur stage, Ariyalur stages and closed with Ninniyur stage. These beds consists of shales, clay, limetone, argillaceous limestone, coral limestones and shell limestones.

The Tertiary Miocene and Pliocene age formation is underlain by Cuddalore sand stoned. The formation consists of sand stones, gravelly sand, clays, lignite seam and pebble beds, marine regressions are indicated by intercalation of lignite beds.

The cretaceous formations stretch along the river coursed of Coleroon, Marudaiyar and Vellar. They are mainly composed of Alluvial deposits which are medium to coarse grained sediments and finer flood plain deposits. The Quaternary alluvium is underlain by the Archaen and also the Cretaceous formation in Kunnam Taluk.

Occurrence of Ground water

Sedimentary Formation

River Alluvium, marine Limestone and Tertiary Formation are the main water bearing zones.

Alluvial formation

In the river alluvium groundwater occurs under water table condition. The maximum thickness is 37m and the average thickness of the aquifer is approximately 12m -15m. These formations are porous in Perambalur which have good water bearing zones

Tertiary Formation

Predominantly in the tertiary formations the groundwater occurs in semiconfined conditions and confined conditions with good ground water potentials.

Cretaceous formation

Groundwater in the sandy clay lenses and fine sands underlain by white and black claybeds constitutes phreatic aquifer in the depth range 10m to 15m below ground level. Phreatic aquifer in the limestone is potential due to the presence of lime stone cavity

Granitic Gneiss

Groundwater occurs under water table conditions in weathered, jointed and fractured formations. The pore space developed in the weathered mantle acts as shallow granular aquifers and forms the potentials

water bearing and yielding zones. Water table is shallow in canal and tank irrigations regions and its is somewhat deeper in other regions.

Charnockite

Groundwater occurs under water table conditions but the intensity of weatheringjointed and fractures formations. The pore space developed in the weathered mantle acts as shallow granular aquifers and forms the potentials water bearing and yielding zones. Water table is shallow and it is somewhat deeper in other regions

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

Pre-monsoon water level

The depth of water level during pre-monsoon (May2006) ranges from 1.10 to

8.55 m bgl. In major part of the district the depth to water level during pre-monsoon is in the range of >2 – 5 m bgl.

Post- monsoon water level

The depth of Water level during post-monsoon (Jan2007) ranges from 1.10 to

6.78 m bgl. Almost in entire district, depth to water level during post-monsoon is in the range of >2 – 5 m bgl, except some isolated patches.

Long term Fluctuation (1998-2007) indicates rise in water levels is in the range of 0.0027 to 0.16 m/year. The fall in water level ranges between 0.05 and 0.07 m/year.

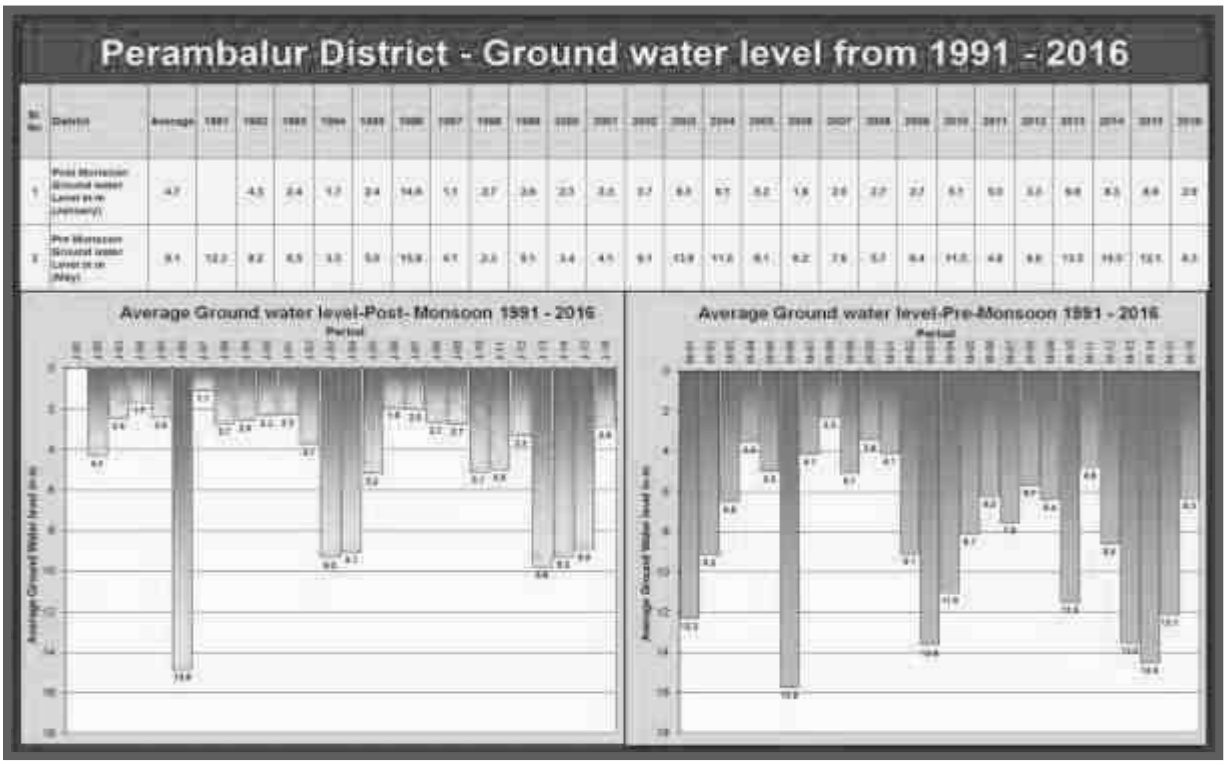
Aquifer Parameters

More or less 75% of Perambalur district is covered by Sedimentary formations like upper Gondwana, Cretaceous, Tertiary and Alluvial Deposits. The thickness of aquifer in this district various form 15.00 to 35.00m BGL. In gneissic formations, deep weathering has developed and moderate weathering in Charnockite formations. The range of aquifer parameters for Alluvium, Tertiary, Cretaceous and Crystalline formations are furnished below.

Range of Aquifer Parameters

	T m^2/d	K m/d	Yield of wells LPM
Alluvium	225-1500	20-50	300-950
Sedimentary	90-190	15-30	300-550
Hard rock	35-130	5-20	80-210

Ground water level data Perambalur District for the period 1991-2016



Depth of ground water Level & Ground water prospects

The Ground water prospects within 5 km radius of the project site (**Source: Bhuvan**) is found to be >80m Deep well – 20 to 50 LPM yield.

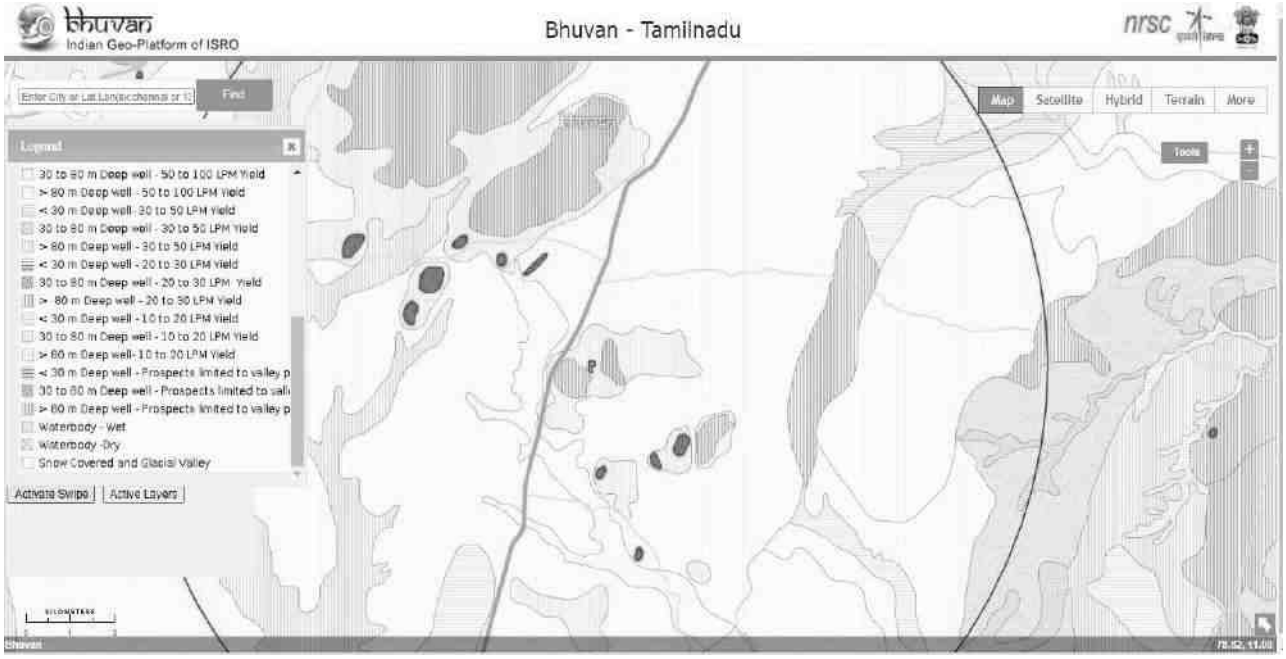


Figure 3.6 Ground water prospects within 5 km radius of the project site

3.3.6 *Ground water quality monitoring*

Ground water quality monitoring is done in the following locations and analysis will be done for physical, chemical & Biological parameters.

Table 3-5 Ground water Quality Analysis

Environmental Parameters: Ground water Quality Analysis	
Monitoring Period	January to March 2021
Design Criteria	Based on the Environmental settings in the study area
Monitoring Locations	Project Site – GW 1 Karai East village – GW 2 Govt school, Sridevimangalam village – GW 3 Near HP petrol pump Naramangalam village- GW 4 AG Church Padalur village – GW5
Methodology	Water Samples were collected in 5 Litre fresh cans as per IS 3025 Part I and transported to the laboratory in Iceboxes
Frequency of Monitoring	Once in a season

3.3.6.1 Sampling Procedure

Quality of ground water was compared with IS: 10500: 1991 (Reaffirmed 1993 With Amendment NO -3 July 2010) for drinking purposes. Water samples were collected as Grab sample from five sampling locations in a 5-liter plastic jerry can and 250 ml sterilized clean glass/pet bottle for complete physico-chemical and bacteriological tests respectively. The samples were analyzed as per standard procedure / method given in IS: 3025 (Revised Part) and standard method for examination of water and wastewater Ed. 21st, published jointly by APHA.

Table 3-6: Standard Procedure

S.No	Parameters	Test Method
1	pH (at 25°C)	IS:3025(P -11)1983 RA: 2012
2	Electrical Conductivity	IS:3025(P -14) 2013
3	Colour	IS:3025 (P -4)1983 RA: 2012
4	Turbidity	IS:3025(P -10)1984 RA: 2012
5	Total Dissolved Solids	APHA 22nd Edn.2012-2540-C
6	Total Suspended Solids	IS:3025(P-17)-1984 RA:2012
7	Total Hardness as $CaCO_3$	APHA 22nd Edn.2012-2340-C
8	Calcium as Ca	APHA 22nd Edn2012.3500 Ca-B
9	Magnesium as Mg	APHA 22nd Edn.2012-3500 Mg-B
10	Chloride as Cl	IS:3025(P -32)-1988 RA: 2014
11	Sulphate as SO_4	APHA 22nd Edn.2012-4500 SO_4^--E
12	Total Alkalinity as $CaCO_3$	APHA 22nd Edn.2012-2320-B
13	Iron as Fe	IS:3025(P -53):2003 RA: 2014
14	Silica as SiO_2	IS:3025(P -35)1988 RA: 2014
15	Fluoride as F	APHA 22nd Edn.2012-4500-F-D
16	Nitrate as NO_3	IS:3025(P -34):1988 RA: 2014
17	Sodium as Na	IS:3025(P -45):1993 RA: 2014
18	Potassium as K	IS:3025(P -45):1993 RA: 2014
19	Coliform	IS:1622:1981:RA:2014
20	E.coli	IS:1622:1981:RA:2014

Table 3-7 Ground water sampling results

S.no	Parameters	Units	Project site	GW 2	GW 3	GW 4	GW 5
1	pH (at 25°C)	-	7.49	7.53	7.61	7.75	7.69
2	Electrical Conductivity	µS/cm	1127	855	3080	690	2581
3	Colour	Hazen Unit	1	10	2	1.0	2
4	Turbidity	NTU	BQL (LOQ:1)	3	BQL (LOQ:1)	2.0	3
5	Total Dissolved Solids	mg/L	705	547	1968	457	1580
6	Total Suspended Solids	mg/L	BQL (LOQ:2)	4.0	BQL (LOQ:2)	BQL (LOQ:2)	BQL (LOQ:2)
7	Total Hardness as $CaCO_3$	mg/L	388	167	926	204	795
8	Calcium Hardness as $CaCO_3$	mg/L	237	82.5	388	102	520
9	Magnesium Hardness as $CaCO_3$	mg/L	151	84.5	538	102	279
10	Calcium as Ca	mg/L	94.8	33	155	41	208
11	Magnesium as Mg	mg/L	36.7	20.5	131	24.7	67
12	Chloride as Cl	mg/L	59	45	636	59	340
13	Sulphate as SO_4	mg/L	255	47.7	217	69.2	422
14	Total Alkalinity as $CaCO_3$	mg/L	260	477	339	191	265
15	Iron as Fe	mg/L	BQL (LOQ:0.1)	BQL (LOQ:0.1)	BQL (LOQ:0.1)	0.13	0.18
16	Silica as SiO_2	mg/L	48.1	51.2	41.3	60.0	37.0
17	Fluoride as F	mg/L	BQL (LOQ:0.2)	BQL (LOQ:0.2)	BQL (LOQ:0.2)	BQL (LOQ:0.2)	BQL (LOQ:0.2)
18	Nitrate as NO_3	mg/L	9.10	11.06	15.16	18.8	41.8
19	Potassium as K	mg/L	4	3	64	28	36
20	Sodium as Na	mg/L	39	44	505	42	266
21	Ecoil	mg/L	<2	<2	<2	2	<2
22	Coliform	mg/L	4	<2	<2	7	<2

3.3.7 *Interpretation of results:*

3.3.7.1 Physical parameters of water:

The basic physical parameters of water include

Colour:

Value observed in Karai east village (True/ Apparent Color): 10 Hazel unit.

Acceptable and permissible limits: 5 Hazel units and 15 Hazel units respectively. The value in the project site is as same as the acceptable limits prescribed by IS 10500: 2012 (referred as "*Standards*" from herein).

Odour & Taste:

The water is odourless. The taste of the water is slightly salty which is due to the presence of hardness in water, which is attributed to the presence of calcium and magnesium in the water. As per the standards, the odour and taste should be agreeable.

pH:

Value observed in the AG Church Padalur: 7.69

Acceptable and permissible limits: 6.5-8.5. The pH value is the measure of acid – base equilibrium. The value of pH in the project site clearly indicates that water is neutral in nature.

Turbidity:

Value observed in the AG Church Padalur: 3 NTU.

Acceptable and permissible limits:1 NTU & 5 NTU respectively. The value of turbidity generally indicates the presence of phytoplanktons and other sediments. The value in the project site indicates the water is less turbid and no any physical treatment is required to treat the turbidity of the water.

Total Dissolved Solids:

Value observed in Sridevimangalam: 1968 mg/L.

Acceptable and permissible limits: 500 mg/L and 2000 mg/L respectively.

3.3.7.2 Chemical parameters of water:

The chemical parameters of the drinking water include

Calcium:

Value observed in AG Church Padalur: 208 mg/L.

Acceptable and permissible limits:75mg/L and 200 mg/L respectively.

Calcium is the essential macronutrient. The value of the calcium is higher than the prescribed permissible standards. The higher level of calcium may cause hardening in domestic equipment and will also reduce the detergent efficiency. Higher levels of calcium will lead to constipation, gas, and

bloating. Apart from that, extra calcium may also increase the risk of kidney stones. If the calcium deposit in blood is high, it may lead to hypercalcemia.

Magnesium:

Value observed in Sridevimangalam village: 131 mg/L.

Acceptable and permissible limits:30 mg/L and 100 mg/L respectively.

Chloride

Value observed in Sridevimangalam village: 636 mg/L.

Acceptable and permissible limits: 250 mg/L and 1000 mg/L respectively.

The chloride level in the project site is greater than the permissible limit. If the level of chloride is more, it may cause galvanic and pitting corrosion, increases level of metals. It imparts bitter taste to the water.

Total Alkalinity as CaCo3:

Value observed in Karai east village: 477 mg/L.

Acceptable and permissible limits:200 mg/L and 600 mg/L respectively.

Total Alkalinity is the measure of the concentration of all alkaline substances dissolved in the water which includes carbonates, bicarbonates and hydroxides. The value of the total alkalinity is slightly greater in the project site, which will impart soda taste to the water.

Hardness:

Value observed in AG Church Padalur: 795 mg/L.

Acceptable and permissible limits:200 mg/L and 600 mg/L respectively.

The value of Hardness in the project site is higher than permissible limit. The increase in the level of hardness may cause corrosion and scaling problems, increased soap consumption and it also contributes to the salty taste of water.

3.3.7.3 Biological parameters of water:

The biological parameters of water includes E- Coli & Coliform

Value observed in project site: 2 mpn/100ml – e-coli and 7 mpn/100ml – Coliforms

The E- coli and coliform shall not be detectable in any 100 ml sample as per the drinking water standards IS 10500:2012.

E- coli is one of the fecal coliform bacteria. The presence of this indicates the water is feacally contaminated. Without treatment, when consumed, will have water borne diseases like cholera, typhoid and diarrhea.

3.3.8 *Surface Water Analysis*

Surface water samples were taken from Chettikulam lake. The results are summarized below.

Table 3-8 surface water sample results

S.no	Parameters	Units	Project site
1	pH (at 25°C)	-	7.48
2	Electrical Conductivity	µS/cm	1035
3	Colour	Hazen Unit	21
4	Turbidity	NTU	41
5	Total Dissolved Solids	mg/L	650
6	Total Suspended Solids	mg/L	10
7	Total Hardness as $CaCO_3$	mg/L	204
8	Calcium Hardness as $CaCO_3$	mg/L	130
9	Magnesium Hardness as $CaCO_3$	mg/L	74
10	Calcium as Ca	mg/L	52
11	Magnesium as Mg	mg/L	17.9
12	Chloride as Cl	mg/L	125
13	Sulphate as SO_4	mg/L	91
14	Total Alkalinity as $CaCO_3$	mg/L	362
15	Iron as Fe	mg/L	0.89
16	Silica as SiO_2	mg/L	23.2
17	Fluoride as F	mg/L	BQL (LOQ:0.2)
18	Nitrate as NO_3	mg/L	13.1
19	Potassium as K	mg/L	5
20	Sodium as Na	mg/L	104
21	Total Kjeldahl Nitrogen as N	mg/L	7.06
22	Biochemical oxygen Demand @ 27c	mg/L	10.8
23	Chemical Oxygen Demand	mg/L	38

24	Dissolved Oxygen	mg/L	5.91
25	Ecoil	mg/L	<2
26	Coliform	mg/L	4

Inference: The surface water quality is compared with the CPCB Water Quality Criteria against A, B, C, D & E class of water. From the test result, it is found that the both the water does not fit Class A (Drinking Water Source without conventional treatment but after disinfection). But they can be used for outdoor bathing as it meets the requirements shown for class B water.

3.3.9 *Climatology & Meteorology:*

Climate and meteorology of a place can play an important role in the implementation of any developmental project. Meteorology is also the key to understand local air quality as there is an essential relationship between meteorology and atmospheric dispersion involving wind in the broadest sense of the term.

The year may broadly be divided into four seasons:

Winter season : December to February

Pre-monsoon season : March to May

Monsoon season : June to September

Post-monsoon season : October to November

i) Climate

The district receives the rainfall under the influence of both southwest and northeast monsoon. There is a gradual decrease in precipitation from northeast to southwest over the district. The normal rainfall for the period (1901-70) ranges from 843.5 to 1123.3 mm.

ii) Temperature

The average daily temperature ranges from a maximum of 36 °C to a minimum of 32 °C

iii) Rainfall:

Perambalur district experiences mostly hot weather althrough the year. The mean maximum actual temperature varies from month to month, the highest was recorded during May 2011 with 38.9degree Celsius. The district has a high mean temperature and low degree of humidity. Even though the region does not have an extreme climate, the summer months are quite hot and the difference between

maximum and minimum temperature is moderate. With little moisture during the early months of the year, the atmosphere is dry. The winter season is pleasant and enjoyable. By March, the Mercury acquires an uptrend and the temperature increase during the course of time. This trend of the barometer indicates the ushering of summer with its hot days. The hot season continue until the southwest monsoon sets in. With the effect of northeast monsoon during Oct-Dec, the district receives the highest rainfall.

The average rainfall in the district reported high compared to the State average. The average normal rainfall in the State during 2010-11 was 911.6mm, less than the average normal rainfall of Perambalur district (1019.4 mm) during the same period. In 2010-11, the district had received 815.4mm of actual rainfall. The precipitation level during northeast monsoon, southwest monsoon and remaining winter and hot weather periods account for 47%, 37% and 16% respectively. The table below gives the actual and normal rainfall (mm) in the district during the south-west, north-east monsoon, winter and hot weather seasons during 2009-10.

Table 3-9: Historical rainfall data of past 5 years

Seasons	Actual	Normal
SW Monsoon (Jun '09 - Sep '09)	210.4	349.6
NE Monsoon (Oct '09 - Dec '09)	435.3	449.6
Winter Season (Jan '10 - Feb '10)	32.5	34.5
Hot Season (Mar '10 - May '10)	82.0	120.6

Source: District survey report

Metrological Data

The meteorological data – Temperature, rainfall, Wind Speed, Wind direction are recorded through AWS by setting it up in the site.

vi) Wind Rose Diagram

The wind rose denotes a class of diagrams designed to display the distribution of wind direction at a given location over a period of time. Wind roses are also useful as they project a large quantity of data in a simple graphical plot.

The wind speed & wind direction data are taken and wind rose is plotted for January to March 2021.

Table 3-10 The Actual and normal rainfall (mm) in the district

YEAR		2012	2013	2014	2016
JAN	R/F	0	0.8	0	0
	%DEP	-100	-94	-100	-100
FEB	R/F	0	12.3	0.3	0
	%DEP	-100	48	-96	-100
MAR	R/F	0	10.3	0	0
	%DEP	-100	-19	-100	-100
APR	R/F	44	16.4	0	0
	%DEP	43	-47	-100	-100
MAY	R/F	34.4	33.9	182.7	168.5
	%DEP	-47	-48	179	158
JUN	R/F	3.1	20.8	23.6	42.5
	%DEP	-90	-36	-28	30
JUL	R/F	64.5	5.5	47.5	96.8
	%DEP	28	-89	-6	92
AUG	R/F	31.5	160	167	47.3
	%DEP	-62	95	104	-42
SEPT	R/F	50.5	153.8	44.8	84.3
	%DEP	-60	22	-64	-33

OCT	R/F	198.1	125.3	241.7	63.6
	%DEP	4	-34	27	-67
NOV	R/F	68.5	146.5	58.9	29.3
	%DEP	-56	-5	-62	-81
DEC	R/F	3.5	40.3	45.3	34.3
	%DEP	-96	-58	-52	-64

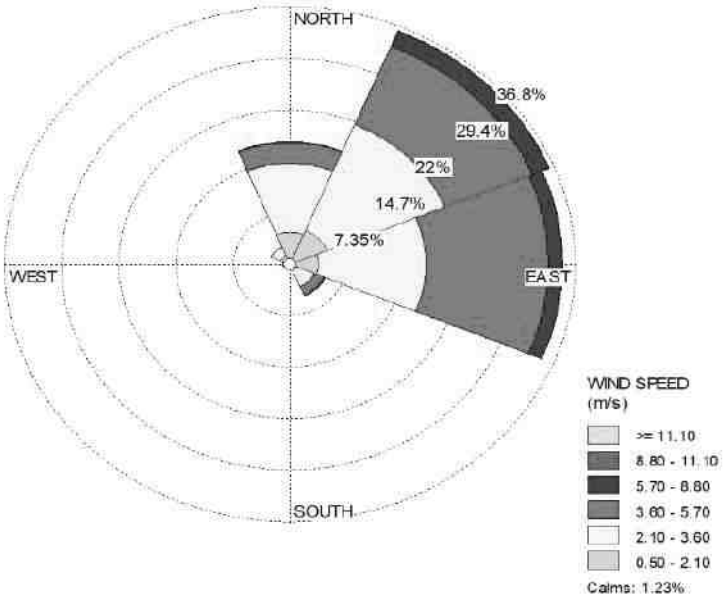


Figure 3.7 Windrose

3.3.10 *Selection of Sampling Locations:*

Four Monitoring locations along with the project site is selected based on Wind Direction & Wind Speed. All the monitoring locations are chosen in the downwind direction.

3.4 Ambient Air Quality

Table 3-11: Selection of Sampling Location

<table>
<tr><td colspan="2">Environmental Parameters: Ambient Air</td></tr>
<tr><td>Monitoring Period</td><td>January to March 2021</td></tr>
<tr><td>Design Criteria</td><td>The monitoring stations are selected based on factors like topography/terrain, prevailing meteorological conditions like predominant wind direction (January to March 2021), etc, play a vital role in selection of air sampling stations. Based on these criteria, 5 air sampling station were selected in the area as shown below.</td></tr>
<tr><td>Monitoring Locations</td><td>
<table>
<tr><td>Location & Code</td><td>Distance (km)</td><td>Direction</td></tr>
<tr><td>Project Site -AAQ 1</td><td>-</td><td>-</td></tr>
<tr><td>Karai East village</td><td>5.0</td><td>E</td></tr>
<tr><td>Govt school, Sridveimanagalam</td><td>4.80</td><td>W</td></tr>
<tr><td>Near HP Petrol pump naramanagalam villafge</td><td>2.52</td><td>N</td></tr>
<tr><td>AG Church Padalur village</td><td>3.80</td><td>S</td></tr>
</table>
</td></tr>
<tr><td>Methodology</td><td>Respirable Particulate Matter (PM10) - Gravimetric (IS 5
Part 23:2006)
Particulate Matter PM2.5 - Gravimetric (Fine particu
matter)
Sulphur Dioxide - Calorimetric (West & Gaeke Method)
5182: Part 02: 2001)
Nitrogen Dioxide - Calorimetric (Modified Jacob & Hoch
Method) (IS 5182: Part 06:2006)</td></tr>
<tr><td>Frequency of Monitoring</td><td>2 days in a week, 4 weeks in a month for 3 months in a seas</td></tr>
</table>

3.4.1 *Ambient Air Quality: Results & Discussion*

The test results of the ambient air quality monitored in project site and other four locations in the downwind direction is summarized below

Table 3-12Ambient Air Quality

Code	Location	PM 10 (µg/m³)				PM 2.5 (µg/m³)				SO2 (µg/m³)				NOx (µg/m³)			
		Min	Max	Avg	98 percentile	Min	Max	Avg	98 percentile	Min	Max	Avg	98 percentile	Min	Max	Avg	98 percentile
AAQ 1	Project Site	39	43	63	68	27	32	30	32	13	19	16	19	22	28	25	28
AAQ 2	Karai east village	36	43	35	38	12	19	16	19	7	13	9	13	11	19	16	19
AAQ 3	Govt school, Sridveimanagalam	50	59	48	52	20	25	23	25	9	13	10	13	13	19	16	19
AAQ 4	Near HP Petrol pump naramanagalam villafge	40	45	50	53	21	26	24	25	13	16	15	16	16	22	19	22
AAQ 5	AG Church Padalur village	53	57	43	47	17	23	20	23	8	14	11	13	14	21	17	20
NAAQ Standards - Residential Area		100 (µg/m³)				60(µg/m³)				80 (µg/m³)				80 (µg/m³)			

3.4.2 *Interpretation of ambient air quality:*

To assess the impact, AAQ were monitored in project site and four locations in the downwind direction.

Observation:

The Maximum value of PM10 (59 (µg/m3), PM 2.5(32 (µg/m3), Sox 19 (µg/m3) ,NOx (28 (µg/m3) is observed in different places.

Inference:

The monitoring results for PM10, PM2.5, NOx was found to be high in Sridevimanagalam village and project site which densely populated small rural area where there is no commercial development like industry, college, etc. The only contributing factor to the higher values is due to the vehicular movement. In the absence of vehicular movement, the values of PM10, PM2.5, NOx was found to be less.

The observed values are all well within the Standards prescribed by NAAQ.

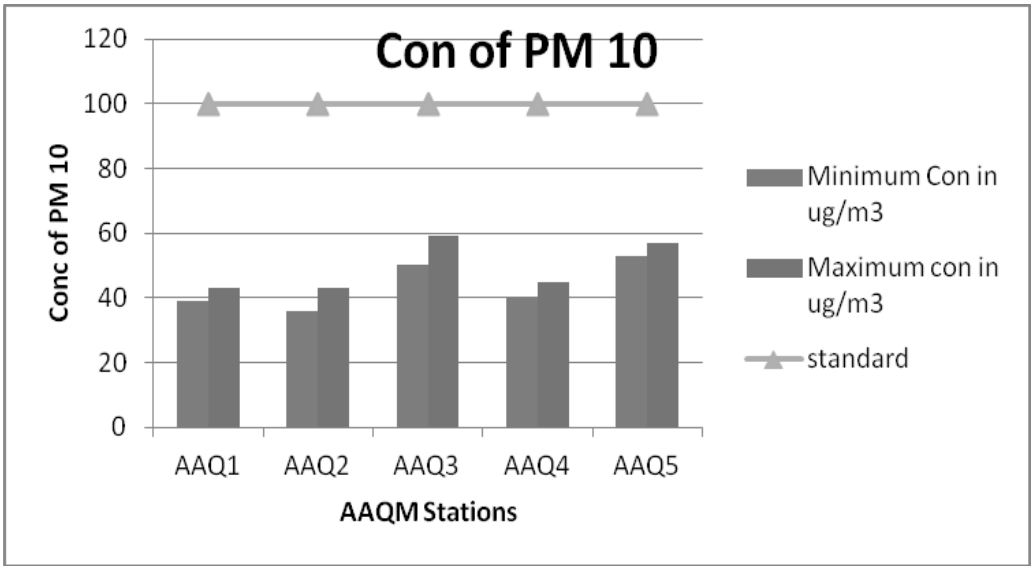


Figure 3.8 Concentration of PM10 (µg/m3) in Study Area

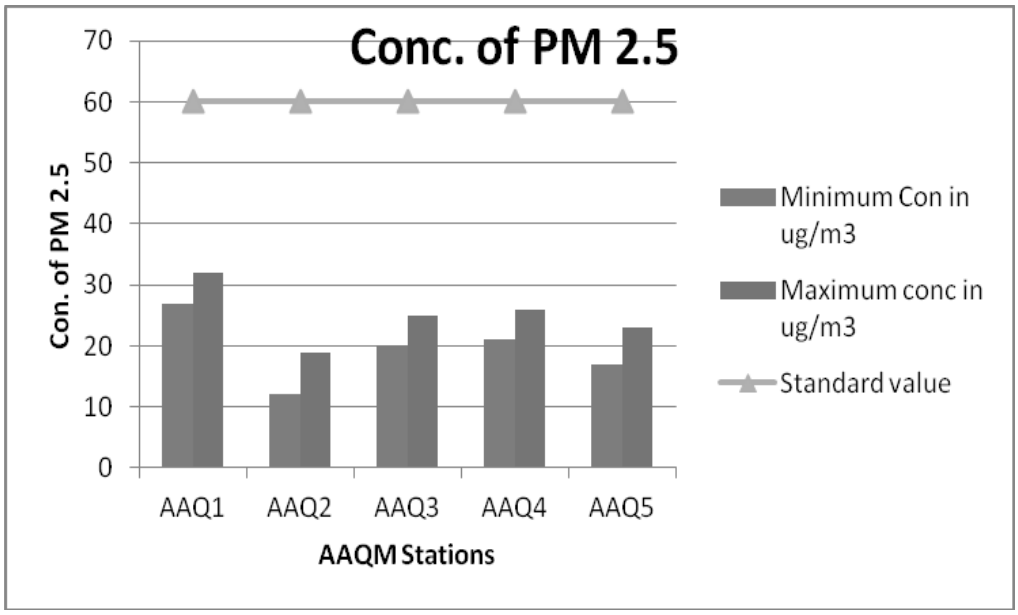


Figure 3.9 Concentration of PM2.5 (µg/m3) in Study Area

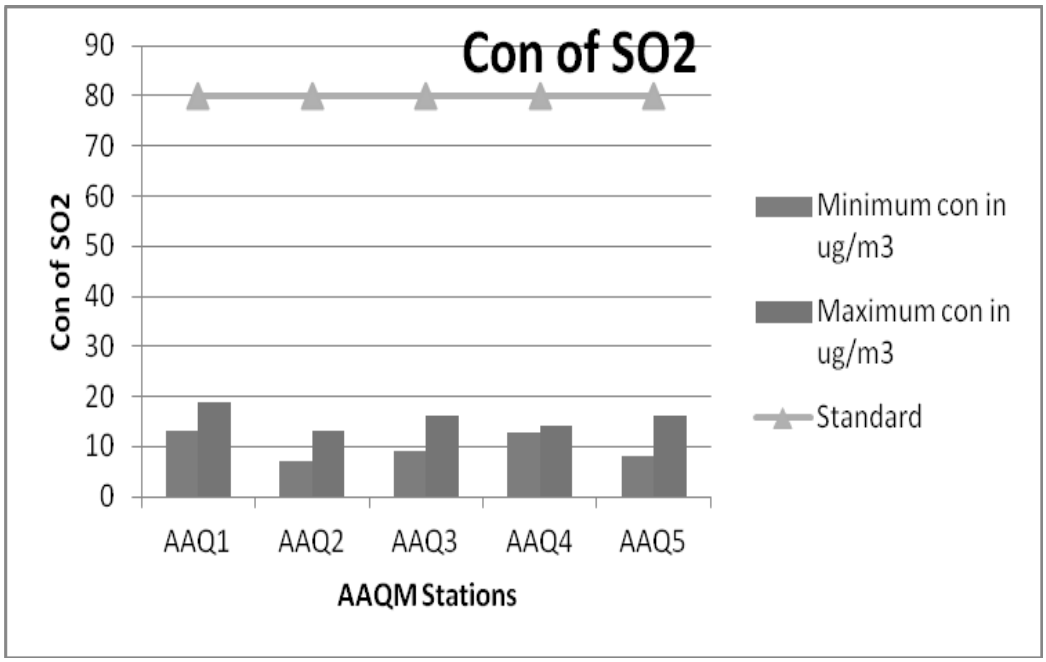


Figure 3.10 Concentration of SOx (µg/m3) in Study Area

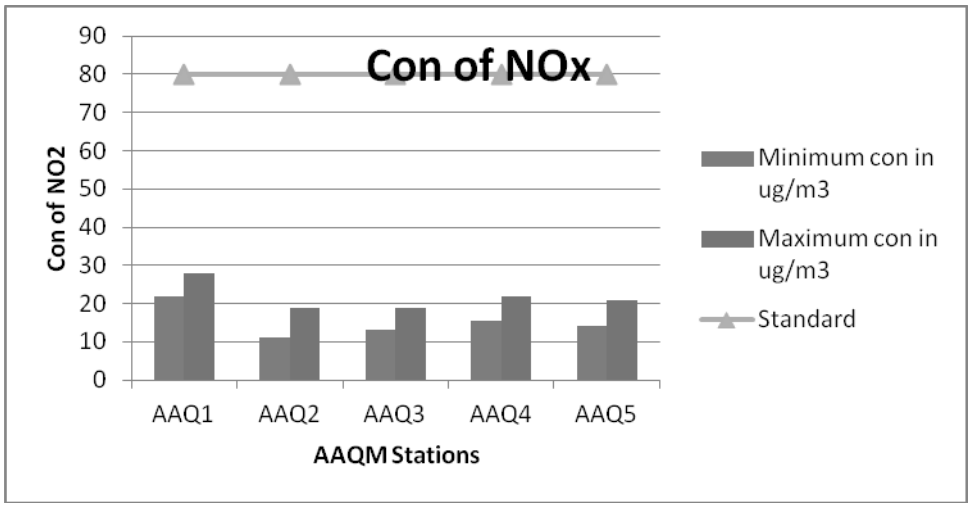


Figure 3.11 Concentration of NOx (µg/m3) in Study Area

3.5 Noise Environment:

Table 3-13 Noise Analysis

Environmental Parameters*: Noise Analysis*	
Monitoring Period	January to March 2021
Design Criteria	Based on the Sensitivity of the area
Monitoring Locations	Project Site – N1, Karai East village – N2, Govt school, Sridveimanagalam – N3, Near HP Petrol pump naramanagalam village – N4 AG Church Padalur village -N5
Methodology	Noise level measurements were taken at the selected locations using noise level meter both during day and night time. Noise level measurements were taken continuously for 24 hours at hourly intervals
Frequency of Monitoring	Noise samples were collected from 5 locations - Once season

Ambient Noise Levels are monitored in the chosen 5 Locations including the project Site and the monitoring results are summarized below

3.5.1 *Day Noise Level (Leq day)*

Table 3-14 Day Noise Level (Leq day)

Location	Leq day in dB(A)		
	Max	Min	Average
Project Site	54	49	52
Karai east village	52	45	49
Govt school, Sridveimanagalam	55	40	48
Near HP Petrol pump naramanagalam village	52	42	47
AG Church Padalur village	54	50	52

3.5.2 *Night Noise Level (Leq Night)*

Table 3-15 Night Noise Level (Leq Night)

Location	Leq Night in dB(A)		
	Max	Min	Average
Project Site	45	39	42
Karai east village	42	36	39
Govt school, Sridveimanagalam	47	37	42
Near HP Petrol pump naramanagalam village	41	36	39
AG Church Padalur village	49	42	46

Observation:

The maximum Day noise and Night noise were found to be 54 dB(A)and 49 dB(A)respectively in AG Church Padalur village. The minimum Day Noise and Night noise were 50 dB(A)and 42dB(A) respectively which was observed in AG Church Padalur village.

The observed values are all well within the Standards prescribed by CPCB.

3.6 Soil Environment

Soil environment is studied for 5km radius from the project site. The 5 km radius image shows that the soil is not affected by any kind of erosion

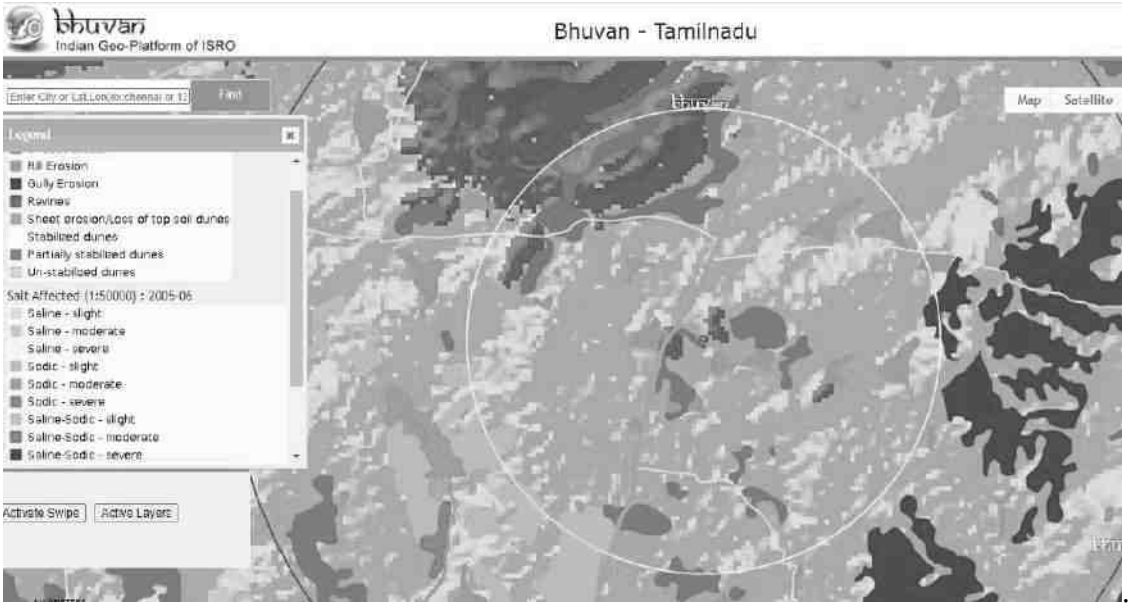


Figure 3.12 Soil Erosion pattern within 5 km radius of the project site

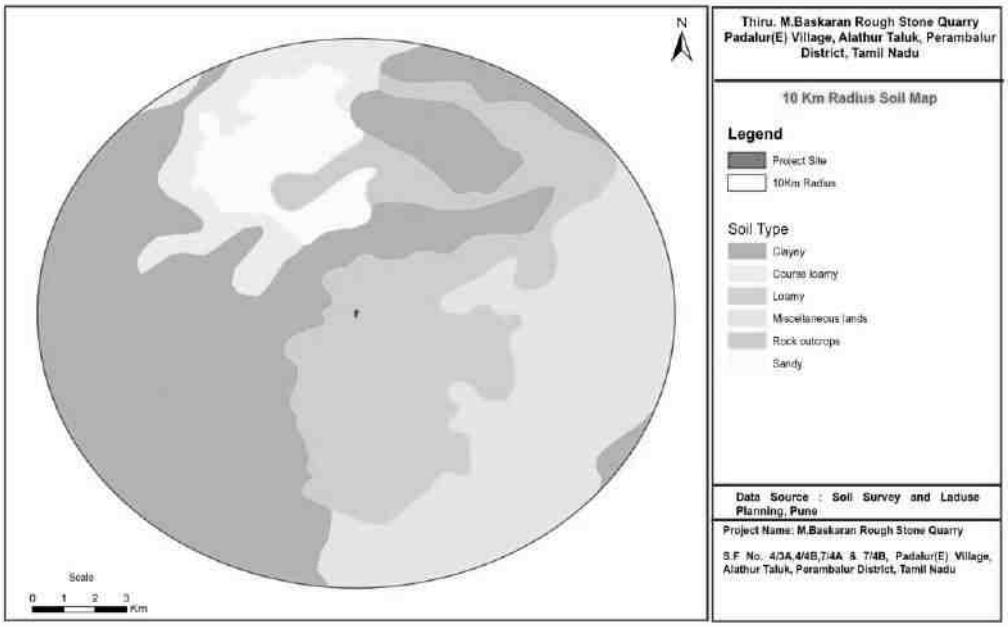


Figure 3.13 Soil Map of 5 km radius of the project site

3.6.1 *Baseline Data:*

The present study of the soil quality establishes the baseline characteristics which will help in future in identifying the incremental concentrations if any, due to the operation Phase of the proposed project. The sampling locations have been identified with the following objectives:

- To determine the impact of proposed project on soil characteristics and
- To determine the impact on soils more importantly from agricultural productivity point of view.

Table 3-16 Soil Quality Analysis

Environmental Parameters*: Soil Quality Analysis*	
Monitoring Period	January to March 2021
Design Criteria	Based on the environmental settings of the study area
Monitoring Locations	Project Site – SQ 1, Karai east village – SQ 2, Govt school, Sridveimanagalam – SQ 3, Near HP Petrol pump naramanagalam villafge – SQ 4 AG Church Padalur village – SQ 5
Methodology	Composite soil samples using sampling augers and field capacity apparatus
Frequency of Monitoring	Soil samples were collected from 5 locations Once in a season

To assess the soil quality of the study area, 5 monitoring stations were selected and the results are summarized below

Table 3-17 Soil Quality Analysis

Parameters	Unit	Project Site SQ 1	SQ 2	SQ 3	SQ 4	SQ5
pH (at 25°C)	-	7.78	7.26	7.35	7.01	7.10
Specific Electrical Conductivity	mS/cm	0.63	0.98	0.875	0.187	0.995
Water Holding Capacity	ml/l	3.6	8.7	7.9	3.8	8.7
Bulk Density	mg/kg	1.1592	1.1439	1.1383	1.1314	1.1819
Calcium as Ca	g/cm3	22.6	32.8	32.7	12.1	27.2
Sodium as Na	mg/kg	144	389	202	46.8	342
Potassium as K	mg/kg	7.96	29.2	18.9	5.82	23.1
Organic matter	%	0.09	0.3	0.09	0.20	0.33
Magnesium as Mg	mg/kg	BQL(LOQ:10)	14.3	10.5	BQL(LOQ:10)	BQL(LOQ:10)
Total Nitrogen	%	0.03	0.028	0.025	0.025	0.031
Available Phosphorous	mg/kg	195	288	235	239	246
Sand	%	54	52.0	54	65	55
Clay	%	16	30.0	22	18.2	22
Silt	%	30	18.0	24	16.8	23
Cation exchange capacity	meg/100g	18.9	22.2	22.1	24.6	17.3
SAR	meg/kg	7.62	15.4	8.2	8.81	8.85
Silicon	%	0.92	0.72	0.92	0.7	0.92
Chloride	Meq/kg	48.2	55.4	42.0	30.2	125
Total Soluble Sulphates	mg/kg	189	224	274	26.9	208
Zinc	mg/kg	18.5	16.3	20.8	19.4	20.7

3.6.1.1 Physical Properties:

Regular cultivation practices increase the bulk density of soils thus inducing compaction. This results in reduction in water percolation rate and penetration of roots through soils. The soils with low bulk density have favorable physical conditions whereas those with high bulk density exhibit poor physical conditions for agriculture crops. The bulk density of the soil in the study area ranged between 1.1383 to 1.1819 g/cc which indicates favorable physical condition for plant growth. The water holding capacity was found in the range of 3.6 ml/l to 8.7 ml/l.

3.6.1.2 Chemical Properties:

Chemical characteristics of soils include pH, exchangeable cations and fertility status in the form of NPK values and organic matter. The value of the pH is slightly alkaline and it ranges from 7.01 to 7.78. The soil in the project site is sodic in nature, which challenges because they tend to have very poor structure which limits or prevents water infiltration and drainage. The organic matter varies from 0.09 to 0.33 mg/kg, which indicates the soil is slightly unfertile.

3.7 Ecology and Biodiversity

Ecology and Biodiversity is studied for 5 km radius around the project site. Project site and 2 km around the project site is considered as core zone and from 2 km to 5 km radius, it is considered as buffer zone.

- Primary field survey is carried out for the assessment of flora and fauna in the core zone
- Secondary data from Journals/Literature were studied and compiled to understand the species present in the buffer zone

3.7.1 *Methods available for floral analysis:*

3.7.1.1 Plot Sampling Methods

- Quadrat – 2D shape (e.g. square or rectangle, or other shape) used as a sampling unit
- Transect
  - Line transects feature only a length dimension, usually defined by a tape stretched across the area to be sampled.
  - Belt transects have a width as well as length.

- Pace-transects are established when the observer strides along an imaginary line across the sample site, and uses their foot placement to determine specific sampling points.

3.7.1.2 Plot less Sampling Methods

- Closest individual method - Distance is measured from each random point to the nearest individual.
- Nearest neighbour method - Distance is measured from an individual to its nearest neighbour.
- Random pairs method - Distance is measured from one individual to another on the opposite side of the sample point.
- Point-centered quarter (PCQ) method - Distance is measured from the sampling point to the nearest individual in each quadrat.

3.7.2 *Field study& Methodology adopted:*

To assess the suitability of the methodology, random field survey was done. Field survey was conducted around 2 km radius from the project site and five locations were chosen based on the species density. Quadrat method is chosen for the proposed study as compared to other sampling methods, because they are relatively simple to use. Quadrat plots are uniform in size and shape and distributed randomly throughout the sample area, which makes the study design straightforward. They are also one of the most affordable techniques because they require very few materials.

3.7.3 *Study outcome:*

Phyto sociological parameters, such as ***Density, Frequency, Basal Area, Abundance and Importance Value Index*** of individual species (Trees) were determined in randomly placed quadrate of different sizes in the study area. Relative frequency, relative basal area and relative density were calculated and the sum of these three represented Importance Value Index (IVI) for various species. For shrubs, herbs and grasses, ***Density, Frequency, Relative Density & Relative Frequency were found***.

Sample plots were selected in such a way to get maximum representation of different types of vegetation and plots were laid out in different part of the study area of 2 km radius. Analysis of the vegetation will help in determining the relative importance of each species in the study area and to reveal if any economically valuable species is threatened in the process.

Table 3-18 Calculation of Density, Frequency (%), Dominance, Relative Density, Relative Frequency, Relative Dominance & Important Value Index

Parameters	Formula
Density	Total No. of individuals of species/ Total No. of Quadrats used in sampling
Frequency (%)	(Total No. of Quadrats in which species occur/ Total No. of Quadrats studied) * 100
Dominance	Total Basal Area /Total area sampled
Abundance	Total No. of individuals of species/ No. of Quadrats in which they occur
Relative Density	(Total No. of individuals of species/Sum of all individuals of all species) * 100
Relative Frequency	(Total No. of Quadrats in which species occur/ Total No. of Quadrats occupied by all species) * 100
Relative Dominance	Dominance of a given species/Total Dominance of all species
Important Value Index	Relative Density + Relative Frequency + Relative Dominance

Table 3-19 Tree Species in the core Zone

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with spec	Total No. of Quadrants	Density	Frequency (%)	Abundance	Dominance	Relative Density	Relative Frequency	Relative Dominance	IVI	IUCN Conservation Status
1	Azadirachtaindica	Vaepam	8	6	6	1.33	100.00	1.33	0.28	33.33	35.29	14.05	82.67	Least Concern
2	Mangiferaindica	Mamaram	4	2	6	0.67	33.33	2	0.07	16.67	11.76	3.51	31.94	Data deficient
3	Cocosnucifera	Thennai	3	2	6	0.50	33.33	1.5	0.28	12.50	11.76	14.05	38.31	Not listed
4	Morindatinctoria	Nuna	4	3	6	0.67	50.00	1.33	0.50	16.67	17.65	24.97	59.28	Not listed
5	Pithecellobiumdulce	kodukkai	2	2	6	0.33	33.33	1	0.44	8.33	11.76	21.95	42.04	Least Concern
6	Alstoniascholaris	Elilaipalai	1	1	6	0.17	16.67	1	0.27	4.17	5.88	13.58	23.63	Least Concern
7	Ficusreligiosa	Arasamaram	2	1	6	0.33	16.67	2	0.16	8.33	5.88	7.90	22.12	Not listed
Total			**24**	**17**					**2.01**					

Table 3-20 Shrubs in the Core Zone

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IUCN Conservation Stat
1	Triumfettarotundifolia	Atayotti	26	17	24	1.08	0.71	1.529412	15.95	20.24	Not Listed
2	Zizyphusnummularia	korgodi	11	3	24	0.46	0.13	3.666667	6.75	3.57	Not Listed
3	Stachytarphetaindica	Seemainaayur	18	5	24	0.75	0.21	3.6	11.04	5.95	Not Listed
4	Cissusquadrangularis	Pirandai	8	6	24	0.33	0.25	1.333333	4.91	7.14	Not Listed
5	Calotropisgigantea	Erukam	10	12	24	0.42	0.50	0.833333	6.13	14.29	Not Listed
6	Lawsoniainermis	Marudhani	15	9	24	0.63	0.38	1.67	9.20	10.71	Not Listed
7	Euphorbia geniculata	Amman Pacha	4	3	24	0.17	0.13	1.333333	2.45	3.57	Not Listed
8	Acalyphaindica	Kuppaimeni	21	8	24	0.88	0.33	2.625	12.88	9.52	Not Listed
9	Prosopsisjuliflora	Karuvelam	50	21	24	2.08	0.88	2.38	30.67	25.00	Not Listed

Table 3-21 Herbs & Grasses in the core zone

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IUCN Conservation St
1	Cleome felina	Thaivelai	5	3	30	0.17	0.10	1.666667	2.44	3.37	Not Listed
2	Sidaacuta	Malaidangi	12	3	30	0.40	0.10	4	5.85	3.37	Not Listed
3	Abutilon indicum	Thuthikeerai	15	7	30	0.50	0.23	2.142857	7.32	7.87	Not Listed
4	Tribulusterrestris	Nerunji mull	4	2	30	0.13	0.07	2	1.95	2.25	Not Listed
5	Cardiospermumhalicacabum	Kotravan	8	6	30	0.27	0.20	1.333333	3.90	6.74	Least concern
6	Aeschynomeneaspera	Netti	45	4	30	1.50	0.13	11.25	21.95	4.49	Least concern
7	Alysicarpusmonilifer	Kaasukkodi	6	5	30	0.20	0.17	1.2	2.93	5.62	Not Listed
8	Indigoferaenneaphylla	Seruppunerunji	20	10	30	0.67	0.33	2	9.76	11.24	Not Listed
9	Oldenlandiaumbellata	Chayaver	15	11	30	0.50	0.37	1.363636	7.32	12.36	Not Listed
10	Euphorbia hirta	Amman Pacharisi	5	4	30	0.17	0.13	1.25	2.44	4.49	Not Listed
11	Tridaxprocumbens	Vettukaayathalai	5	4	30	0.17	0.13	1.25	2.44	4.49	Not Listed
12	Partheniumhysterophorus	Vishapoondu	20	4	30	0.67	0.13	5	9.76	4.49	Not Listed
13	Sidacordifolia	Maanikham	30	22	30	1.00	0.73	1.363636	14.63	24.72	Not Listed
15	Tridaxprocumbens	Cuminipachai	15	4	30	0.50	0.13	3.75	7.32	4.49	Not Listed

3.7.4 *Calculation of species diversity by Shannon – wiener Index, Evenness and richness by Margalef:*

Biodiversity index is a quantitative measure that reflects how many different type of species, there are in a dataset, and simultaneously takes into account how evenly the basic entities (such as individuals) are distributed among those types of species. The value of biodiversity index increases both when the number of types increases and when evenness increases. For a given number of type of species, the value of a biodiversity index is maximized when all type of species are equally abundant. Interpretation of Vegetation results in the study area is given below.

Table 3-22 Calculation of species diversity

Description	**Formula**
Species diversity – Shannon – Wiener Index	$H=\Sigma[(p_i)*\ln(p_i)]$ Where p_i : Proportion of total sample represented by species i:number of individuals of species i/ total number of samples
Evenness	H/H_{max} $H_{max} = \ln(s)$= maximum diversity possible S=No. of species
Species Richness by Margalef	RI = S-1/ln N Where S = Total Number of species in the community N = Total Number of individuals of all species in the commu

3.7.5 *Calculation of species diversity by Shannon – wiener Index, Evenness and richness by Margalef for trees*

i. Species Diversity

S. No.	**Scientific Name**	**Common Name**	**No. Species**	**Pi**	**ln (Pi)**	**Pi x ln (Pi)**
1	Azadirachtaindica	Vaepam	8	0.333333	-1.09861	-0.3662
2	Mangiferaindica	Mamaram	4	0.166667	-1.79176	-0.29863
3	Cocosnucifera	Thennai	3	0.125	-2.07944	-0.25993
4	Morindatinctoria	Nuna	4	0.166667	-1.79176	-0.29863
5	Pithecellobiumdulce	Kodukkai	2	0.083333	-2.48491	-0.20708

6	Alstoniascholaris	Elilaipalai	1	0.041667	-3.17805	-0.13242
7	Ficusreligiosa	Arasamaram	2	0.083333	-2.48491	-0.20708
Total			**24**			**-1.76**

H (Shannon Diversity Index) =1.76

Shrubs

S. No	Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
1	Triumfettarotundifolia	Atayotti	26	0.159509	-1.83565	-0.2928
2	Zizyphusnummularia	korgodi	11	0.067485	-2.69585	-0.18193
3	Stachytarphetaindica	Seemainaayuruvi	18	0.110429	-2.20338	-0.24332
4	Cissusquadrangulari	Pirandai	8	0.04908	-3.01431	-0.14794
5	Calotropisgigantea	Erukam	10	0.06135	-2.79117	-0.17124
6	Lawsoniainermis	Marudhani	15	0.092025	-2.3857	-0.21954
7	Euphorbia geniculata	Amman Pacharisi	4	0.02454	-3.70746	-0.09098
8	Acalyphaindica	Kuppaimeni	21	0.128834	-2.04923	-0.26401
9	Prosopsisjuliflora	Karuvelam	50	0.306748	-1.18173	-0.36249
Total			163			-1.97

H (Shannon Diversity Index) =1.97

Herbs

S. No.	Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
1	Cleome felina	Thaivelai	5	0.02439	-3.71357	-0.09057
2	Sidaacuta	Malaidangi	12	0.058537	-2.8381	-0.16613
3	Abutilon indicum	Thuthikeerai	15	0.073171	-2.61496	-0.19134
4	Tribulusterrestris	Nerunji mull	4	0.019512	-3.93672	-0.07681
5	cardiospermumhalicacabum	Kotravan	8	0.039024	-3.24357	-0.12658
6	Aeschynomeneaspera	Netti	45	0.219512	-1.51635	-0.33286
7	Alysicarpusmonilifer	Kaasukkodi	6	0.029268	-3.53125	-0.10335
8	Indigoferaenneaphylla	Seruppunerunji	20	0.097561	-2.32728	-0.22705
9	Oldenlandiaumbellata	Chayaver	15	0.073171	-2.61496	-0.19134

10	Euphorbia hirta	Amman Pacharisi	5	0.02439	-3.71357	-0.09057
11	Tridaxprocumbens	Vettukaayathalai	5	0.02439	-3.71357	-0.09057
12	Partheniumhysterophorus	Vishapoondu	20	0.097561	-2.32728	-0.22705
13	Sidacordifolia	Maanikham	30	0.146341	-1.92181	-0.28124
14	Tridaxprocumbens	Cuminipachai	15	0.073171	-2.61496	-0.19134
Total			205			-2.39

H (Shannon Diversity Index) =2.39

i. Evenness

Details	H	Hmax	Evenness	Species Rich (Margalef)
Trees	1.76	1.94	0.91	1.88
Shrubs	1.97	2.19	0.89	1.57
Herbs	2.39	2.63	0.91	2.44

From the above, it can be interpreted that herb community has higher diversity. While the tree community shows less diversity. It is also observed that most of the quadrates have controlled generation of plant species with older strands. Higher herb species diversity can be interpreted as a greater number of successful species and a more stable ecosystem where more ecological niches are available, environmental change is less likely to be damaging to the ecosystem as a whole. Species richness is high for herb community when compared with tree and shrubs.

3.7.6 *Frequency Pattern*

To understand the frequency pattern, the observed frequency is compared with the Raunkiaer's frequency. Any deviation from Raunkiaer's frequency implies disturbed community. Classes of species in a community and normal value of class according to Raunkiaer

Table 3-23 Frequency Pattern

Class	Frequency (%)	Normal Value in the class
A	1-20	53
B	21-40	14
C	41-60	9

D	61-80	8
E	81-100	16

Where A>B>C>=<D<E

Raunkiaer's class for the observed species

S. No.	Scientific Name	Local Name	Frequency (%)	Class as per Raunkiaer's Law
1.	Azadirachtaindica	Vaepam	100.00	E
2.	Mangiferaindica	Mamaram	33.33	B
3.	Cocosnucifera	Thennai	33.33	B
4.	Morindatinctoria	Nuna	50.00	C
5.	Pithecellobiumdulce	kodukkai	33.33	B
6.	Alstoniascholaris	Elilaipalai	16.67	A
7.	Ficusreligiosa	Arasamaram	16.67	A

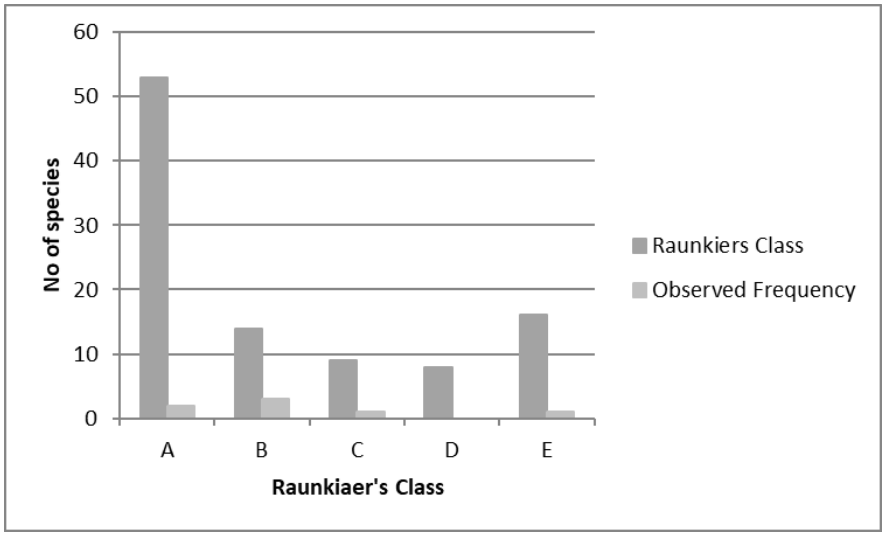


Figure 3.14 Raunkiaer's class for the observed species

Interpretation: Interpretation: The observed frequency is A<B>C>D<E, which does not follow Raunkiaer's Distribution Frequency and hence the ecology is disturbed.

3.7.7 *Floral study in the Buffer Zone:*

Economically important Flora of the study area

Agricultural crops: Paddy, Maize are the main crop grown. Different fruits like Banana, papaya, mangoes, guava and vegetables like brinjal, drumsticks, onion, Coriander also grown by the local people.

Medicinal species: The nearby area is also endowed with the several medicinal species which are commonly available in the shrub forest and waste lands. The common medicinal species of the region are Asparagus racemosus (satamulli), Aegle marmelos (golden apple), Azadirachta indica (Neem) etc.

Rare and endangered floral species: There are no rare or endangered or threatened (RET) species of in the study area. During the vegetation survey, there are no any species which are endangered or threatened under IUCN (International Union for Conservation of Nature and Natural resources) guidelines.

3.7.8 *Faunal Communities*

Both direct and indirect observation methods were used to survey the fauna.

- Point Survey Method: Observations were made in each site for 15 minutes duration.
- Roadside Counts: The observer traveled by motor vehicles from site to site, all sightings were recorded (this was done both in the day and night time). An index of abundance of each species was also established.
- Pellet and Track Counts: All possible animal tracks and pellets were identified and recorded (South Wood, 1978).

Additionally, survey of relevant literature was also done to consolidate the list of fauna distributed in the buffer zone.

Based on the Wildlife Protection Act, 1972 (WPA 1972, Anonymous. 1991, Upadhyay 1995, Chaturvedi and Chaturvedi 1996) species were short-listed as Schedule II or I and considered herein as endangered species. Species listed in Ghosh (1994) are considered as Indian Red List species.

Methodology Adopted:

Point Survey method was adopted for this development project where observations were made in each site for 15 minutes duration (10 times).

Study in the core zone:

Point Survey method was adopted for the study within 2 km radius and the following species were observed

Study in the core Zone

Mammals: No wild mammalian species was directly sighted during the field survey. Discussion with local villagers located around the study area also could not confirm presence of any wild animal in that area. Three stripped Palm Squirrel, Common Indian Hare, Common mongoose, Common Mouse etc were observed during primary survey.

Avifauna: Since birds are considered to be the indicators for monitoring and understanding human impacts on ecological systems (Lawton, 1996) attempt was made to gather quantitative data on the avifauna by walk through survey within the entire study area and surrounding areas. From the primary survey, a total of 26 species of avifauna were identified and recorded in the study area. The diversity of avifauna from this region was found to be quite high and encouraging.

The list of fauna species found in the study area is mentioned in Table below.

Table 3-24 list of fauna species

Scientific Name	Common Name	Schedule of wild protection act	IUCN conservation statu
Mammals			
Funambulus pennar	Palm Squirrel	IV	Least Concern
Mus rattus	Indian rat	IV	Not listed
Bandicota bengalens	Indian mole rat	IV	Least Concern
Funambulus palmar	Three stripped palm squ	IV	Least Concern
Herestes edwardsii	Common Mangoose	IV	Not listed
Mus musculus	Common Mouse	IV	Least Concern
Bandicota indica	Rat	IV	Least Concern
Lepus nigricollis	Indian Hare	IV	Least Concern

Felis catus	Cat	Not listed	Not listed
Canis lupus familiar	Indian dog	Not listed	Not listed
Bos Indicus	Indian Cow	Not listed	Not listed
Bubalus bubalis	Buffalo	I	Not listed
Sus scrofa domestic	Domestic pig	Not listed	Not listed
Birds			
Milvus migrans	Black kite	IV	Least concern
Saxicoloides fulicatu	Indian Robin	IV	Least concern
Pycnonotus cafer	Red vented Bulbul	IV	Least concern
Phragamaticola aed	Thick billed warbler	IV	Least concern
Pericrocotus cinnamomeus	Small Minivet	IV	Least concern
Eudynamys scolopa	Koel	IV	Least concern
Psittacula krameni	Rose ringed parakeet	IV	Least concern
Dicrurus marcocerc	Black drongo	IV	Least concern
Columba livia	Rock pigeon	IV	Least concern
Corvus splendens	House crow	IV	Least concern
Alcedo atthis	Small blue kingfisher	IV	Least concern
Cuculus canorus	Common Cukoo	IV	Least concern
Reptiles & Amphibians			
Chameleon zeylanic	Chameleon	IV	Not listed
Calotes versicolor	Common garden lizard	II	Not listed
Bungarus caeruleus	Common krait	IV	Not listed
Ophisops leschenaul	Snake eyed lizard	--	Not listed
Bufo melanostictus	Toad	IV	Least concern
Ptyas mucosa	Rat snakes	IV	Least concern
Hemidactylus sp.	House lizard	--	Not listed
Butterflies			
Danaus chrysippus	Plain Tiger	--	Not listed
Papilio demoleus	Common lime	--	Not listed
Euploea core	Common crow	--	Least concern
Danaus genutia	Common tiger	--	Not listed

Eurema brigitta	Small grass yellow	--	Least concern

3.8 Demography and Socio Economics

The demography survey study is done within 10km from the project site. The population, Household, Sex ratio, Literacy rate, SC, ST details for all the villages in the study area is listed below:

Table 3-25: Demography Survey study

Source: Census of India, 2011

Villages	Population	Households	Sex Ratio		Literacy Rate		SC	ST
			Male	Female	Male	Female		
Padalur (East)	1666	446	871	795	601	456	193	0
Padalur (West)	6484	1692	3258	3226	2531	2075	1632	5
Thirani	2699	731	1320	1379	865	727	904	0
Aiyinapuram	1926	549	971	955	719	493	592	0
Kolakkanatham	3046	738	1534	1512	1175	929	822	80
Kolathur (West)	682	196	330	352	226	167	3	0
Kolathur (East)	1896	516	934	962	700	515	998	0
Mavilingai	1106	322	548	558	384	302	282	0
Sirukanpur (West)	1208	335	582	626	439	360	613	0
Varagupadi	1524	458	759	765	485	362	567	0
Karai (East)	2435	666	1227	1208	894	669	733	0
Karai (West)	2104	567	1032	1072	717	610	540	0
Kalpadi (North)	4380	1260	2144	2236	1452	1209	862	1
Nochiyam	3611	983	1822	1789	1248	955	647	1
Pudunaduvalur	2416	647	1233	1183	852	686	744	0
Bommanappady	3167	920	1557	1610	1100	926	1579	0

3.9 Traffic Impact Assessment

Traffic data collected 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 each of the two directions for counting the traffic. At the end of each hour, fresh counting and recording was undertaken. Total numbers of vehicles per hour under the three categories were determined.

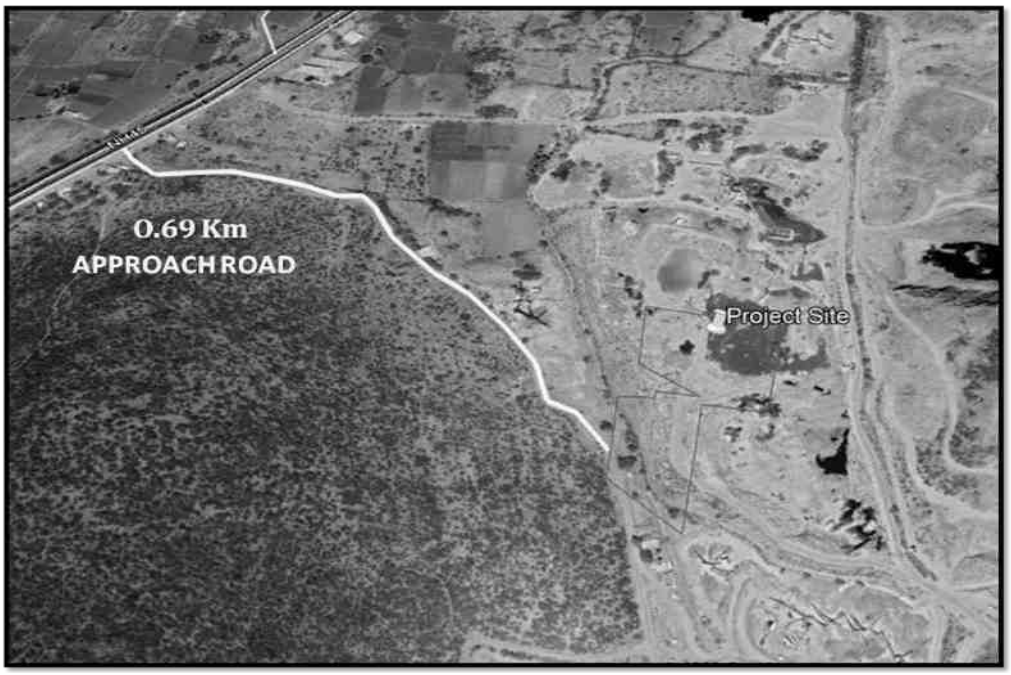


Figure 3.15: Site connectivity

Table 3-26: No. of Vehicles per Day

S. No	Vehicles Distribution	Number of Vehicles Distribution/Day	Passenger Car Unit (PCU)	Total Number of Vehicle in PCU
		NH-45	-	NH-45C
1	Cars	2000	1	2000
2	Buses	500	3	1500
3	Trucks	550	3	1650

4	Two wheelers	900	0.5	450
5	Three wheelers	600	1.5	950
Total		**4550**	**-**	**6550**

Table 3-27:: Existing Traffic Scenario and LOS

Road	**V (Volume in PCU/hr)**	**C (Capacity in PCU/hr)**	**Existing V/C Ratio**	**LOS**
NH45	6550/24=272	272	0.36	**B**

Note: The existing level may be "Very Good" for NH-45C.

V/C	**LOS**	**Performance**
0.0-0.2	A	Excellent
0.2-0.4	B	Very Good
0.4-0.6	C	Good/ Average/ Fair
0.6-0.8	D	Poor
0.8-1.0	E	Very Poor

4. Anticipated Environmental Impacts & Mitigation Measures

This chapter describes the anticipated impacts on the environment and mitigation measures. The method of assessment of impacts including studies carried out, modeling techniques adopted to assess the impacts where pertinent should be elaborated in this chapter. It should give the details of the impacts on the baseline parameters, both during the construction and operational phases and suggests the mitigation measures to be implemented by the proponent.

4.1 Introduction

An environmental impact is defined as any change to the environment, whether adverse or beneficial, resulting from a facility's activities, products, or services. The anticipation of the possible & potential Environmental impact due to the proposed project is a key step in EIA. Based on the impacts assessed, appropriate mitigation measures should be adopted to maintain the environment with less or no damage.

Environmental Impacts can be group into Primary impacts & Secondary Impacts

Primary Impacts: These impacts are directly attributed by the project

Secondary Impacts: These are those which are induced by primary impacts and include the associated investments and changed patterns of the social and economic activities by the action.

Assessment of impacts is done for the following Environmental Parameters:

- Land Environment
- Water Environment
- Air Environment
- Noise Environment
- Biological Environment
- Socio Economic Environment

4.2 LAND ENVIRONMENT:

<table>
<tr><th>Aspect</th><th>Impact</th><th>Mitigation Measures</th></tr>
<tr>
<td>Mining of rough stone</td>
<td>The proposed 2.13.0 Ha mine in Padalur east village mines rough stone of 1,49,773m^3 respectively. The quarry operation is proposed to carry out with conventional open cast semi mechanized mining with 6.0-meter vertical bench and bench width of 5.0 meter. At the end of 5 years, mining lease area will be converted into ultimate pit of
<table>
<tr><th colspan="5">Ultimate Pit Dimension</th></tr>
<tr><th>Section</th><th>Bench</th><th>L(m)</th><th>B(m)</th><th>D(m)</th></tr>
<tr><td rowspan="6">X1Y1-EF</td><td>III</td><td>1</td><td>20</td><td>5</td></tr>
<tr><td>IV</td><td>18</td><td>119</td><td>5</td></tr>
<tr><td>V</td><td>8</td><td>109</td><td>5</td></tr>
<tr><td>VI</td><td>1</td><td>99</td><td>5</td></tr>
<tr><td>VII</td><td>1</td><td>89</td><td>5</td></tr>
<tr><td>VIII</td><td>1</td><td>79</td><td>5</td></tr>
</table>
Existing pit available
1. Pit in S.F.No.4/3A & 4/4B
Length-120m x Width 92m x Depth 13m
2. Pit in S.F.No.7/4A & 7/4B
Length-111m x Width 67m x Depth 12m

This may lead to soil erosion, degradation and resource loss.</td>
<td>The proposed project site is not prone to any kind of soil erosion (Source: Bhuvan).

In addition, garland drainage of 1m x 1m will be provided to avoid storm water run- off.

It is proposed to plant 250 Nos of local tree species (Neem, Magizham, Tamarind, Elandhai and Vilvam) along the roads, outer periphery of the mining area which enhances the binding property of the soil.

It is proposed to improve the affected land wherever possible for better land use, so as to support vegetation and creation of water reservoir in the ultimate pit after quarrying.

The overburden (Topsoil) present upto a depth of 6m BGL will be stocked in the area allotted for safety distance and will be used for plantation.</td>
</tr>
</table>

	The main impact of open cast mining on land-use is land degradation. The land is bound to be excavated for mining of Rough Stone Quarry.	The source of dust generation is majorly due to drilling, blasting, loading & unloading of the mined out mineral, the impact will be mitigated by water sprinkling regularly once in 3hrs. The proposed mining activity is carried out in almost plain terrain where the contour level difference is 4m.
	Impact on soil of the study area will be minimal as there are no wastewater generated, heavy metal infusion, stack emissions.	After removal of minerals, undulating portion will be created. Excavated area or ultimate pit at the end of the mine period will be converted into water reservoir. Two tier tree belts will be planted along the safety distance.
	Impact due to transformation of terrain characteristics over the large area results in soil degradation.	The 100% recovery is achieved by extracting the entire mineable reserve. Hence there will be no refuse generation due to the mining activity. Apart from that, a very meagre quantity of domestic waste will be generated in the project, which will be handed over to the local body on daily basis.
	Solid waste will be generated from the mining activity as there will be refuse also generation of domestic waste. If it not properly managed, may cause odor and health problem to the workers.	

4.3 WATER ENVIRONMENT:

Aspect	Impact	Mitigation Measures
Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.	The mining in the area may cause ground water contamination due to intersection of the water table and mine runoff.	The water table will not be intersected during mining, as the ultimate depth is limited upto 30 meter below the ground level, whereas the ground water table is at 60m below the ground level. The municipal wastewater will be disposed into septic tanks of 5 cum and soak pit.No chemicals consisting of toxic elements will be used for carrying out mining activity.
	The ground water depletion may occur due to mining activity	The ground water table is at a depth of 60m BGL, the mining operation will not affect the aquifer. The ultimate pit at the end of the mining operation will be used for rain water storage, the stored water will be used for green belt development and further the stored water will be used for domestic purposes (other than drinking)after proper treatment.

	Chemicalsconsisting of nitrate used for blasting may pollute the surface run off.	Further, the run-off water will be stored in sumps and after proper treatment; water will be used in the mining operation for dust suppression.
	Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labors	Provision of urinals/Latrines along with septic tank followed by soak pit arrangement will be provided in the Mine Lease area for the proper management of wastewater

4.4 AIR ENVIRONMENT:

Aspect	Impact	Mitigation Measures
Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.	***Impacts during Operation Phase*** During mining operation, fugitive dust and other air pollutants like particulate matter (PM10 & PM 2.5) will be generated.	***Mitigation Measures during Operation Phase*** It is proposed to plant 250 Nos of local species (with 50 Nos each year) along the haul roads, outer periphery within the lease area to prevent the impact of dust in consultation with Forest

	The main source of pollutants arises due to drilling and blasting. 1 No of Tipper will be used for loading and unloading, 1 No of Excavator(0.90 m^3 bucket capacity(with rock breaker attachment) will be used for excavation of the mineral which contributes to the generation of fugitive dust. In addition, blasting will be done using explosives leading to the generation of dust. <u>*Effect on Human*</u> • Adverse effect on human health of working labourers and neighboring villagers like effect on breathing and respiratory system, damage to lung	department for the plantation of trees (Neem, Magizham, Tamarind, Elandhai and Vilvam) in two tier to combat air pollutionand with herbs (Nerium) in between the tree species. Planning transportation routes of the mined out mineral, so as to reach the nearest paved roads (an approach road) by shortest route connecting to NH45 Alternatively, graveled road may be constructed between mine lease area and nearest paved road connectivity. The speed of trucks plying on the haul road will be limited to 20km/hr to avoid generation of dust. The trucks will be covered by tarpaulin. Overloading will be avoided. Personal Protective Equipments (PPEs) like eye goggles, dust mask, leather gloves, safety shoes &boots will be provided to the workers

	tissue, influenza or asthma. • Dust generation due to loading and unloading of mineral and due to transportation can also affect the workers as well as nearby villagers. *Effect on Plants* • Stomatal index may be minimized due to dust deposit on leaf.	engaged at dust generation points like excavation and loading points. 1 kLD of water will be proposed for sprinkling on unpaved roads to avoid dust generation during transportation.

Air Quality Modeling:

The AERMOD is actually a modeling system with three separate components:

- AERMOD (AERMIC Dispersion Model),
- AERMAP (AERMOD Terrain Preprocessor)
- AERMET (AERMOD Meteorological Preprocessor)

Special features of AERMOD include its ability to treat the vertical in homogeneity of the planetary boundary layer special treatment of surface releases, irregularly shaped area sources, a plume model for the convective boundary layer, limitation of vertical mixing in the stable boundary layer, and fixing the reflecting surface at the stack base.

The AERMET is the meteorological preprocessor for the AERMOD. Input data can come from hourly cloud cover observations, surface meteorological observations and twice-a-day upper air soundings. Output includes surface meteorological observations and parameters and vertical profiles of several atmospheric parameters.

The AERMAP is a terrain preprocessor designed to simplify and standardize the input of terrain data for the AERMOD. Input data include receptor terrain elevation data. Output includes, for each receptor, location and height scale, which are elevations used for the computation of airflow around hills.

4.4.1 *Source Characterization*

A detailed listing of all emission sources and their corresponding modelling input release parameters and emission rates is listed this report. A general description of how each source type was treated is presented below.

The emission Sources from the proposed operation are

Point Sources:

Point sources for mining operations are typically include dust collectors, hot water heaters, and emergency generator(s). Since at the present project the following sources are anticipated.

1. Hydraulic excavator – 0.90 Cum Bucket Capacity (with Rock Breaker Attachment)
2. Jack Hammer 30-32mm Dia
3. Tipper
4. Tractor Mounted - Compressor
5. Drilling and excavation with Accessories

The above machineries are adequate to meet out the simultaneous development and production schedule drawn out in this mining plan.

Road Sources:

A road network was developed to depict the anticipated haul truck routes and truck discharge locations during the mine operations. The anticipated emissions from the road sources and corresponding anticipated impact during the monitoring period of January to March 2021 emissions were estimated. Emissions due to haul road and general plant traffic on the unpaved road network were

modelled as volume sources. The model volume source parameter for the haul roads initially utilized USPEA developed emission factors for hauling trucking. The haul road sources utilized source to source spacing of 6 meters along the simulated haul roads. The initial lateral dimension of the sources were set to 3 m were used as an input to replicated a 2 truck travel adjacent for a typical mining scenario.

The parameters considered for the hauling operation include the following

- size of haul trucks commonly used
- degree of dust control/compaction of permanent haul roads

Other fugitive particulate emission sources:

Other fugitive particulate emission sources that were modelled as volume sources include the following:

- Fugitive emissions from trucks unloading at the primary crusher were represented by a single volume source. The release height was set to 0 meters (dump pocket is at grade level).
- Fugitive emissions due to wind erosion is not considered as the mining area is predominately rocky surface with minimal wind erosion. If an wind erosion is anticipated to occur, it would be localized.
- Fugitive emissions from transfer points were represented by single volume sources. The release heights for these sources were set to the actual height of the truck transfer process.

Post Project Scenario

Emissions from operations will result from process equipment and mining operations. Process equipment was modeled at maximum capacity. Emissions from mining were based upon the mining rate and haul truck travel necessary to transport the stones and waste from the pit to the storage area.

Predicted maximum ground level concentrations considering micro meteorological data of January to March 2021 are superimposed on the maximum baseline concentrations obtained during the study period to estimate the post project scenario, which

would prevail at the post operational phase. The overall scenario with predicted concentrations over the maximum baseline concentrations is shown in the following table along with isopleths.

Table 4-1 Controlled emission calculation (24Hour- average modeling inputs)

Activity		Source Type	Emissions (g/s)				
			TSPM	PM_{10}	$PM_{2.5}$	NO_X	CO
Haulage		Line volume	4.592E-02	1.298E-02	7.787E-03	3.801E-02 (from tipper)	2.292E-02 (from tipper)
Topsoil handling	Scraper	open pit	Negligible	Negligible	Negligible	N/A	N/A
	Bulldozing		1.018E-01	3.379E-02	2.028E-02	1.33E-02 (from excavator)	1.160E-01 (from excavator)
Rough stone mining	Wet drilling		2.12E-04	4.24E-05	2.55E-05	5.22E-03 (from compressor)	1.13E-03 (from compressor)
	Loading		2.65E-04	5.30E-05	3.18E-05	N/A	N/A

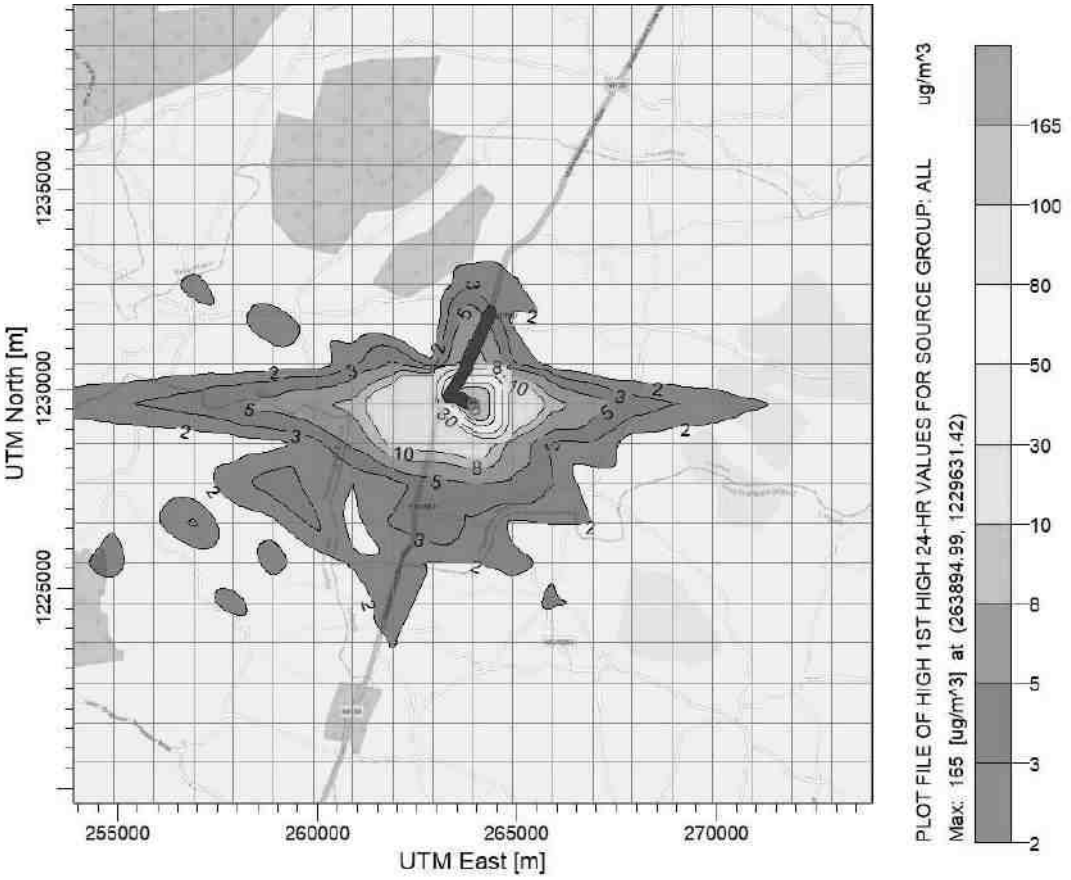


Figure 4.1 Predicted 24-Hrs GLC of Particulate matter TSPM within 10 km Radius of the Study Area

Table 4-2 Predicted Top 10 Highest Concentrations PM10

S.NO	UTM coordinates (m)		Conc. (µg/m^3)
	E	N	
1.	263895	1229631	165.4453
2.	262895	1229631	24.98229
3.	264895	1229631	16.92051
4.	261895	1229631	14.50623
5.	263895	1228633	13.10463
6.	262895	1228633	11.4405
7.	261895	1228633	11.08291
8.	263895	1230630	10.27712
9.	265895	1229631	9.178
10.	260895	1229631	8.7608

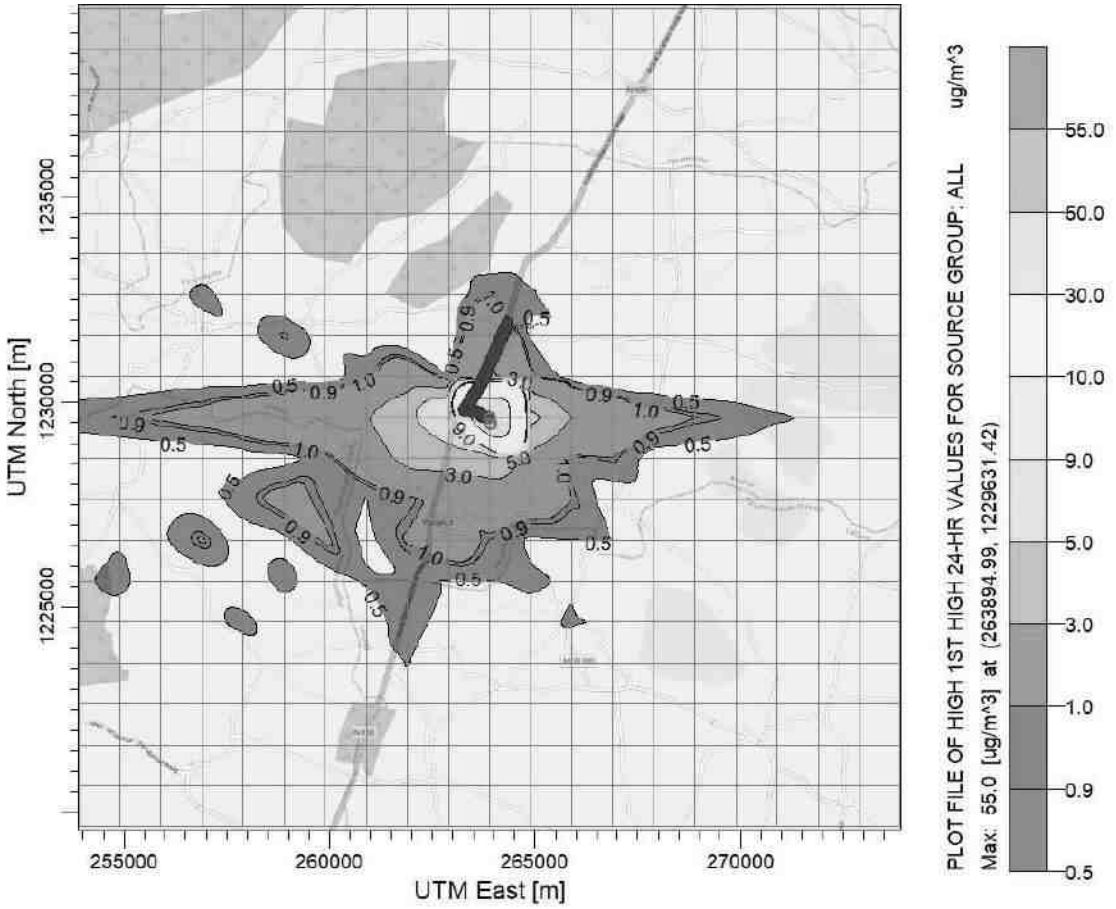


Figure 4.2 Predicted 24-Hrs GLC of PM_{10} within 10 km Radius of the Study Area

Table 4-3 Predicted Top 10 Highest Concentrations of PM_{10}

S.NO	UTM coordinates (m)		Conc. (µg/m^3)
	E	N	
1.	263895	1229631	54.97131
2.	262895	1229631	8.27551
3.	264895	1229631	5.59984
4.	261895	1229631	4.80565
5.	263895	1228633	4.34784
6.	262895	1228633	3.7981
7.	261895	1228633	3.67388
8.	263895	1230630	3.37441
9.	265895	1229631	3.0348
10.	260895	1229631	2.89965

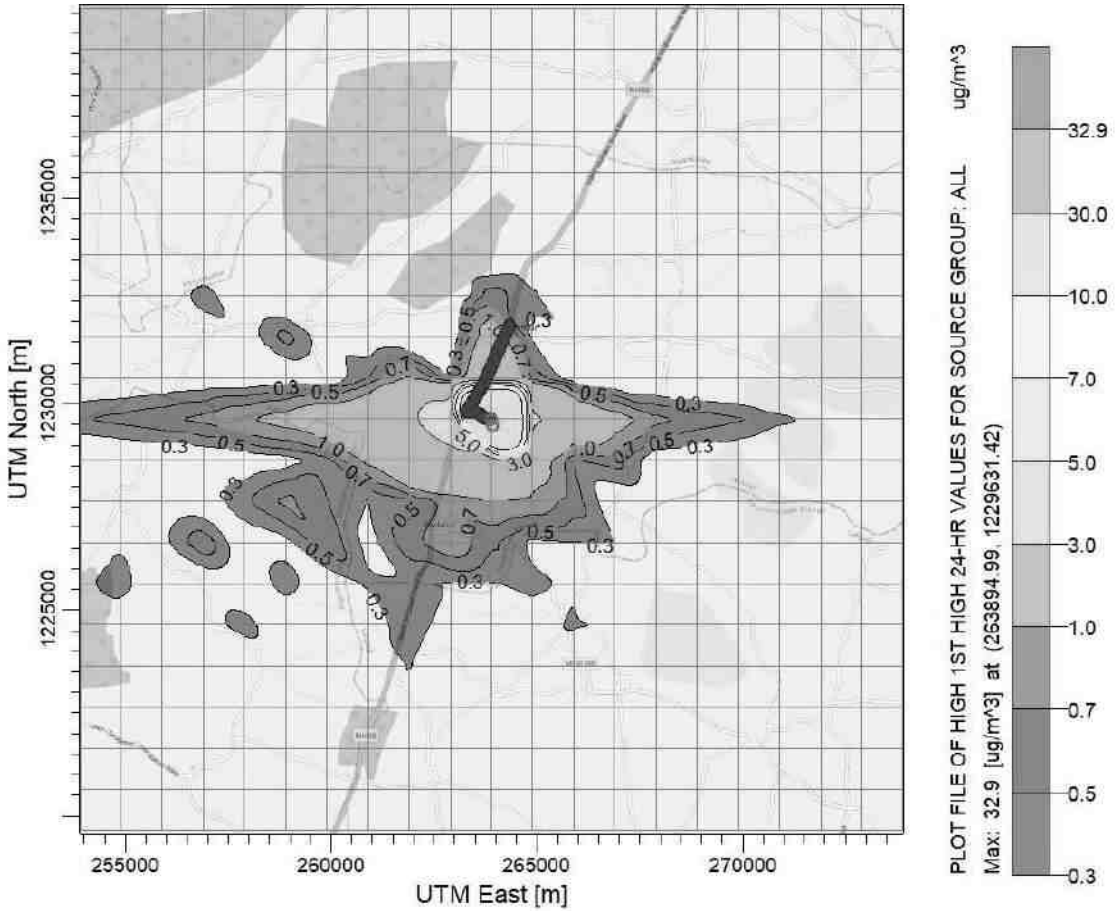


Figure 4.3 Predicted 24-Hrs GLC of $PM_{2.5}$ within 10 km Radius of the Study Area

Table 4-4 Predicted Top 10 Highest Concentrations of $PM_{2.5}$

S.NO	UTM coordinates (m)		Conc. (µg/m^3)
	E	N	
1.	263895	1229631	32.91744
2.	262895	1229631	4.95557
3.	264895	1229631	3.35332
4.	261895	1229631	2.87774
5.	263895	1228633	2.60358
6.	262895	1228633	2.27438
7.	261895	1228633	2.20001
8.	263895	1230630	2.02075
9.	265895	1229631	1.81732
10.	260895	1229631	1.73639

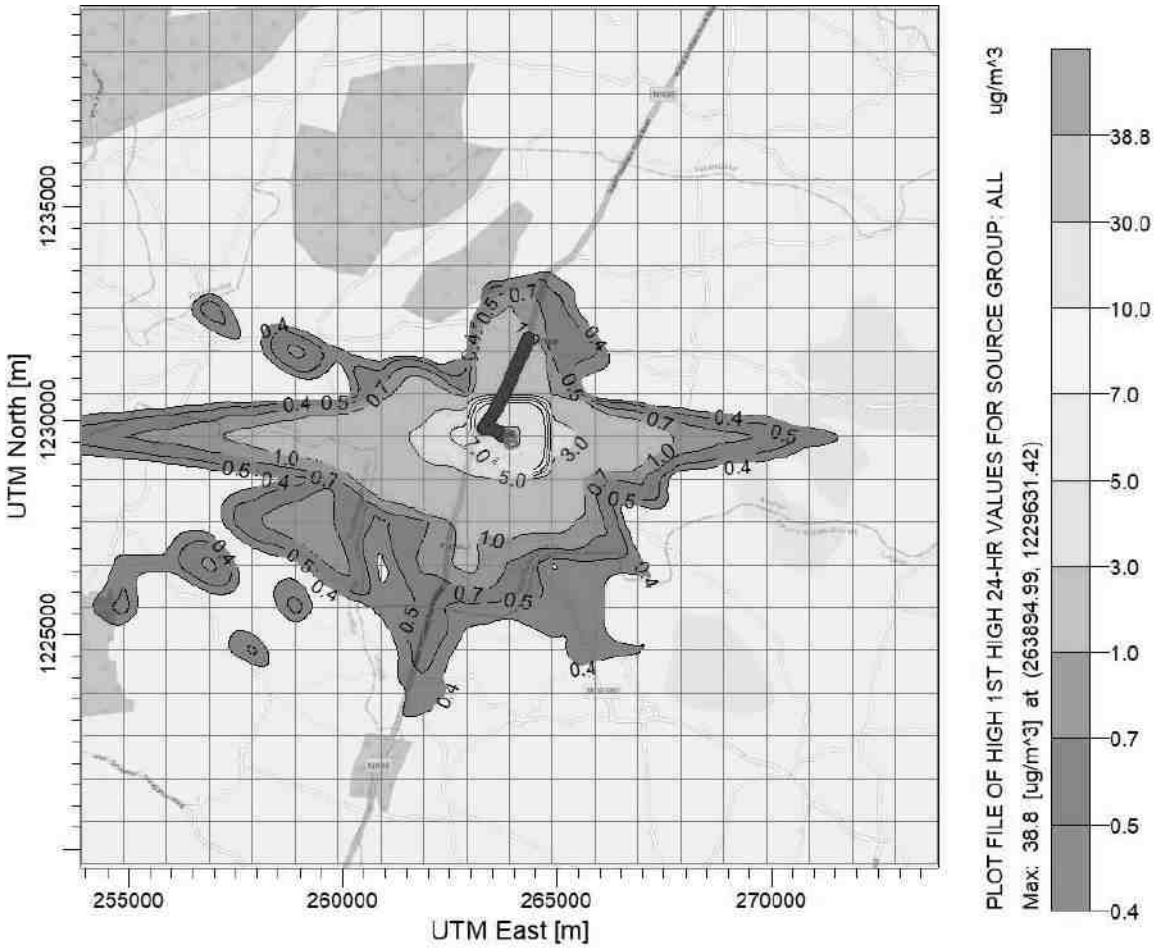


Figure 4.4 Predicted 24-Hrs GLC of NOx within 10 km Radius of the Study Area

Table 4-5 Predicted Top 10 Highest Concentrations of NOx

S.NO	UTM coordinates (m)		Conc. (µg/m^3)
	E	N	
1.	263895	1229631	38.79025
2.	262895	1229631	6.16146
3.	264895	1229631	4.23582
4.	261895	1229631	3.573
5.	263895	1228633	3.14886
6.	263895	1230630	2.89696
7.	262895	1228633	2.72022
8.	263895	1231628	2.70361
9.	261895	1228633	2.70169
10.	265895	1229631	2.32969

Results and Conclusions:

It was observed that the maximum concentration observed due to mining, for TSPM, PM10, PM2.5 and NOX are well below the concentration standards specified in NAAQS GSR826(E). The total increase in concentrations above baseline status to estimate the percentage increase is summarized in

Table 4-6 Total Maximum GLCs from the mining Emissions

Pollutant	Max. Average Base Line Conc. ($\mu g/m^3$)	Estimated Incremental Conc. at source ($\mu g/m^3$)	Total Conc. ($\mu g/m^3$)	NAAQ Standard ($\mu g/m^3$)	% contribution of concentration above Base line at source
TSPM	-	165.44	-	500	-
PM10	59	54.97	113.97	100	93.16
$PM_{2.5}$	32	32.91	61.91	60	61.70
NO_X	28	38.79	66.79	80	110.82

4.5 NOISE ENVIRONMENT:

Aspect	Impact	Mitigation Measures
Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.	Usage of Equipments (Excavator – 82 dBA, Tipper - , Jack Hammer), Machinery and trucks used for transportation will generate noise. Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc due to prolonged exposure.	• The machinery will be maintained in good running condition so that noise will be reduced to minimum possible level. • Awareness will be imparted to the workers once in six months about the permissible noise level and effect of maximum exposure to those levels. Adequate silencers will be provided in all the diesel engines of vehicles.

	Number of vehicles will be increased due to theproposed mining activity hence vehicle may collate which may result in unwanted sound and can also cause impact on human health like breathing and respiratory system, damage to lung tissue, influenza or asthma.	• It will be ensured that all transportation vehicles carry a valid PUC Certificates. • Speed of trucks entering or leaving the mine will be limited to moderate speed (20km/hr) to prevent undue noise from empty vehicles. The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipments. • It is proposed to plant 250 Nos. of local species (Neem, Mandharai, Athi, Ashoka and Villam) to reduce the impact of noise in the study area.The development of green belts around the periphery of the mine will be implemented to attenuate noise. • The trucks will be diverted on two roads viz. NH45 and a District road to avoid traffic congestion. • Health checkup camps will be organized once in six month. • Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas.

		• Provision of quiet areas, where employees can get relief from workplace noise.

4.6 BIOLOGICAL ENVIRONMNENT:

Aspect	Impacts	Mitigation Measures
Site Clearance	Loss of habitat due to site clearance which may lead to ecological disturbance.	The proposed mining lease is already a barren land hence no site clearance is required. Only few shrubs and herbslike parthenium sp., prosopis juliflora were present.
Planting of trees	Development of afforestation in the mine lease area will have a positive impact as the land was initially a barren.	7.5m safety distance will be provided all along the boundary of the mine lease area and safety. Around 0.08 Ha of land is utilized for greenbelt development (250 Nos – 5 years) This will attract avifauna thus enhancing the existing ecological environment.

4.7 SOCIO ECONOMIC ENVIRONMNENT:

Aspect	Impact	Mitigation Measures
Proposed implementation of Mining activity	Land acquisition for the implementation of the project may result in loss of assets, which	The proposed project is a own patta land of ***Thiru.M.Baskaran*** and the land is vacant where there

	in return will make the PAP to shift, losing their normal routine and livelihood	are no human settlement within 500m radius. Hence the project does not involve Rehabilitation and resettlement
Drilling, Blasting, Loading and Transportation of the mined out mineral	The mining activities may cause dust emission, noise pollution thereby causing disturbance to the local habitat	No human activity is envisaged near the project site. The nearest human settlement is observed in Padalur East village which is 1km away from the project site.
Grazing and Rearing activities in the nearby villages	The Grazing and rearing of local animals like Sheep, Goat and cows is observed in the nearby villages, which may be affected due to the project as the movement of the vehicles may affect/injure the animals	It is proposed to use graveled road and nearest paved road and preferred not to use unpaved roads. In addition to that, the speed of trucks will be limited to 20km/hr to avoid any accidents
Employment opportunity	The project will improve the livelihood of the local people	After the development of the proposed mine, it will improve the livelihood of local people and also provide the direct and indirect employment opportunities. The rough stone for the infrastructural development in the area will be made available from the local markets at reasonably lower price.
Corporate Environmental Responsibility	The proposed project will help in natural resource augmentation & Community resource development	As a part of CER, 2% of the project cost i.e, 0.94 Lakhs will be allocated. Developing sports facilities, providing toilet, RO facilities to Government school in Padalur (E) Village

4.8 Other Impacts:

S. No	Aspect	Impact	Mitigation measure
1.	Risk due to the proposed mining	Accidents may occur in the mine area	Proper PPE kit (Safety jacket, Helmet, Safety Shoes, Gloves) etc will be provided to each and every employee in the mine lease concerning the safety of each labor
2.	Blasting	Injury to the labors due to the blasting activity	Alarm system in the form of Siren will be engaged in the project site to caution the blasting activity. In addition to that, the blasting activity will be scheduled at particular time – 4.30 P.M to 5.30 P.M (or whenever required) so that the employees will be aware of the activity. Smoking will be banned in the site and sign boards will be displayed in various places at site
3.	Screening of Labors	Labors will be checked for health condition before employing them in mining activity	All the labors will be checked and screened for health before employing them After employing them, periodical medical checkups will be held once in every six months

5. Analysis Of Alternatives

5.1 General

Analysis of alternative is a significant aspect in planning and designing any project. Cost benefit analysis should be work out along with other parameters while choosing an alternative in such a way that the production is maximum and the mining operation is environment friendly and cost effective. The mine plan and mine closure plan has been approved by the Deputy Director, Department of Mining and Geology, Perambalur District prior to submission of the Form-1 and PFR.

ToR issued by the SEIAA-TN vide Letter No. SEIAA-TN/F.No.7165/SEAC/ToR-714/2020. The study for alternative analysis involves in-depth examination of site and technology.

5.1.1 *Analysis for Alternative Sites and Mining Technology*

5.1.1.1 Alternative Site

The proposed project is the mining of Rough Stone Quarry and is proposed after prospecting the area. In other words, these can be implemented in the mineral available zone. Since the mining block has been allotted in principal by the State Government, there is no case for studying and exploring any other site as an alternative.

5.1.1.2 Alternative Technology

The open cast mining could be manual/semi-mechanized/mechanized depending upon the geological and topographical setup of the mineral (ROM) to be won and the daily/annual targeted production

Table 5-1: Alternative for Technology and other Parameters

Sr. No.	Particular	Alternative Option 1	Alternative Option 2	Remarks
1.	Technology	Opencast semi mechanized	Opencast mechanized	Opencast semi mechanized Involving drilling and blasting are

2.	Employment	Local employment.	Outsource employment	Local employment is preferred Benefits:
3.	Labour transportation	Public transport	Private transport	Local labours will be deployed from Padalur village so they will either reach mine site by bicycle or by foot. Benefits: Cost of transportation of labors will be negligible
4.	Material transportation	Public transport	Private transport	Material will be transported through trucks/trolleys on the contract basis Benefits: It will give indirect employment.
5.	Water	Tanker supplier	Ground water/	Tanker supply will be preferred. Water will be sourced from Padalur (East) Village, 1.0km in NW

6. Environmental Monitoring Program

6.1 General:

This chapter covers the planned environmental monitoring program. It also includes the technical aspects of monitoring the effectiveness of mitigation measures.

Monitoring is important to measure the efficiency of control measures. Post project monitoring of environmental parameters is of key importance to assess the status of environment. The monitoring program will serve as an indicator for identifying environmental degradation due to operation of the project and help in selection of appropriate mitigation measures to safeguard the environment.

Regular monitoring is as important as control of pollution since the efficacy of control measures can only be determined by monitoring. The project proponent has awarded **M/s. Ecotech Labs Pvt Ltd** for carrying out the post project environmental monitoring (PPM) and timely compliance report submission to various regulatory authorities.

Therefore, regular monitoring programme of the environmental parameters is essential to take into account the changes in the environmental quality. The objectives of monitoring are to:-

- Verify effectiveness of planning decisions;
- Measure effectiveness of operational procedures;
- Confirm statutory and corporate compliance; and
- Identify unexpected changes.

Table 6-1: Environmental Monitoring Programme

Parameters	Sampling	Frequency	Location
Air environment – Pollutants PM 10 PM 2.5 SO_2 NO_x	5 locations	24 hourly twice a week 4 hourly. Twice a week, One non monsoon season 8 hourly, twice a week 24 hourly, twice a week	Project Site, Karai East village, Govt School, Sridevimangalam village, Near HP petrol pump, Naranamangalam village,AG Church

			Padalur village
Noise	5 locations	24 hourly Once in 5 locations	Project Site, Karai East village, Govt School, Sridevimangalam village, Near HP petrol pump, Naranamangalam village,AG Church Padalur village
Water (Ground water) • pH • Temperature • Turbidity • Magnesium Hardness • Total Alkalinity • Chloride • Sulphate • Fluoride • Nitrate • Sodium • Potassium • Salinity • Total nitrogen • Total Coliforms • Fecal Coliforms	5 locations	Once in 5 locations	Project Site, Karai East village, Govt School, Sridevimangalam village, Near HP petrol pump, Naranamangalam village,AG Church Padalur village

Water (surface water) • pH • Temperature • Turbidity • Magnesium Hardness • Total Alkalinity • Chloride • Sulphate • Fluoride • Nitrate • Sodium • Potassium • Salinity • Total nitrogen • Total Coliforms • Fecal Coliforms	Sample from nearby lakes/river	One time Sampling	Chettikulam Lake
Soil (Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	5 locations	Once in 5 locations	Project Site, Karai East village, Govt School, Sridevimangalam village, Near HP petrol pump, Naranamangalam village,AG Church Padalur village
Ecology and biodiversity Study	Study area covering 5 km radius	One time Sampling	

Socio- Economic study (Population, Literacy Level, employment, Infrastructure like school, hospitals & commercial establishments)	Villages around 5 km radius	One time Sampling	

Table 6-2: Monitoring Schedule during Mining

S. No.	Attributes	Parameters	Frequency	Location
1.	Ambient Air Quality at Mine Site & Fugitive Dust Sampling	PM 10 PM 2.5 SO_2 NO_x	Once in a Month	Project Site
2.	Ground water Quality	Drinking Water Parameters, As per IS - 10500: 2012	Half yearly	Project Site
3.	Surface Water Quality	Class will be assessed as per the CPCB Guidelines	Half yearly	Project Site
4.	Soil Quality	(Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	Half yearly	Project Site
5.	Noise Level Monitoring	Noise level in dB(A) Quaterly/half yearly	Half yearly	Project Site

7. Additional Studies

7.1 General

This chapter covers the details of the additional studies viz. Risk assessment, Disaster Management, Public Hearing, Rehabilitation and resettlement

7.1.1 *Public Hearing:*

As the proposed mining project falls under 1(a), Category B1 – Cluster Mining (includes V.Panneerselvam -1.00.0 Ha, Thiru.M.Baskaran – 2.00 Ha, B.Karpagam – 1.45.0 Ha, A.T Natarajan – 1.34.0 (Existing Quarry), B.Ravichandran – 1.00.0 Ha, M.Ravi-1.00.0 Ha, K.Mathiyalagan-1.00.0 Ha, R.Sureshbabu-1.00.0 Ha, R.Ravichandran (Abandoned Quarry) & M.Baskaran – 2.13.0 Ha (Proposed Quarry)).

Hence under 7(III) of EIA notification 2006 and its subsequent amendments, the project involves the Public Consultation and the same will be conducted under SPCB (TN) in Perambalur District. The proceedings of the same will be incorporated in the Final EIA Report

7.1.2 *Risk assessment:*

For mining projects to be successful, it should meet not only the production requirements, but also maintain the highest safety standards for all the workers. The industry has to identify the hazards, assess the associated risks and bring the risks to tolerable level regularly. Mining has considerable safety risk to miners. Unsafe conditions and practices in mines lead to a number of accidents and causes loss and injury to human lives, damages the property, interrupt production etc. Risk assessment is a systematic method of identifying and analyzing the hazards associated with an activity and establishing a level of risk. The hazards cannot be completely eliminated, and thus there is a need to define and estimate an accident risk level possible to be presented either in quantitative or qualitative way.

7.1.3 *Identification of Hazard*

7.1.3.1 Blasting Pattern:

The quarrying operation will be carried out by semi Mechanised opencast method in conjunction with conventional method of mining using Jack Hammer drilling and balsting for shattering effect and loosen the Rough Stone.

7.1.3.2 Drilling and Blasting:

Drilling and Blasting parameters are as follows:

Depth of each hole	1.2m to 1.5m
Diameter of Hole	30-32 mm
Spacing between holes	0.5 mm
Burden for hole	0.5 m
Pattern of hole	Zigzag
Inclination of holes	80° from Horizontal
Use of delay detonators	25 milli-second delays
Detonating fuse	"Detonating" Cord
Hole Pattern	Staggered in two – three row

a. Types of explosives to be used:

Small dia of 25mm Slurry explosives are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling or Primary blasting is proposed

b. Measures proposed to minimize ground vibration due to Blasting:

The quarry is situated more than 1km from the nearby villages. Controlled blasting measures will be adopted for minimizing ground vibration and fly of rock. Shallow depths jackhammer drilling & blasting is proposed to be carried out with minimum use of explosive mainly to give the shattering effect in rough stone for easy excavation and to control fly of rocks

No. of Holes = 32 Holes

Yield = 96 Tons

Powder factor	=	6 Tons/Kg of explosives
Total explosive required	=	16kg – Slurry Explosives
Charge/Hole	=	0.5kg
Blasted at day time	=	4.30 to 5.30 PM (or whenever required)

Storage and safety measures to be taken while blasting: The lessee will engage an authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory Foreman/Permit Mines Manager

Heavy Machineries: The following heavy machineries will be used in the proposed lease area:

- For Mining – Excavator of 0.9 Cum Bucket capacity (with Rock Breaker attachment), Jack Hammers (30-32 mm Dia) & tractor mounted compressor (2 Jack hammer Capacity)
- Loading Equipment – Excavator of 0.9 Cum Bucket Capacity (with Bucket attachment)
- Transportation (includes within the mine and mine to destination) – Tipper 1 No of 10/20 tons capacity (from quarry to needy peoples and local crushers)

a. Risk:

Most of the accidents during transport of mined out mineral using other heavy vehicles are often attributed to mechanical failures and human errors.

b. Mitigation measures to minimize the risk

- At the time of loading no person will be allowed within the swing radius of the excavation.
- The dumpers/ trucks will stand near the loading equipment and fully braked when the muck is filled in it.
- The truck would be brought to a lower level so that the loading operation suits to the ergonomic condition of the workers.
- The workers will be provided with helmets, gloves and safety boots; loading and unloading operations will be carried out only during daylight
- All the mining machineries will be regularly maintained and checked such as brakes, lights and horns to keep in the efficient working order.

7.1.4 *General Precautionary measures for the Risk involved in the proposed mine:*

- In order to take care of above hazard/disaster, the following control measures will be adopted:
- 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 ECC and mining area.
- Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the workers (14 Nos.) and regular inspection for their use.
- In case of eventuality, first aid will be given by the senior safety office in the mine area initially to the injured person. The safety officer will give notice of accident as per Rule-23 of Mines Act-1952.
- The safety officer (common for 3 mines within 500m radius) will be responsible for coordination between management district authorities/DGMS etc. Regarding general safety as per Rule-181 of MMR 1961, "No person shall negligently or will fully do anything likely to endanger life or limb in the mine, or negligible or will fully omit to do anything necessary for the safety of the mine or of the persons employed there in". The workers will be provided with protective foot wear and safety helmets.
- Cleaning of mine faces will be regularly done.
- Handling of explosives, charging and blasting will be carried out by highly skilled labours only.
- Regular maintenance and testing of all mining equipment as per manufacturer's guidelines.
- Suppression of dust by sprinkling water on the haulage roads.

7.1.5 *Safety Team:*

The effective implementation of compliance of Safety Rules/ Statutory Provisions will be ensured. The safety officer will be engaged, meeting the requirement of Mines Act and their duties and responsibilities. The safety officer will be responsible for identification of the hazardous conditions and unsafe acts of workers and advice on corrective actions, conduct safety

audit, organize training programs and provide professional expert advice on various issues related to occupational safety and health. Organizing safety training will be conducted to employees and contractor labors periodically.

7.1.6 *Emergency Control Centre*

The emergency control center will be provided to handle the emergency. The site main controller, key personnel and the senior officers of the fire and police services will attend it. The center will be equipped to receive and transmit information and directions from and to the incident controller and other areas of the works, as well as outside. The emergency control center will be sited in an area of minimum risk. This common Emergency control centre will be used for the mines around the 500m radius

7.2 Disaster Management:

The possible risks in the case of stone along with associated minor minerals mining projects are fly rock, vibration failure of pit, slope and waste dump, accidents due to transportation. Mining and allied activities are associated with several potential hazards to both the employees and the public at large. Safety of the mine and the employees is taken care of by the mining rules & regulations, which are well defined with laid down procedure for safety, which when scrupulously followed, safety is ensured not only to manpower but also to machines & working environment.

7.2.1 Emergency Management Plan For Proposed Mines On Site- Offsite Emergency Preparedness Plan:

The emergency plan delineates the procedures for dealing with accidents or unexpected events and natural calamities arising from mining activity. An experience of any accidents that have occurred in other manufacturing/mining projects is considered to prepare this plan. This Emergency plan should be periodically reviewed and modified. It should also be changed based on the observations of emergency mock drills and experience of handling actual emergencies.

Major objectives of this onsite – offsite emergency plan are:

- To take necessary proactive and preventive actions to avoid the emergency.

The main aim of any emergency plan should be to prevent emergency situations.

To train the manpower to handle the emergencies of the following nature:

• Onsite (Within ML boundary)

• Offsite (Outside ML boundary)

7.2.2 Onsite off-site emergency Plan:

1- Emergency on account of:

- Fire
- Explosion
- Major accidents involving man-made collapse of the mining edges.
- Snake bites, attack by honey bees or attack by wild animals.

2- Disaster due to natural calamities like:

- Flood/ heavy rains which can involve natural landslides.
- Earth quake
- Cyclone
- Lightening

7.2.3 Emergency Plan:

- The mining operations should be immediately stopped in case of any emergency. A siren will be sounded during emergency time.
- An emergency assembly point will be created and all the workers will guide visitors or contractors to approach assembly point.
- Emergency vehicle (Ambulance) will be available in the nearby place, in proximity to the three mines and will rush to the emergency control centre at the blowing of emergency siren. The driver of emergency vehicle will follow the instructions of Incident Controller/Site Main Controller.
- Workers will be trained for the precautions to be taken during natural disasters like heavy rain, floods, earthquake and cyclone.
- All escape routes from mines to the assembly point or any other safe location will be made and the escape plan will be displayed in many places in the mine area

7.2.4 Emergency Control:

- Shut down of mining operations: Raising the alarm or siren followed by immediate safe shut down of the power supply, and isolation of affected areas.
- Treatment of injured: First aid and hospitalization of injured persons
- Protection of environment and property: During mitigation, efforts will be made to prevent impacts on environment and property to the extent possible.
- Preserving all evidences and records: This will be done to enable a thorough investigation of the true causes of the emergency.
- Ensuring safety of personnel prior to restarting of operations: Efforts required will be made to ensure that work environment is safe prior to restarting the work.

7.3 Natural Resource Conservation

There are no natural resources within the premises. The conservation strategies for energy will be followed in the proposed mine lease area. The pollutants of the mine will be minimized by adopting appropriate mitigation measures as mentioned Chapter 5 to prevent the effects on nearest water bodies (Odai Western side adjoining to the project site). No surface runoff from the project site will be let into the odai.

7.4 Resettlement and Rehabilitation:

The proposed Mine lease area is a private land of Tmt. Nalini Annamalayan. There is no displacement of the population within the project area and adjacent nearby area and hence Rehabilitation & Resettlement is not applicable.

8. Project Benefits

8.1 General

This chapter covers the benefits accruing to the locality, neighborhood, region and nation as a whole. It brings out the details of benefits by way of improvements in the physical infrastructure, social infrastructure, employment potential and other tangible benefits.

8.1.1 *Physical Benefits*

The opening of the proposed project will enhance the following physical infrastructure facilities in the adjoining areas:

a. ***Market:*** Generating useful economical resource for construction. Due to demand supply chain, excavated mineral (Rough stone & Gravel) will sold in the market in the affordable price.

b. ***Infrastructure:*** The excavated rough stone will be used for ***Laying Roads, Building & Construction Projects, Bridges*****.**

c. ***Enhancement of Green Cover & Green Belt Development***: As a part of reclamation plan, native tree species will be planted along the safety boundary (0.08 Ha) of the mine lease area. A suitable combination of trees that can grow fast and also have good leaf cover will be adopted to develop the green belt. It is proposed to plant 250 numbers of native species along with some fruit bearing and medicinal trees during the mining plan period.

8.2 Social Benefits

The mining in the area will create rural employment. During site visit, it has been observed that the economic conditions of the villages in the study area is quite normal. After the development of the proposed mine, it will improve the livelihood of local people and also provide the indirect employment opportunities. The rough stone for the infrastructural development in the area will be made available from the local markets at reasonably lower price.

As a part of CER, 2% of the project cost i.e., 0.94 Lakhs will be allocated. The detailed agenda, which is to be executed has been framed. The salient features of the programme are as follows:

- Creation of community assets (infrastructure) like provision for drinking water, construction of sanitary facility to Government School, Padalur which is 1.10 km, NW

8.3 Project Cost / Investment Details

(a) Project cost / investment cost :

Sl. No	DETAILS	Cost of lakhs
i)	Own patta land	Own patta land
ii)	Hired machinery	Hired machinery
iii)	Land cost	20,00,000
iv)	Labourers Shed	50,000
v)	Sanitary facility	1,00,000
vi)	Fencing	2,00,000
TOTAL		**23,50,000**

(b) Expenditure/ PRODUCTION COST

Machinery cost : 20,00,000

(c) EMP Cost :

Sl. No.	DETAILS	COST in (Rs.)
1	Drinking Water facility for Labourers	1,00,000
2	Air Quality test	25,000
3	Safety kits	50,000
4	Water Sprinkling	50,000
5	Afforestation, Plantation & Maintenance	50,000
6	Noise/vibration	25,000
7	Cost towards charity	25,000
8	Water quality test	50,000
	Total	3,50,000

Investment Cost = Rs. 23,50,000/-
Operational COst = Rs 20,00,000/-
Total EMP Cost = Rs. 3,50,000/-

GRAND TOTAL PROJECT COST = 47,00,000/-

9. Environmental Management Plan

9.1 Introduction

This chapter comprehensively presents the Environmental Management Plan (EMP), which includes the administrative and technical setup, summary matrix of EMP, the cost involved to implement the EMP, during various Mining activities and provisions made towards the same in the cost estimates of project. This chapter describes the proposed monitoring scheme as well as inter-organizational arrangements for effective implementation of the mitigation measures.

9.2 Subsidence

Mining will be carried out by opencast semi mechanized mining method with drilling & blasting as per mining plan approved by Department of Mining and Geology, Perambalur. Subsidence/slope failures are not envisaged because there are no loose strata overlying the deposit (mineral to be excavated). The bench height will be average 6m. The individual bench slope has been proposed to be kept at 60^0 from horizontal, while the ultimate pit slope has been kept 45^0 from horizontal. Moreover, all safety standards/ safeguards will be implemented as per guidelines prescribed by Director General of Mines Safety.

9.3 Mine Drainage

9.3.1 *Storm water Management*

The following measures will be taken with respect to the prevailing site conditions.

- Storm water drains with silt traps of size 1m x 1m will be suitably constructed all along the periphery of the pit area to collect the run-off from the mine area and divert into the pit
- All measures will be taken not to disturb the existing drainage pattern adjacent to the mine lease area
- The storm water collected from the mine area will be utilized for dust suppression on haul roads, plantation within the premises, etc.,

9.3.2 *Drainage*

Local workers will be deployed for the project. But, urinals and Latrines will be provided and the same will be connected to septic tank followed by soak pit arrangement. No domestic

waste will be deposited into the nearby area. Regular checking will be carried out to find any blockage due to silting or accumulation of loose materials. The drains will also be checked for any damage in lining / stone pitching, etc.

9.3.3 *Administrative and Technical Setup*

The Environment Management Plan (EMP) will consist of all mitigation measures for each component of the environment due to the activities increased during mining operation to minimize adverse environmental impacts resulting from the activities of the project.

To carry out the above activities, Thiru. M. Baskaran will work in association with M/s. Ecotech Labs Pvt Ltd.

Table 9-1: Impacts and mitigation measures

S. no	Impacts on Environment	Activity /Aspect	Anticipated impacts	Mitigation measures	Budgetary Allocation
1.	Air	Fugitive Emission	During mining operation, fugitive dust and other air pollutants like particulate matter (PM10 & PM 2.5) will be generated.	• Planting of trees along the safety distance of the Mine Lease Area • Water will be sprinkled in the site as dust suppression measure.	Rs.50,000 Rs.1,50,000
2.	Water	Wastewater Generation	Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labors	• Provision of urinals/Latrines along with septic tank followed by soak pit arrangement will be provided in the Mine Lease area for the proper management of wastewater	Rs.55,000
3.	Noise	Mining activities like drilling, blasting, loading and transportation	Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc due to prolonged exposure. Apart from Mining activities like drilling, blasting may generate noise	• Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas	Rs.10,000

4.	Land	Improper management of Storm water Runoff	Storm water Runoff may result in Soil Erosion	• Garland drainage of 1m x 1m will be provided to avoid storm water run- off.	Rs.1,00,000
4.	Social Responsibility	Mining workers	Unhygienic site sanitation facilities may cause health damage to workers.	The objective is to ensure health and safety of the workers with effective provisions for the basic facilities of sanitation, drinking water, safety of equipments or machinery etc. The following will be done in the site ✓ By complying with the safety procedures, norms and guidelines (as applicable) as outlined in the National Building Code of India, Bureau of Indian Standards. ✓ Provide adequate number of decentralized latrines and urinals ✓ Providing Septic tank along with Soak pit arrangement ✓ Providing First Aid room, conducting frequent health checkups to labor and conducting free medical camps ✓ Providing safety helmet, Gloves, Jacket & Boots ✓ Providing measures to prevent fires. Fire fighting extinguishers and buckets of sand will be provided in the construction site	Rs.25,000 Rs.30,000 Rs.1,00,000 Rs.36,000 Rs.50,000
6.	Building	Building	Use of	• Use of locally	

	materials resource conservation	Material consumption	farfetched construction materials than the locally available construction materials may lead to over exploitation of natural resources & increase in carbon footprint.	available construction materials.	

Table 9-2: Budgetary Allocation for EMP during Mining

S. No	Description		Budgetary Allocation Rs.)
1.	**EMP COST**		
	i.	Drinking water facility for Labourers	1,05,000
	ii.	Sanitary Maintenance	60,000
	iii.	Safety Kits	36,000
	iv.	Water Sprinkling	1,50,000
	v.	Afforestation, Plantation & Maintenance	50,000
2.	**Environmental Monitoring**		
	i.	Air Quality Monitoring	50,000
	ii.	Water Quality Monitoring (Bore well water)	60,000
	iii.	Soil sample Analysis – 1 Location	24,000
	iv.	Noise Monitoring	12,000
Total Cost			**5,47,000**

10. Summary & Conclusion

This chapter summarizes the overall justification for implementation of the project and explains how the potential impacts are mitigated.

10.1 Introduction

Thiru.M.Baskaran site is a cluster of seven mining project. The individual mine lease area is 4.31.5 Ha of Rough stone Quarry located at S.F.Nos. S.F 4/3A,4/4B,7/4A & 7/4B -2.13.0 Ha, of Padalur (East) Village, Alathur Taluk in Perambalur District.

10.2 Project Overview

Table 10-1: Project Overview

S. No	Description	Details
1	Project Name	Existing Rough stone quarry-2.13.0 ha
2	Proponent	Thiru.M.Baskaran
3	Mining Lease Area Extent	2.13.0Ha
4	Location	S.F 4/3A,4/4B,7/4A & 7/4B -2.13.0 Ha , Padalur (East) Village,
5	Latitude	$11^0$6’51.10” N to $11^0$6’58.93” N
6	Longitude	$78^0$50’17.38” E to $78^0$50’21.64” E
7	Topography	Plain terrain
8	Site Elevation above MSL	≃130 m from above MSL
9	Topo sheet No.	58 I/16
10	Minerals of Mine	Rough stone
11	Proposed production of Mine	Proposed capacity of Rough stone: 157655 m3

12	Ultimate depth of Mining	30m below ground level
13	Method of Mining	Open cast, semi-mechanized mining
14	Water demand	2.0 KLD
15	Source of water	Water will be supplied through tankers supply
16	Man power	Direct :8 , Indirect :12nos
17	Mining Lease	Precise Area Communication Letter Rc.No. 66/G&M/2018, dated 06.03.2019, issued by District Collector, Perambalur.
18	Mining Plan Approval	Mining plan was approved by Deputy Director, Geology and Mining, Perambalur with Letter No. 66/G&M/2018, dated 08.03.2019,
19	Production details	Geological reserves of Rough stone : 5,41,640 m3 Proposed year wise reserves of Rough stone : 1,49,773 m3
20	Boundary Fencing	7.5m barrier all along the boundary Fencing will be provided
21	Disposal of overburden	The overburden is in the form of top soil and weathered rock formation. It will be quarried for filling purpose to nearby end users and part of soil will be preserved all along the boundary as barrier for afforestation.
22	Ground water	The quarry operation is proposed up to a depth of **30m** below ground level. The water table is below **50m** from ground level which is observed from the nearby bore wells. Hence the ground water will not be affected in any manner due to the quarrying operation during the entire lease

		period.
23	Habitations within 500m radius of the Project Site	There is no Habitation within 500m radius
24	Drinking water	Water will be supplied through tankers from Padalur(E) Village which is 1km in NW side of the area.

10.3 Justification of the proposed project

The said project plays a significant role in the domestic as well as infrastructural market. To achieve a huge infrastructure being envisaged by Government of India, particularly in road and housing sector, there is a need for basic building materials. The rough stone form the primary building material.

Rough stone is one of the most valuable natural building materials. Aggregates are mostly used for building roads and footpaths Aggregates – stone used for its strong physical properties – crushed and sorted into various sizes for use in concrete, coated with bitumen to make asphalt or used 'dry' as bulk fill in construction. Mostly used in roads, concrete and building products. Aggregates represent about 98% of quarry output, most of which is used in road construction, maintenance and repair. Much of this goes to the production of asphalt; the remainder is used 'dry' without the addition of other materials to provide a sturdy base for roads.

Since Virudhunagar, a city known for its small-scale industries and also the soil in the area near project site is not very fertile making it unsuitable for carrying out agricultural activities. The topography near the lease area is barren dry lands showing only less chance for crop growth and development of vegetation. In addition to that, geological reserves of rough stone is abundant in the lease area which is evident from the mine activities carried out in the nearby sites.

Table 10-2: Anticipate Impacts & Appropriate Mitigation Measures

S. No	Potential Impact	Mitigation Measure
1	The main impact in the air environment is dust emission during various mining activities such drilling, blasting, excavation, loading and transportation. The dust emission may affect the quality of ambient air in the and around the mine area. The increased emission may cause respiratory & Cardiovascular problems in human health	Proper mitigation measures like water sprinkling on haul roads will be adopted to control dust emissions. To control the emissions regular preventive maintenance of equipments will be carried out on contractual basis. Plantation will be carried out along approach roads & mine premises.
2	Waste water will be generated due to mining activity and from other domestic activities. These may contaminate the ground water leading to ground water. The mining activity may affect the ground water table	No waste water will be generated from the mining activity of minor minerals as the project only involves lifting of over burden from mine site. The wastewater generated from the domestic activity will be disposed off safely through the proposed septic tank Mining will not intersect ground water table. Hence the water table will not be impacted due to the proposed project
3	Noise will be generated in the mine area during various mining activities such as blasting, drilling, excavation. During transportation of the mined out mineral, there may be noise generation due to the movement of vehicles. This may impact the	Periodical monitoring of noise will be done. No other equipments except the transportation vehicles and Excavator (as & when required) for loading will be allowed at site.

	health condition of the workers by creating headache	Noise generated by these equipments shall be intermittent and does not cause much adverse impact. Plantation will be carried out along approach roads. The plantation minimizes propagation of noise and also arrest dust.
4	Solid waste will be generated from the mining activity as there will be refuse after 95% recovery and also generation of domestic waste	The 100% recovery is achieved by extracting the entire mineable reserve. Hence there will be no refuse generation due to the mining activity. Apart from that, a very meagre quantity of domestic waste will be generated in the project, which will be handed over to the local body on daily basis.
5	During mining activities, there are chances of workers getting health issues or may be prone to accidents	Dust masks will be provided as additional personal protection equipment to the workers working in the dust prone area. Periodical trainings will be conducted to create awareness about the occupational health hazards due to activities like blasting, drilling, excavation Workers health related problem if any, will be properly addressed.

11. Disclosure of Consultant

11.1 Introduction

This chapter presents the details of the environmental consultants engaged, their background and the brief description of the key personnel involved in the project. Specific studies on the mining project have been carried out by engaging engineers/experts of Ecotech Labs Pvt. Ltd, Chennai. Ecotech Labs Pvt. Ltd (ETL), Chennai is NABET accredited consultancy organization. ETL is equipped with in-house, spacious laboratory, accredited by NABL (National Accreditation Board for Testing & Calibration Laboratories), Department of Science & Technology, Government of India and MoEF & CC.

11.2 Eco Tech Labs Pvt. Ltd – Environment Consultant

Eco Tech Labs Pvt. Ltd is a multi-disciplinary testing and research laboratory in India. Eco Tech labs provides high quality services in environmental consultancy, engineering solution, chemical and microbiological laboratory analysis of food, water and environment (Air, Water, Soil) with highest accuracy.

11.2.1 The Quality policy

•We, at Eco Tech Labs Pvt. Ltd. engaged in providing Environmental consulting services and we are committed to strengthen our capabilities in all areas of our operations in line with customer requirements &expectations, applicable legal requirements & stakeholders expectations.

•We are committed to establish and maintain Quality Management System (QMS) for continual improvement in processes and Services

•We are committed to provide customized solutions in realistic, time bound and cost effective to achieve highest degree of customer satisfaction and Environmental improvement.

- We shall establish, maintain & periodically review our documented management systems, objectives and performance in consultation with our employees and prevailing best practices.
- Effective communication of organization's policy and objectives to employees and seeking feedbacks from all our employees and concerned stakeholders for continual improvement.

Declaration by Experts contributing to the EIA of Existing Rough stone Quarry- 2.13.0 Ha by Thiru.M.Baskaran at S.F.No. 4/3A, 4/4B, 7/4A & 7/4B, Padalur (East) Village, Alathur Taluk,Perambalur District, Tamil Nadu State

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

EIA Coordinator: Dr. A.Dhamodharan

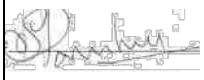
Dr. A. DHAMODHARAN
(NABET APPROVED EIA COORDINATOR)
NABET/EIA/2124/SA 0147
Environmental Consultant
Eco Tech Labs Pvt. Ltd
Plot No.48A, 2nd Main Road, Ram Nagar South Extn.
Pallikaranai, Chennai - 600 100.

Signature :

Period of involvement: 01.01.2021 to 30.03.2021

Contact information: M/s. Ecotech Labs Pvt Ltd.,
No. 48, 2nd Main road, Ram Nagar South Extension,
Pallikaranai

S. No	Functional areas	Name of the experts	Involvement (Period and task)	Signature and date
1	AP	Mrs. K. Vijayalakshmi	1. Selection of Baseline Monitoring stations based on the wind direction 2. Interpretation of Baseline data by comparing it with standards prescribed by CPCB against the type of area 3. Identification of sources of air pollution and suggesting mitigation measures to minimize impact ***Period: January – March 2021***	

2	WP	Dr. A. Dhamodharan	1. Selection of baseline Monitoring Locations for Ground water analysis and also identifying nearest surface water to be studied. 2. Interpretation of baseline data collected 3. Identification of impacts based on the baseline study conducted and also to the ground water and nearby surface water due to the proposed project 4. Preparation of suitable and appropriate mitigation plan. 5. ***Period: January – March 2021***	
3	SHW	Dr. A. Dhamodharan	1. Identification of nature of solid waste generated 2. Categorization of the generated waste and estimating the quantity of waste to be generated based on the per capita basis. Identification of impacts of SHW on Environment 3. Suggesting suitable mitigation measures by recommending appropriate disposal method for each category of waste generated 4. Top soil and refuse management ***Period: January – March 2021***	
4	SE	Mr. S. Pandian	1. Primary data collection through the census questionnaire 2. Obtaining Secondary data from authenticated sources and incorporating the same in EIA report. 3. Impact assessment & proposing suitable mitigation plan 4. CSR budget allocation by discussing with the local body and allotting the same for need based activity. ***Period: January – March 2021*** ****Involves Public Hearing***	

5	EB	Dr. A. Dhamodharan	1. Primary data collection through field survey and sheet observation for ecology and biodiversity 2. Secondary Collection through various authenticated sources 3. Prediction of anticipated impacts and suggesting appropriate mitigation measures. ***Period: March 2021***	
6	HG	Dr. T. P. Natesan	1. Study of existing surface drainage arrangements in the core and buffer zone, impact due to mining on these drainage courses and suggestion of mitigative measures 2. Determination of groundwater use pattern, development of rainwater harvesting program. ***3.*** Storm water management through garland drainage system. ***Period: May 2019***	
7	GEO	Dr. T. P. Natesan	1. Field survey for assessing regional and local geology, aquifer distribution, Determination of groundwater use pattern, development of rainwater harvesting program. ***Period: May 2019***	
8	SC	Dr. A. Dhamodharan	1. Interpretation of baseline report 2. Identification of possible impacts on soil, prediction of soil conservation and suggesting suitable mitigation measures. ***Period: March 2021***	

9	AQ	Mrs. K. Vijayalakshmi	1. Collection of Meteorological data for the baseline study period 2. Plotting wind rose plot and thereby selecting the monitoring locations based on the wind pattern 3. Estimation of sources of air emissions and air quality modeling is done 4. Interpretation of the results obtained 5. Identification of the impacts and suggesting suitable mitigation measures. ***Period: January – March 2021***	
10	NV	Mrs. Neha Singh	1. Selection of monitoring locations 2. Interpretation of baseline data 3. Prediction of impacts due to noise pollution and suggestion of appropriate mitigation measures ***Period: January – March 2021***	
11	LU	Dr. T. P. Natesan	1. Collection of Remote sensing satellite data to study the land use pattern. 2. Primary field survey and limited field verification for land categorization in the study area 3. Preparation of Land use map using Satellite data for 10km radius around the project site. ***Period: March 2021***	
12	RH	Mr. Pinaki Dasgupta	1. Identification of the risk 2. Interpreting consequence contours 3. Suggesting risk mitigation measures ***Period: March 2021***	

Declaration by the Head of the accredited consultant organization/ authorized person

I, Dr. A. Dhamodharan, hereby, confirm that the above-mentioned experts prepared the EIA report of mining project at survey numbers. 4/3A, 4/4B, 7/4A & 7/4B Padalur (East) Village, Alathur Taluk, Perambalur District. I also confirm that the consultant organization shall be fully accountable for any misleading information mentioned in this statement.

Signature: 

Name: Dr. A. Dhamodharan

Designation: Managing Director

Name of the EIA consultant organization: M/s. Eco Tech Labs Private Limited

NABET Certificate No. & Issue Date: NABET/EIA/2124/SA 0147

ANNEXURE-I

STANDARD TOR CONDITIONS WITH ADDITIONAL TOR POINTS

सत्यमेव जयते

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY- TAMILNADU

3rd Floor, Panagal Maaligai, No.1 Jeenis Road, Saidapet, Chennai-15.

TERMS OF REFERENCE (ToR)

Lr No.SEIAA-TN/F.No.7165/SEAC/1(a)/TOR-714/2020 Dated: 02.06.2020

To

Thiru. M. Baskaran
Thiruvallakuruchi
Alathur Taluk
Perambalur District – 621704

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference (ToR) for the proposed Rough stone quarry lease over an extent of 2.13.0Ha at S.F.Nos. 4/3A, 4/4B, 7/4A & 7/4B in Padalur (East) Village, Alathur Taluk, Perambalur District, Tamil Nadu by Thiru. M. Baskaran under project category – "B1" and Schedule S.No. 1(a) – ToR issued along with Public Hearing- preparation of EIA report –Regarding.

Ref: 1. Your application submitted Terms of Reference dated: 01.10.2019
2. Minutes of the 149th SEAC Meeting held on 14.03.2020
3. Minutes of the 379th SEIAA Meeting held on 02.06.2020

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

The proponent, Thiru. M. Baskaran, submitted application for ToR on 01.10.2019, in Form-I, Pre- Feasibility report for the Rough stone quarry lease over an extent of 2.13.0Ha at S.F.Nos. 4/3A, 4/4B, 7/4A & 7/4B in Padalur (East) Village, Alathur Taluk, Perambalur District, Tamil Nadu.

The project proposal was placed in the 149th SEAC meeting held on 14.03.2020. Based on the presentation made by the proponent and the documents furnished, the SEAC decided to

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recommend the proposal for the grant of Terms of Reference (ToR) to SEIAA with Public Hearing, subject to the following specific conditions in addition to the normal conditions in mentioned in the standard ToR for conducting environment impact assessment study for non-coal mining projects and information to be included in EIA & EMP report issued by the MoEF & CC:

1. The Socio economic studies should be carried out within 10km buffer zone from the mines & furnished.
2. A detailed report on the green belt development already undertaken to be furnished. They should also submit the proposal for green belt activities for the proposed mine(s).
3. CER proposals should be furnished taking in to consideration the requirement of the local habitants available within the buffer zone as per Office Memorandum of MoEF & CC dated 01.05.2018.
4. Detailed mining closure plan for the proposed project shall be submitted.
5. The spot levels and contour levels of the proposed quarry site shall be measured and the contour plan of the site may be drawn and the same shall be furnished in the EIA Report.
6. The proponent shall conduct the hydro-geological study to evaluate the impact of proposed mining activity on the groundwater table, agriculture activity, and water bodies such as tanks, canals, ponds etc. located nearby by the proposed mining area and to be furnished in EIA report.
7. The proponent shall furnish the details on number of groundwater pumping wells, open wells within the radius of 1 km along with the water levels in both monsoon and non-monsoon seasons.
8. A detail report on the safety and health aspects of the workers and for the surrounding habitants during operation of mining to be furnished.
9. The recommendation for the issue Terms of Reference is subject to the outcome of the Hon'ble NGT, Principal Bench, New Delhi in O.A No. 186 of 2016 (M.A.No.350/2016), O.A.No.200/2016, O.A.No.580/2016 (M.A.No.1182/2016), O.A.No.102/2017, O.A.No.404/2016 (M.A.No.758/2016, M.A.No.920/2016, M.A.No.1122/2016, M.A.No.12/2017 & M.A.No.843/2017), O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No.981/2016, M.A.No.982/2016 & M.A.No.384/2017).

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The proposal was placed before the 379th Authority meeting held on 02.06.2020. The Authority decided to grant of ToR along with public hearing for the preparation of EIA Report and EMP report with additional ToR as recommended by SEAC in addition to the following conditions:

1. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
2. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
3. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
4. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
5. Reserve funds should be earmarked for proper closure plan.
6. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

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

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submitted. Impact, if any, of change of land use should be given.

11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.

12) 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

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zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.

19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.

20) Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease 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

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location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.

23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.

24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.

25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.

26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.

27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.

28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.

29) Details of any stream, seasonal or otherwise, passing through the lease area and

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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

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impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.

37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.

38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.

39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.

40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.

41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.

42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.

43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.

44) Besides the above, the below mentioned general points are also to be followed:-

a) Executive Summary of the EIA/EMP Report

b) All documents to be properly referenced with index and continuous page numbering.

c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.

d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.

e) Where the documents provided are in a language other than English, an English

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translation should be provided.

f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.

g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.

h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.

i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.

j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

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

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

1) Project name and location (Village, District, State, Industrial Estate (if applicable).
2) Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3) Measures for mitigating the impact on the environment and mode of discharge or disposal.

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4) Capital cost of the project, estimated time of completion.

5) The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.

6) A detailed study of the lithology of the mining lease area shall be furnished.

7) Details of village map, "A" register and FMB sketch shall be furnished.

8) Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be shall be submitted along with EIA report.

9) Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.

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 is acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest , eco-sensitive zones, accessibility, (note - in case of industrial estate 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

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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

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.

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- 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.

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SEIAA-TN

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, 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, Perambalur District
7. Stock File.

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY * Panagal Maligai, Saidapet, Chennai-15 TN * 02 JUN 2020

TOR Reply of Proposed Rough stone Quarry Over an Extent of 2.13.0 Ha

COMPLIANCE OF TOR CONDITIONS

Point wise compliance of TOR points issued by SEIAA,TN vide letter No. SEIAA-TN /F.No.7165/SEAC/TOR-714/2020 Dated 02.06.2020 for Mining of Minor Minerals in the Mine of "Proposed Rough stone Quarry Over an Extent of 2.13.0 Ha in S.F No. 4/3A,4/4B,7/4A,7/4B Padalur east Village, Alathur Taluk, Perambalur District, Tamil Nadu State

<table>
<tr><th>ToR Ref.</th><th>Description</th><th>Response</th><th>Page Ref. in EIA Report</th></tr>
<tr><td>1</td><td>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.</td><td>This is a Existing Rough stone quarry

Precise Area Communication Letter Rc.No. 66/G&M/2018, dated 06.03.2019, issued by District Collector, Perambalur.

As area is being exploited for the first time hence Year-wise production details since 1994 and before 1994 are not relevant or applicable.
Proposed Production of Rough Stone for five years is proposed in the EIA/EMP in chapter no-2.

<table><tr><th>Year</th><th>Rough stone volume(m3)</th></tr><tr><td>I-Year</td><td>55,190</td></tr><tr><td>II-Year</td><td>39,665</td></tr><tr><td>III-Year</td><td>27,725</td></tr><tr><td>IV-Year</td><td>20,600</td></tr><tr><td>V-Year</td><td>14,475</td></tr></table></td><td>Annexure-II

Chapter-2
Table No.2.9
Page No.37</td></tr>
</table>

2.	A copy of document in support of the fact that the Proponent is the rightful lessee of the mine should be given.	The mine lease area of 2.13.0 hectare in village Padalur east village for Rough stone quarry approved by Deputy Director, Geology and Mining, Perambalur with Letter Roc.No. 66/G&M/2018, dated 08.03.2019,	Annexure-III
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 and mining technology and should be in the name of the lessee.	All the documents i.e. Mining Plan, EIA, and public hearing are compatible with each other in terms of ML area production levels, waste generation and its management and mining technology are compatible with one another. The mining plan of the project site has been submitted to The Deputy Director, Geology and Mining Perambalur District	Annexure-III
4	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/toposheet 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).	Details of coordinates of all corner of proposed mining lease area have been incorporated in Chapter 2 of EIA/ EMP Report.	Chapter-2, Fig no. 2.2 Page. no. 39
5	Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, important water bodies, streams and rivers and soil characteristics	Topo map as attached in Chapter-2	Chapter-2, Fig no. 2.4 Page. no. 30
6.	Details about the land proposed for mining activities should be given with information as to whether 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	Details about the land proposed for mining activities should be given Chapter 2.	Chapter-2 Page 32

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.	Noted.	
8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	It is an open cast mining project. Blasting details are incorporated in chapter-2	Chapter-2, Page no.40
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.	Study area comprises of 10 km radius from the mine lease boundary. Key Plan showing core zone (ML area).	Chapter-2 Fig no. 2.5 Page no.30

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 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 has been prepared and incorporated in Chapter-4 of EIA/ EMP Report. There is no wildlife sanctuary and national park, migratory routes of fauna in the study area	Chapter-2, Table no. 2.2 Page no.26-27
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.	The overburden is in the form of top soil and weathered rock formation; it will be removed during the quarrying operation, the same will be preserved all along the 7.5m safety boundary barrier for afforestation. Hence there is no waste anticipated during the Rough stone quarry operation	Chapter-2, Page no.39
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.	The proposed mining lease area is not falling under forest 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.	The proposed mining lease area is not falling under 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. There is no involvement of forest land in the project area.	
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	Details of flora have been discussed in Chapter-3 of the EIA/EMP Report.	Chapter-3
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.	There is a relatively poor sighting of animals in the core and buffer areas of the mining lease. No significant impact is anticipated.	
17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, 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	There is no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger/Elephant Reserves/Critically Polluted areas within 10 km radius of the mining lease area.	

	Department/Chief Wildlife Warden under the Wildlife (Protection) Act, 1972 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, 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 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.	Details biological study (flora & fauna) within 10 km radius of the project site have been incorporated in Chapter-3 of EIA/ EMP Report. No flora & fauna listed in scheduled-I have been found in study area so there is no need of conservation plan. However, all care will be taken for protection of flora & fauna, if any in the lease hold area.	Chapter-3
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 Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.	The proposed mining lease area is not falling under forest land.	

20	Similarly, for coastal projects, A CRZ map duly authenticated by one of the authorized agencies 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)	There is no Coastal Zone within 15km radius of the project site.	
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 located in the mine lease area will be shifted or not. The issues relating to shifting of Village including their R&R and socio-economic aspects should be discussed in the report.	There is no Rehabilitation and resettlement is involved. Land classified as Patta land	

22	One season (non-monsoon)and (Summar Season),(Post monsoon) primary baseline data on ambient air quality CPCB Notidfication of 2009 water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre- dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre- dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	Baseline data collected during Pre Monsoon Season and Monsoon (January to March 2021) has been incorporated in EIA/EMP report. . The key plan of monitoring station has been discussed in Chapter-4. Locations of the monitoring stations have been selected keeping in view the pre- dominant downwind direction and location of the sensitive receptors and also that they represent whole of the study area.	Chapter 3 Page No-64 to 94

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 predominant wind direction may also be indicated on the map.	Air quality modeling & Impact of Air quality incorporated in chapter-5 Transportation of mineral during operation of mines will be done by road & SH-42 through dumpers and the impact of movement of vehicles are incorporated in Draft EIA/EMP report. Air quality modeling & Impact of Air quality incorporated in chapter-5	Chapter-5 Page No.107-116
24	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.	Total water requirement: 2.5 KLD Dust Suppression: 1.0 KLD Domestic Purpose: 0.5 KLD Plantation :1.0 KLD Domestic Water will be sourced from nearby Padalur east village and other water will be source from near by road tankers supply	Chapter-2 Page no.42
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Not Applicable Water will be taken from nearby villages	

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.	At the last stage of mining operation, almost complete area will be worked to restore the land to its optimum reclamation for future use as water reservoir.	
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 of the project on the water quality & its mitigation measures has been incorporated in Chapter-4 of EIA/EMP report.	Chapter-4 Page No.101-102
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. 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.	Maximum working depth: 30 m BGL The ground water table is reported as 60m below surface ground level in nearby wells of this area. Now, the present quarry shall be proposed above the water table and hence, quarrying may not affect the ground water So mine working will not be intersecting the ground water table.	Chapter-2 Page no. 26
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.	There is no any stream crossing in the existing quarry	Executive Summary

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: 130 AMSL Depth: 60 m Below Ground Water Level	Chapter-2 Table no. 2.6 Page no. 34
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 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 pollution	Green Belt Development plan is proved given in Chapter 2.	Chater-2 Page 45
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	Impact on local transport infrastructure due to the project has been assessed. There shall not be much impact on local transport. Traffic density from the proposed mining activity has been incorporated in Draft EIA/EMP report.	Chapter-3 Page No.96

	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.	Adequate infrastructure & other facilities shall be provided to the mine workers. Details are given in chapter-2 of EIA/EMP	Chapter-2 Page no. 41
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.	Conceptual post mining land use and Reclamation and restoration sectional plates are given in Mining Plan followed by Scheme of mining.	Mining plates Annexure
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 in the mining area may be detailed	Suitable measure will be adopted to minimize occupational health impacts of the project. The project shall have positive impact on local environment. Details are given in chapter-9 of Draft EIA/EMP.	Chapter-7

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.	Suitable measure will be adopted to minimize occupational health impacts of the project.	Chapter-7
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.	CSR Activity Earlier submitted to SEIAA	
38	Detailed environmental management plan 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.	Environment Management Plan has been described in detail in Chapter-9 of the Draft EIA/EMP Report.	Chapter-9 Page-136
39	Public hearing points raised and commitment of the project proponent on the same along with time bound action plan to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	Public Hearing proceedings will be furnished in Final EIA 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.	Not applicable No. litigation is pending against the project in any court.	

<table>
<tr><td>41</td><td>The cost of the project (capital cost and recurring cost) as well as the cost towards implementation of EMP should clearly be spelt out.</td><td><table>
<tr><th>S.No.</th><th>Description</th><th>Cost</th></tr>
<tr><td>1</td><td>Project Cost</td><td>23,50,000</td></tr>
<tr><td>2</td><td>Expenditure Cost</td><td>20,00,000</td></tr>
<tr><td>3</td><td>EMP Cost</td><td>3,50,000</td></tr>
<tr><td></td><td>Total</td><td>47,00,000</td></tr>
</table></td><td>Chapter-8</td></tr>
<tr><td>42</td><td>Disaster Management Plan</td><td>Disaster Management and Risk Assessment has be incorporated in Chapter-7</td><td>Chapter-7</td></tr>
<tr><td>43</td><td>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.</td><td>Benefits of the project has incorporated</td><td>Chapter-8</td></tr>
<tr><td>44</td><td colspan="3">Besides the above, the below mentioned general points are also to be followed:</td></tr>
<tr><td>(a)</td><td>Executive Summary of the EIA/EMP report</td><td>Executive Summary of EIA Report is attached</td><td></td></tr>
<tr><td>(b)</td><td>All documents to be properly referenced with index and continuous page numbering.</td><td>Complied</td><td></td></tr>
<tr><td>(c)</td><td>Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.</td><td>Complied</td><td></td></tr>
<tr><td>(e)</td><td>Where the documents provided are in a language other than English, an English translation should be provided.</td><td>Complied</td><td></td></tr>
</table>

(f)	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	The complete questionnaire has be prepared	
(g)	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) dated4th August, 2009, which are available on the website of this Ministry, should also be followed.	The EIA report has been prepared and complying with the circular issued by MoEF vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009.	
(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 with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation	There are no changes in prepared EIA as per submitted Form-1 & PFR	
(i)	As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012,	Will be complied after grant environment clearance form SEIAA,Tamilnadu	

	report on the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project by the Regional Office of Ministry of Environment & Forests, if 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 (iii) sections of mine pit and external dumps, if any clearly showing the features of the adjoining area.	All Sectional Plates of Quarry is enclosed in Mining Plan.	

Additional ToR Compliance

1.The Socio-economic studies should be carried out within 10 km buffer zone from the mines.

The details of socioeconomic studies were carried out within 10km buffer zone from the mine lease area. Demographic Studies like details of population, Household, Sex ratio, Literacy rate, SC, ST details were e discussed in Chapter 4

2.A detailed report on the green belt development already undertaken to be furnished. They should also submit the proposal for green belt activities for the proposed mines.

- A safety barrier of all along the boundary trees are planted in the quarry
- The level of the project site is elevated by 7 and 8 meter and elevated level is afforested with 1000 eucalyptus trees
- The photographs evidence for the same is shown below.

Figure.1 Existing site green belt photos

proposal for green belt activities for the proposed mines

1.The development of greenbelt in the peripheral buffer zone of the mine area.

2.Green belt has been recommended as one of the major component of environmental Management plan, which will improve ecology, environment and quality of the surrounding area.

3.Local trees like, Neem , Pungam, Naval etc will be planted along the south side lease boundary and avenues as well as over Non-active dumps at a rate of 150 trees per annum with interval 5m .

4.The rate of survival expected to be 80% in this area

Table.1 Plantation/ Afforestation Program

Year	Name of species	Place of planted	No of species	Spacing	Survival
2022	Neem/Pungam	North	150	5m	80%
2023	Naval	South	150	5m	80%
2024	Poovarasu/Pungam	East	150	5m	80%
2025	Naval/Pungam	South	150	5m	80%
2026	Neem	West	150	5m	80%
Total			**750**		

3. CER proposal should be furnished taking into consideration the requirement of the local habitants available within the buffer zone as per Office Memorandum of MoEF & CC dated 01.05.2018

The following Corporate Environment Responsibility (CER) activities before the commencement of the quarrying activities.

S.No.	CER Activity	CER cost (Rs)
1.	Provision of basic amenities such as safe drinking water, Hygienic toilet facilities, furniture's, Solar lights to Government school in Padalur east Village	5,00,000
Total		**5,00,000**

4. A Detailed mining closure plan for the proposed project shall be submitted

Mine Closure Plan approved by Department of Geology and Mining; Perambalur District is attached as mining pate no.VIII

5.The Spot level and contour levels of the proposed quarry site shall be measured and the contour plan of the site may be drawn and the same shall be furnished in the EIA Report.

We assure that, Spot level and contour levels of the proposed quarry site will be measured and the contour plan of the site may be drawn and the same will be furnished in the Final EIA Report.

6. The Proponent shall conduct the hydro-geological study to evaluate the impact of proposed mining activity on the ground water table, agricultural activity and water bodies such as rivers, tanks, canals, ponds located nearby the proposed mining area and to be furnished in the EIA Report

Hydrogeology

Geologically in Perabalur district, western part is covered by hard rocks, south east by cretaceous formation, thin fringe of Gondwana in south and north Alluviuma

Hard Rock Formation

The western part of the district is covered by Granitic gneiss, Hornblends gneiss, harnockite with intrusions of Dolerite – dykes and pegmatites. These rocks are highly metamorphosed and have been subjected to very severed folding, crushing and faulting.

Sedimentary Formation

Nearly 75% of the area in this district is covered by sedimentary formations like the ancient upper thin fringe of Gondwana (underlined by hard rock), cretaceous, Tertiary and Recent alluvial deposits. The Upper Gondwana occurs as a thin fringe composing of clay sandstone underlain by the hard rock.

The cretaceous formation deposited under marine conditions. The sequence of cretaceous beds commences with Uttatur stage, Ariyalur stages and closed with Ninniyur stage. These beds consists of shales, clay, limetone, argillaceous limestone, coral limestones and shell limestones.

The Tertiary Miocene and Pliocene age formation is underlain by Cuddalore sand stoned. The formation consists of sand stones, gravelly sand, clays, lignite seam and pebble beds, marine regressions are indicated by intercalation of lignite beds.

The cretaceous formations stretch along the river coursed of Coleroon, Marudaiyar and Vellar. They are mainly composed of Alluvial deposits which are medium to coarse grained sediments and finer flood plain deposits. The Quaternary alluvium is underlain by the Archaen and also the Cretaceous formation in Kunnam Taluk.

Occurrence of Ground water

Sedimentary Formation

River Alluvium, marine Limestone and Tertiary Formation are the main water bearing zones.

Alluvial formation

In the river alluvium groundwater occurs under water table condition. The maximum thickness is 37m and the average thickness of the aquifer is approximately 12m -15m. These formations are porous in Perambalur which have good water bearing zones

Tertiary Formation

Predominantly in the tertiary formations the groundwater occurs in semiconfined conditions and confined conditions with good ground water potentials.

Cretaceous formation

Groundwater in the sandy clay lenses and fine sands underlain by white and black claybeds constitutes phreatic aquifer in the depth range 10m to 15m below ground level. Phreatic aquifer in the limestone is potential due to the presence of lime stone cavity

Granitic Gneiss

Groundwater occurs under water table conditions in weathered, jointed and fractured formations. The pore space developed in the weathered mantle acts as shallow granular aquifers and forms the potentials water bearing and yielding zones. Water table is shallow in canal and tank irrigations regions and its is somewhat deeper in other regions.

Charnockite

Groundwater occurs under water table conditions but the intensity of weatheringjointed and fractures formations. The pore space developed in the weathered mantle acts as shallow granular aquifers and forms the potentials water bearing and yielding zones. Water table is shallow and it is somewhat deeper in other regions

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

Pre-monsoon water level

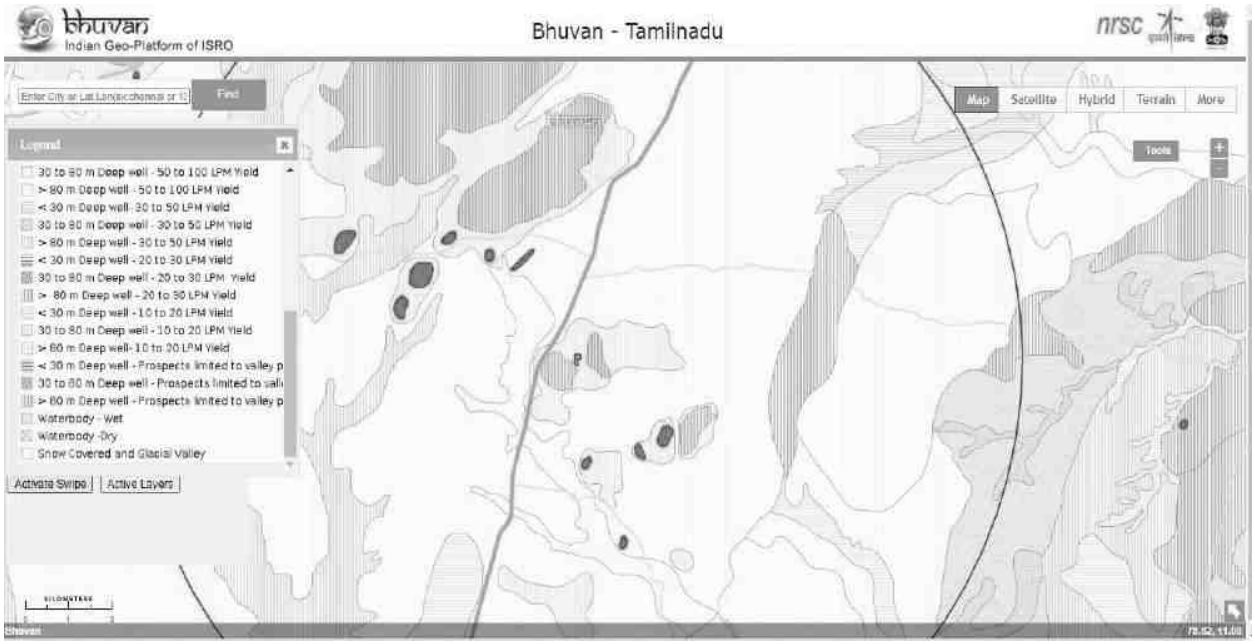
The depth of water level during pre-monsoon (May2006) ranges from 1.10 to 8.55 m bgl. In major part of the district the depth to water level during pre-monsoon is in the range of >2 – 5 m bgl.

Post- monsoon water level

The depth of Water level during post-monsoon (Jan2007) ranges from 1.10 to 6.78 m bgl. Almost in entire district, depth to water level during post-monsoon is in the range of >2 – 5 m bgl, except some isolated patches.

Long term Fluctuation (1998-2007) indicates rise in water levels is in the range of 0.0027 to 0.16 m/year. The fall in water level ranges between 0.05 and 0.07 m/year.

The Ground water prospects within 5 km radius of the project site (Source: Bhuvan) is found to be >80m Deep well – 20 to 50 LPM yield.



Ground water prospects within 5 km radius of the project site

There is no lakes and rivers near the project site.

Proper care will be exercised for the management of wastewater generating from the project site. The wastewater generated due to the domestic activities in the ML area will be disposed through septic tank along with soak pit arrangement.

We assure that, will conduct the hydro geological study to evaluate the impact of proposed mining activity will be furnished in final EIA report.

7. The Project Proponent shall furnish the details on number of groundwater pumping and open wells within 1 km (radius) along with the water levels in both monsoon and non-monsoon seasons.

We agreed, we are in the processing and will be furnished in final EIA Report

8. A detail report on the safety and health aspects of the workers and for the surrounding habitants during operation of mining to be furnished.

❖ All the labors will be checked and screened for health before employing them. After employing them, periodical medical checkups will be held once in every six months.

❖ Proper PPE kit (Safety jacket, Helmet, Safety Shoes, Gloves) etc will be provided to each employee in the mine lease concerning the safety of each labor.

❖ Alarm system in the form of Siren will be engaged in the project site to caution the blasting activity. In addition to that, the blasting activity will be scheduled at particular time – 4.30 P.M to 5.30 P.M (or whenever required) so that the employees will be aware of the activity.

❖ Smoking will be banned in the site and sign boards will be displayed in various places at site.

9.The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines

Suitable control measure to control the fugitive emissions during the mining operations is furnished chapter-4

10.Reserve funds should be earmarked for proper closure plan.

Mine Closure Plan approved by Department of Geology and Mining; Perambalur District is attached as mining pate no.VIII

11. A detailed plan on plastic waste management should be furnished. The proponent should strictly comply with, Tamil Nadu Government Order (MS) no.84 Environmental and Forest (Ec.2) Department dated 25.06.2018 regarding ban on one time use and throwaway plastics irrespective of thickness with effect from 01.01.2019 under environmental (protection) act, 1986.In this connection, the project proponent has to furnish action plan.

We assure that we will strictly comply with Tamil Nadu Government Order (Ms) No.84 Environmental, and Forest (EC.2) Department dated 25.06.201 regarding ban on one time use and throwaway plastics irrespective of thickness with effect from 01.01.2019 under Environmental (Protection) Act, 1986. And plastic waste management will be furnished in final EIA report.

12. A detailed study of the lithology of the mining lease area shall be furnished.

The details of Lithology of the Mining Lease Area are discussed in Chapter 2

13.Details of village map A register and FMB sketch shall be furnished

Village map, A register and FMB as attached annexure.

14.Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.

We agreed, we are in the processing and will be furnished in final EIA Report

15.EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for mining of minerals published February 2020

Noted

16. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.

The proposed Mine lease area is a private land of Thiru.M.Baskaran

There is no displacement of the population within the project area and adjacent nearby area and hence Rehabilitation & Resettlement is not applicable. As per the Mine Closure Plan, the mined out area will be used as the water reservoir at the end of the Mine Lease Period

17. The EIA study report shall include the surrounding mining activity, if any

The surrounding mining activities includes

The study for identifying possible impacts at each stage is done by taking into account of all the mines present within 500m radius and appropriate mitigation measures are suggested in Chapter 5.

18. Modeling study for Air, Water and noise shall be carried out and incremental increase in the above study shall be substantiated with mitigation measures.

The Modeling study has been carried out for Air and the results are incorporated in Chapter 5 As the project area is not surrounded by any surface water within 5km radius and also the depth of the Ground water in the nearby wells is found to be more than 60m, modeling studies were not carried out for water. The Modeling study has been carried

19. A study on the geological resources available shall be carried out and reported.

The geological reserves available is reported as below

Section	Bench	Length	Width	Height	Volume (m^3)	Mineable Reserves 95% (m^3)	Mine Waste 5% (m^3)	Top soil
XY-AB	IV	69	87	5	30015	28514	1501	
	V	69	87	5	30015	28514	1501	
	VI	69	87	5	30015	28514	1501	-
	VII	69	87	5	30015	28514	1501	-
	VIII	69	87	5	30015	28514	1501	-
XY-CD	IV	59	104	5	30680	29146	1534	-
	V	59	104	5	30680	29146	1534	-
	VI	59	104	5	30680	29146	1534	-
	VII	59	104	5	30680	29146	1534	-
	VIII	59	104	5	30680	29146	1534	-
X1Y1-EF	I	2	11	2				44
	II	2	11	5	110	105	5	-
	III	2	31	5	310	295	15	-
	IV	75	142	5	53250	50588	2662	-
	V	75	142	5	53250	50588	2662	-
	VI	75	142	5	53250	50588	2662	-
	VII	75	142	5	53250	50588	2662	-
	VIII	75	142	5	53250	50588	2662	-
	Total Geological Reserves				**570145**	**541640**	**28505**	**-**

20. A specific study on agriculture & livelihood shall be carried out and reported

The proposed project lies in Padalur East Village.there is no agricultural activity surrounding the project site. Hence livelihood of the local people will not be affected due to the proposed Mine Lease area. In turn it will improve the livelihood of the local people by providing direct and indirect employment opportunities.

21. Impact on ponds, rivers and other water bodies to be elaborated

The project site is surrounded by water bodies within 10 km radius.

- Nanthai River -4.37 Km-SE
- Nakkambadi Lake – 6.38Km-SE
- Chettikulam Lake -5.95Km-NW
- Thurai Mangalam Lake-13.02Km-NE

Proper care will be exercised for the management of wastewater generating from the project site. The wastewater generated due to the domestic activities in the ML area will be disposed through septic tank along with soak pit arrangement. Hence there will not be any impact to the above mentioned lakes due to the proposed ML area.

22. Impact of Soil Erosion, Soil Physical Chemical and Biological property changes may be assumed

Impact on Soil Erosion, Soil Physical Chemical and Biological property changes were discussed in Chapter 5

ANNEXURE-II

PRECISE AREA COMMUNICATION LETTER

PRECISE AREA COMMUNICATION LETTER

From
Tmt.V.Santha, I.A.S.,
District Collector,
Perambalur.

To
Thiru.M.Baskaran,
S/o.Thiru.MuthuReddiyar,
Thiruvallakuruchi,
Alathur Taluk,
Perambalur District.

Rc.No.66/G&M/2018 dated:06.03.2019

Sir,

Sub: Mines and Quarries - Perambalur District - Alathur Taluk - Padalur(E) Village - S.F.No.4/3A (1.12.5) 4/4B(0.09.0) , 7/4A(0.18.5)& 7/4B (0.73.0) - Extent 2.13.0 Hectares- Patta lands- quarry lease application preferred by Thiru.M.Baskaran for quarrying rough stone - submission of mining plan and Environmental Clearance requested - Reg.

Ref:
1. Quarry lease application preferred by Thiru.M.Baskaran, S/o.Thiru.Muthu Reddiyar, Thiruvalakuruchi, Padalur (Po), Alathur (Tk), Perambalur District dated:01.03.2018.
2. This office letter Rc.No.66/G&M/2018, dated. 16.03.2018 addressed to the Revenue Divisional Officer, Perambalur.
3. Revenue Divisional Officer, Perambalur letter RC No.அ1/1395/2018 dated: 26.02.2019.
4. Inspection report of the Deputy Director of Geology and Mining (i/c), Perambalur Dated:15.05.2017

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Thiru.M.Baskaran, S/o.Thiru.Muthu Reddiyar, Thiruvalakuruchi, Padalur (Post), Alathur Taluk, Perambalur District has preferred quarry lease application for grant of quarrying lease for quarrying rough stone over an extent of 2.13.0 hectares of patta lands in S.F.No. 4/3A(1.12.5), 4/4B(0.09.0),7/4A(0.18.5) and 7/4B(0.73.0) of Padalur(E) Village in Alathur Taluk, Perambalur District for a period of 5 years under rule 19 of the Tamil Nadu Minor Minerals Concession Rules, 1959.

2) The above said application was forwarded to the Revenue Divisional Officer, Perambalur vide this office letter in the reference 2nd cited requesting to furnish the land availability report. The Revenue Divisional Officer, Perambalur in letter Rc.No.அ1/1395/2018 dated: 26.02.2019 has furnished report on the quarrying lease application. In this report, the Revenue Divisional Officer, Perambalur has reported that the applied area over an extent of 0.73.0 Hects, of patta land in S.F.No.7/4B stand registered in the name of the applicant Thiru.M.Baskaran, S/o. Muthu Reddiyar vide patta No. 66 and patta land in S.F.No.7/4A(0.18.5 hects.,), 4/3A(1.12.5 hects.,), 4/4B(0.09.0 hects.,) stand

register in the name of 1. Muthamilselvan and 2. Lokesh (guardian mother Karpagam), S/o.Thiru.Baskaran vide patta no.376 of Padalur(E) Village accounts. As per the Village accounts the above said lands are classified as ryot punjai. The above said lands are under the enjoyment of pattadars. Tmt.Karpagam, w/o.Thiru.Baskaran, the guardian mother of pattadars of S.F.No.7/4A,4/3A and 4/4B has given consent agreement in Rs.50/- stamp paper in favour of the applicant Thiru.Baskaran for quarrying roughstone in the above said lands for a period of 10 years. Quarry leases granted for the period from 2006 to 2013 in S.F.No.7/4B and from 2010 to 2015 in S.F.No.4/3A, 4/4B & 7/4A were expired. There is no encumburence and pending court cases in the above said lands. There is no natham and habitations within 300 m distance from the applied area. There is no water bodies such as lake, channel, pond, river within 50 mtrs from the applied area. There is no ancient moments, worship places and graveyard within 50 mtrs from the applied area. No high and low tension powerlines are passing in this area. No objection was received from the public. Hence the Revenue Divisional Officer has recommended to grant quarrying lease in favour of Thiru.M.Baskaran over an extent of 2.13.0 hectares of patta lands in S.F.No. 4/3A(1.12.5), 4/4B(0.09.0),7/4A(0.18.5) and 7/4B(0.73.0) of Padalur (E) Village in Alathur Taluk, Perambalur District for a period of 5 years. The Deputy Director of Geology and Mining (i/c), Perambalur has inspected the applied areas and furnished technical report in the reference 4th cited. In this report, he stated that the applied area in S.F.No.4/3A,4/4B,7/4A stands registered in the name of the Thiru.Muthamilselvan & Thiru M.Baskaran vide patta No.376 and the mother of the pattadars Tmt.Karpagam w/o. Baskaran has given consent agreement in favour of applicant Thiru.Baskaran for a period of 10 years. In the subject area, a quarry lease was already granted to Tmt.B.Karpagam for quarrying rough stone over an extent of 2.65.0 hectares of patta lands in S.F No 3/5,3/6,4/3A, 4/4A, 4/4B, 5/11A,5/11B,5/12B & 7/4A in Padalur(E) Village for a period of five years vide District Collector, Perambalur proceedings Rc.No.266/G&M/ 2009, dated 13.07.2010.The lease period was from 17.09.2010 to 16.09.2015. Another quarrying lease was granted to the applicant Thiru. M.Baskaran for quarrying rough stone over an extent of 5.40.5 hectares of patta lands in S.F No 4/1,4/2,7/3,7/4B and 7/5 in Padalur(E) Village for a period of five years vide District Collector, Perambalur proceedings Rc.No.136/2011/G&M, dated.

23.05.2011. The lease period was from 31.05.2011 to 30.05.2016. Old quarrying pits are noticed in SF.No.4/3A,4/4B,7/4A and 7/4B with the following dimensions,

S.F.No	Length (in m)	Width (in m)	Depth (in m)	Volume (in cbm)
4/3A & 4/4B	120	92	13	143520
7/4A & 7/4B	111	67	12	89244
Total				232764

About 2,32,764 cbm of roughstone were already removed in the above quarried pit. The area is situated in a plain terrain. The country rock of the area is charnockite rock having a general trend of NE - SW direction almost vertical dipping. The rock type available in the area is suitable for making rough stone, cut stone and jelly.

Estimation of reserves

Total area applied for = 2.13.0 hects.,
Area recommended for lease = 2.13.0 hects.,
Area left out for safety zone = 1.05.2 hects.,
Area available for quarrying = 2.13.0 – 1.05.2
= 1.07.8 hects.,
Assumed depth of persistence = 35 m
Total reserves = 1.07.8 x 10000 x 35
= 3,77,300 cbm
Already quarried = 2,32,764 cbm
Inferred available reserves = 3,77,300 – 2,32,764
= 1,44,536 cbm

Approach road is available. No inhabitated site is situated within 300 mts radial distance from the applied area. The applicant's own crushing unit is situated in SF.No. 3/3, 3/6A in the Northern side. A foot path is demarcated in S.F.No.4/3A,4/4B. But as on ground, there is a quarry pit observed in S.F.No.4/3A, 4B. A detailed channel running from North to South is demarcated in S.F.No.4/3A,4B. But as on ground there is a quarry pit observed in S.F.No.4/3A, 4B. He has recommended that quarrying lease for quarrying rough stone maybe granted to Thiru.M.Baskaran over an extent of 2.13.0 hectares of patta lands in S.F.No. 4/3A(1.12.5), 4/4B(0.09.0),7/4A(0.18.5) and 7/4B(0.73.0) of Padalur(E) Village in Alathur Taluk, Perambalur District for a period of five years under rule 19(1) of Tamil Nadu Minor Mineral Concession Rules, 1959 subject to the following conditions,

1. A safety zone of 7.5 mtrs should be left out for the patta lands situated in S.F.Nos.4/1,4/2,4/3B,4/4A,7/4C, 7/5.
2. A safety zone of 10.0 mtrs should be left out for Government Poramboke land in SF.No.5/5,5/13.
3. A safety distance of 50 mtrs should be left out for Government poramboke land vari in S.F.No.7/2.

4) As per rule 41 and 42 of the Tamil Nadu Minor Mineral Concession Rules, 1959, approved mining plan and environmental clearance from the State Level Environmental Impact Assessment Authority – TamilNadu, Chennai-15 are mandatory for grant of quarry lease for minor minerals.

Hence, based on the recommendations of the Revenue Divisional Officer, Perambalur and Deputy Director of Geology and Mining (i/c), Perambalur, precise area is given to the applicant Thiru.M.Baskaran over an extent of 2.13.0 hectares of patta lands in S.F.No.4/3A(1.12.5), 4/4B(0.09.0), 7/4A(0.18.5) and 7/4B(0.73.0) of Padalur (E) Village in Alathur Taluk, Perambalur District for the proposed grant of quarrying lease for rough stone for a period of five years under rule 19(1) of Tamil Nadu Minor Mineral Concession Rules, 1959 subject to the following conditions and applicant is here by directed to submit the mining plan approved by the Deputy Director of Geology and Mining (i/c), Perambalur and also to submit Environmental Clearance from the SEIAA-TamilNadu within the prescribed time limit

1. A safety zone of 7.5 mtrs should be left out for the patta lands situated in S.F.Nos.4/1,4/2,4/3B,4/4A,7/4C, 7/5.
2. A safety zone of 10.0 mtrs should be left out for Government Poramboke land in SF.No.5/5,5/13.
3. A safety distance of 50 mtrs should be left out for Government poramboke land vari in S.F.No.7/2.

Sd/-xxxxxxxx,
District Collector,
Perambalur.

/True Copy/

For District Collector,
Perambalur.

ANNEXURE-III

MINING PLAN APPROVED LETTER

From
Thiru.P.Saravanan.M.Sc.,
Deputy Director(i/c),
Geology and Mining,
Perambalur.

To
Thiru.M.Baskaran,
S/o.Thiru.Muthureddiyar,
Thiruvallakuruchi,
Alathur Taluk,
Perambalur District.

Rc.No.66/G&M/2018 Dated:06.08.2019

Sir,

Sub: Mines and Quarries – Perambalur District – Alathur Taluk – Padalur (E) Village – S.F.No.4/3A, 4/4B, 7/4A & 7/4B – Extent 2.13.0 Hectares of patta lands – quarry lease application preferred by Thiru.M.Baskaran for quarrying rough stone – Details of other mineral availability furnished - Reg.

Ref:
1. Quarry lease application preferred by Thiru.M.Baskaran, S/o.Thiru.Muthureddiyar, Thiruvallakuruchi, Alathur Taluk, Perambalur District dated:01.03.2018
2. This office letter Rc.No.66/G&M/2018, dated:16.03.2018 addressed to the Revenue Divisional Officer, Perambalur.
3. Revenue Divisional Officer, Perambalur letter Rc.No.அ1/13695/2018 dated:26.02.2019
4. Inspection report of the Deputy Director of Geology and Mining(i/c), Perambalur dated:05.03.2019
5. The District Collector, Perambalur letter Rc.No.66/G&M/2018 dated:06.03.2019 addressed to the applicant.
6. Thiru.M.Baskaran, S/o.Thiru.Muthureddiyar, Thiruvallakuruchi, Alathur Taluk, Perambalur District dated:07.03.2019
7. Thiru.M.Baskaran, S/o.Thiru.Muthureddiyar, Thiruvallakuruchi, Alathur Taluk, Perambalur District dated:06.05.2019
8. Thiru.M.Baskaran, S/o.Thiru.Muthureddiyar, Thiruvallakuruchi, Alathur Taluk, Perambalur District dated:02.08.2019

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In the reference 1st cited, the lessee M.Baskaran has preferred quarry lease application for grant of quarrying lease for quarrying rough stone over an extent of 2.13.0 hectares of patta land of S.F.No. 4/3A, 4/4B, 7/4A &

7/4B in Padalur (E) Village, Alathur Taluk, for a period of 5 years Under Rule 19 of Tamil Nadu Minor Mineral Concession Rules 1959.

In this connection, it is informed that there is only weathered and hard charnockite rock followed by topsoil and no other minerals like sand in the quarrying area within in the approved depth of mining and below depth of mining.

17.02.18

Deputy Director(i/c),
Geology and Mining,
Perambalur.

ANNEXURE-IV

500M Radius letter

From
Thiru.P.Saravanan.M.Sc.,
Deputy Director(i/c),
Geology and Mining,
Perambalur.

To
Thiru.M.Baskaran,
S/o.Thiru.Muthureddiyar,
Thiruvallakuruchi,
Alathur Taluk,
Perambalur District.

Rc.No.66/G&M/2018 Dated: .05.2019

Sir,

Sub: Mines and Quarries Perambalur District – Alathur Taluk – Padalur (E) Village – S.F.No.4/3A, 4/4B, 7/4A & 7/4B – Extent 2.13.0 Hectares of patta lands – quarry lease application preferred by Thiru.M.Baskaran for quarrying rough stone – Details of quarries situated within 500 mts radial distance – requested – details furnished - Reg.

Ref:
1. Quarry lease application preferred by Thiru.M.Baskaran, S/o.Thiru.Muthureddiyar, Thiurallakuruchi, Alathur Taluk, Perambalur District dated:01.03.2018
2. This office letter Rc.No.66/G&M/2018, dated:16.03.2018 addressed to the Revenue Divisional Officer, Perambalur.
3. Revenue Divisional Officer, Perambalur letter Rc.No.அ1/13695/2018 dated:26.02.2019
4. Inspection report of the Deputy Director of Geology and Mining(i/c), Perambalur dated:05.03.2019
5. The District Collector, Perambalur letter Rc.No.66/G&M/2018 dated:06.03.2019 addressed to the applicant.
6. Thiru.M.Baskaran, S/o.Thiru.Muthureddiyar, Thiurallakuruchi, Alathur Taluk, Perambalur District dated:07.03.2019
7. Thiru.M.Baskaran, S/o.Thiru.Muthureddiyar, Thiurallakuruchi, Alathur Taluk, Perambalur District dated:06.05.2019

****

In the reference 1st cited the lessee M.Baskaran has been granted quarry lease for quarrying rough stone over an extent of 2.13.0 hectares of patta land of S.F.No. 4/3A, 4/4B, 7/4A & 7/4B in Padalur (E) Village, Alathur Taluk, Perambalur District for a period of 5 years.

The lessee Thiru.M.Baskaran, Perambalur in the reference 7th cited has requested to provide the details of existing and abandoned quarries falling within 500mts radius distance from his quarry lease boundary.

Hence the details of existing quarries situated within 500mts radial distance from the subject mines are furnished as follows.

(i) **Details of existing mine:**

Sl. No	Name of the lessee/applicant	Taluk & Village	S.F.Nos	Extent (in Hect)	Lease Period
1.	V.Panneerselvam, S/o.Veerasamy, South Street, ThennamanaduPost, Orathanadu Taluk, Thanjavur District.	Alathur & Padalur (East)	10/1, Block, No.22,	1.00.0	10 years from 31.05.2011 to 30.05.2021
2.	Thiru.M.Baskaran, S/o.Muthu Reddiyar, Thiruvallakuruchi, Alathur, Perambalur.	Alathur & Padalur (East)	4/1 (P) 4/2(P) & 7/3(P)	2.00.0	5 years from 24.01.2018 to 23.01.2023
3.	Tmt.B.Karpagam, W/o.Thiru.M.Baskaran, Thiruvallakuruchi, Alathur Taluk, Perambalur.	Alathur & Padalur (East))	3/5(P) 3/6(P) & 5/5	1.45.0	5 years from 24.01.2018 to 23.01.2023
4.	A.T.Natarajan, S/o.Thiurvanai Gounder, 2/72B, South Street, Irur Village, Kunnam Taluk, Perambalur.	Alathur & Irur	713/5,6 7,8 & 9	1.34.0	5 years from 28.11.2018 to 27.11.2023
			Total	5.79.0	

(ii) **Details of Lease period expired/abandoned mine:**

Sl. No	Name of the lessee / applicant	Taluk & Village	S.F. Nos	Extent (in Hect	Lease period applied/ Granted
1.	B.Ravichandran, S/o.Backiaraj, 161, Periyakammala Street, Trichy-8.	Alathur & Padalur (East)	10/1 Block 21	1.00.0	10 years from 07.06.2007 to 06.06.2017

2.	M.Ravi, S/o.Muthukrishnan, No.2/78, Malaiyadivaram, Chettikulam Post, Alathur Taluk, Perambalur District.	Alathur & Padalur (East)	10/1 Block 20	1.00.0	10 years from 11.05.2007 to 10.05.2017
3.	K.Mathiyalagan, S/o.Kanagasabi, State Bank Colony, Kumbakonam.	Alathur & Padalur (East)	10/1 Block18	1.00.0	10 years from 23.05.2007 to 22.05.2017
4.	R.Sureshbabu, S/o.Rajagobal, No.244 Philomina Nagar, 3rd Street, Nanjikottai Road, Thanjavur,	Alathur & Padalur (East	10/1, Block 22	1.00.0	10 years from 23.05.2007 to 22.05.2017
5.	R.Ravichandran, S/o.Radha Krishnan, T.V.Kovil, Trichy	Alathur & Padalur (East	10/1 Block, No.19	1.00.0	10 years from 08.12.2008 to 07.12.2018
			Total	5.00.0	

(iii) **Details of proposed mine:**

Sl. No	Name of the lessee/ applicant	Taluk & Village	S.F. Nos	Extent (in Hect)	Lease period
1.	Thiru.M.Baskaran, S/o.Thiru.Muthureddiyar Thiruvallakuruchi, Alathur Taluk, Perambalur District.	Alathur & Padalur (East)	4/3A, 4/4B, 7/4A & 7/4B	2.13.0	-----

Deputy Director(i/c),
Geology and Mining,
Perambalur.

ANNEXURE-V

FMB, A REGISTER, VILLAGE MAP AND PATTA COPY

ANNEXURE-II

DIRECTOR OF GEOLOGY AND MINING * DEPUTY PERAMBALUR

District : Perambalur

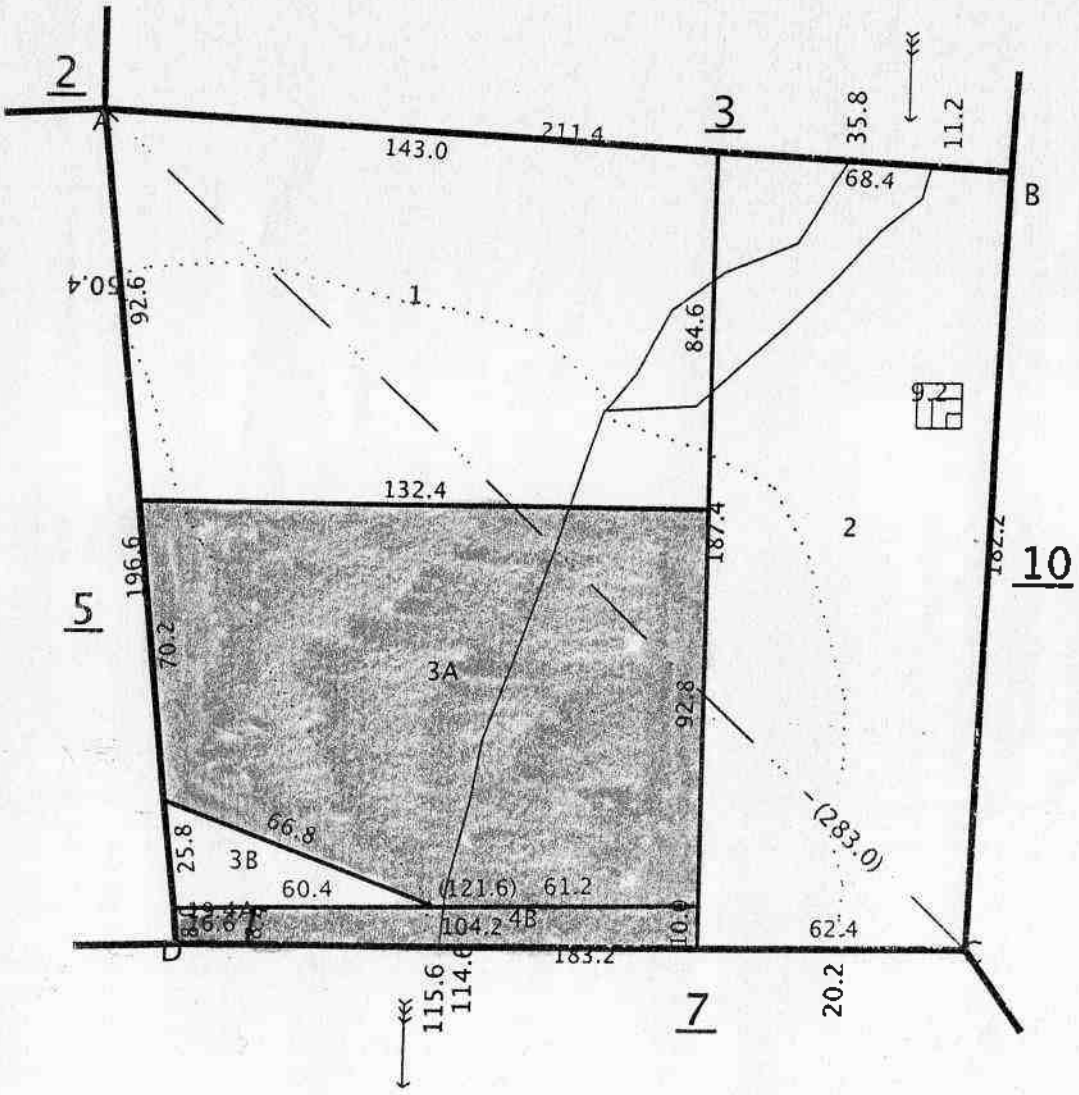
Taluk : Alathur

Village : PADALUR(E) [972]

Survey No : 4

Area : Hect 03 Ares 75.50

Scale : 1 : 1672



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urvey and Settlement Department, Government of TamilNadu

District : Perambalur

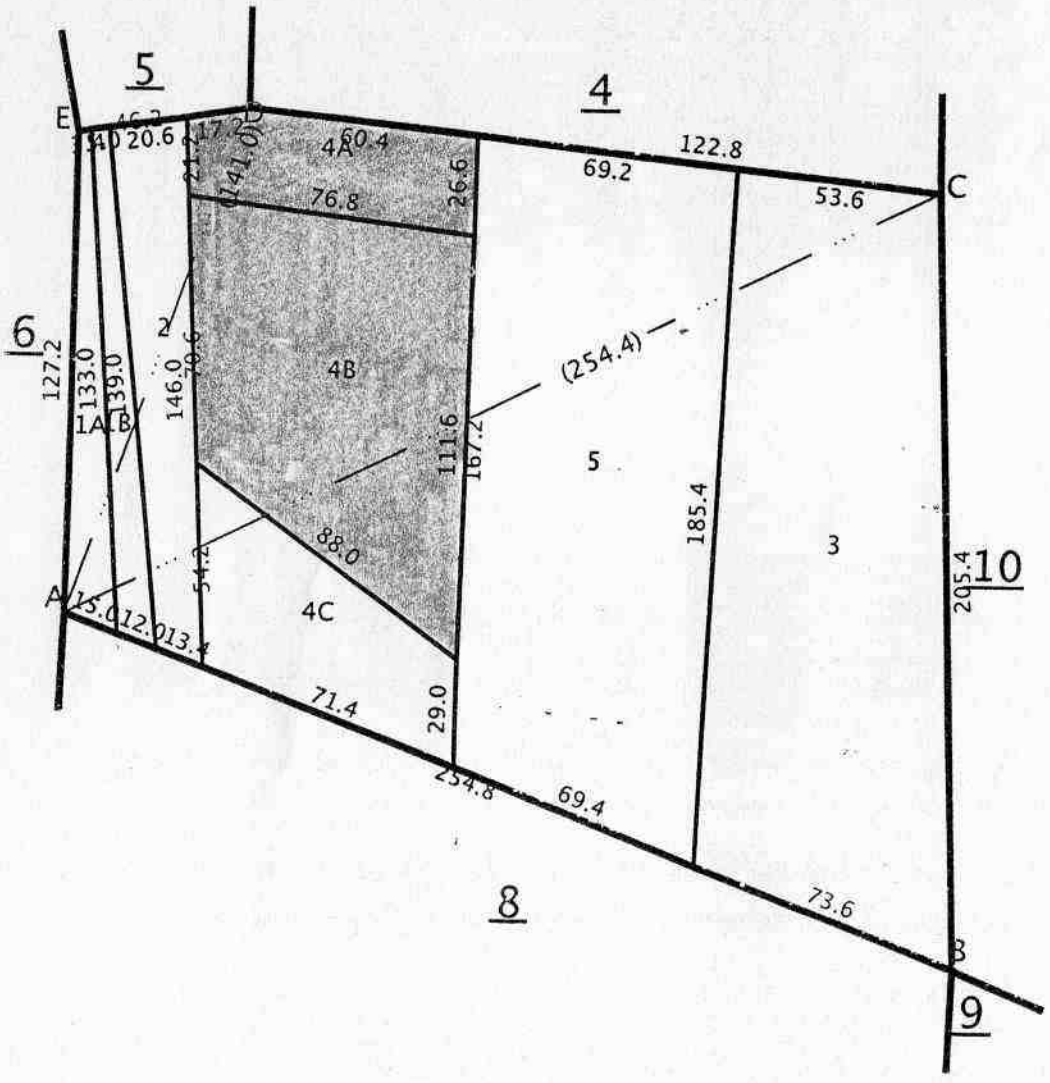
Taluk : Alathur

Village : PADALUR(E) [972]

Survey No : 7

Area : Hect 03 Ares 92.50

Scale : 1 : 1887



DEPUTY DIRECTOR OF GEOLOGY & MINING * PERAMBALUR

S.DHANASEKAR, M.Sc.,(Geo)
RQP/MAS/225/2011/A

Date of Issue: 10-01-2019 09:55:59

Survey and Settlement Department, Government of TamilNadu

ANNEXURE - III

தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : பெரம்பலூர் வட்டம் : ஆலத்தூர்

வருவாய் கிராமம் : பாடாலூர் (கி) பட்டா எண் : 376

உரிமையாளர்கள் பெயர்

1.	பாஸ்கரன்	மகன்	முத்தமிழ்ச்செல்வன் (கா.தாய் கற்பகம்)
2.	பாஸ்கரன்	மகன்	லோகேஷ் (கா.தாய் கற்பகம்)

		நன்செய்		புன்செய்		மற்றவை	
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை
புல எண்	உட்பிரிவு	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை
4	3A	--	--	1 - 12.50	1.22	--	--
4	4B	--	--	0 - 9.00	0.10	--	--
5	11B	--	--	0 - 8.00	0.40	--	--
7	4A	--	--	0 - 18.50	0.21	--	--
				1 - 48.00	1.93		

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **http://eservices.tn.gov.in** என்ற இணைய தளத்தில் **16/07/972/00376/50236** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 16-04-2019 அன்று 04:26:24 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : பெரம்பலூர் வட்டம் : ஆலத்தூர்

வருவாய் கிராமம் : பாடாலூர் (கி) பட்டா எண் : 66

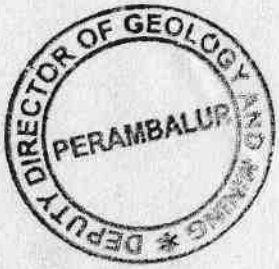
உரிமையாளர்கள பெயர்

1. முத்து ரெட்டியார் மகன் பாஸ்கரன்

		நன்செய்		புன்செய்		மற்றவை	
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை
புல எண்	உட்பிரிவு	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை
4	1	--	--	1 - 21.50	1.32	--	--
4	2	--	--	1 - 21.50	1.32	--	--
4	4A	--	--	0 - 2.00	0.06	--	--
5	11A	--	--	0 - 2.00	0.10	--	--
5	9B	--	--	0 - 4.00	0.20	--	--
7	3	--	--	1 - 3.00	1.13	--	--
7	4B	--	--	0 - 73.00	0.80	--	--
				4 - 27.00	4.93		

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **http://eservices.tn.gov.in** என்ற இணைய தளத்தில் **16/07/972/00066/80232** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 15-04-2019 அன்று 03:49:41 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : பெரம்பலூர் **வட்டம் : ஆலத்தூர்**

வருவாய் கிராமம் : பாடாலூர் (கி) **பட்டா எண் : 376**

உரிமையாளர்கள் பெயர்

1. பாஸ்கரன் மகன் முத்தமிழ்ச்செல்வன் (கா.தாய் கற்பகம்)
2. பாஸ்கரன் மகன் லோகேஷ் (கா.தாய் கற்பகம்)

		நன்செய்		புன்செய்		மற்றவை	
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை
புல எண்	உட்பிரிவு	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை
4	3A	--	--	1 - 12.50	1.22	--	--
4	4B	--	--	0 - 9.00	0.10	--	--
5	11B	--	--	0 - 8.00	0.40	--	--
7	4A	--	--	0 - 18.50	0.21	--	--
				1 - 48.00	1.93		

குறிப்பு2 :

	1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **http://eservices.tn.gov.in** என்ற இணைய தளத்தில் **16/07/972/00376/50236** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
	2. இத் தகவல்கள் 16-04-2019 அன்று 04:26:24 PM நேரத்தில் அச்சடிக்கப்பட்டது.
	3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : பெரம்பலூர் வட்டம் : ஆலத்தூர்

வருவாய் கிராமம் : பாடாலூர் (கி) பட்டா எண் : 66

உரிமையாளர்கள் பெயர்

1. முத்து ரெட்டியார் மகன் பாஸ்கரன்

		நன்செய்		புன்செய்		மற்றவை	
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை
புல எண்	உட்பிரிவு	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை
4	1	--	--	1 - 21.50	1.32	--	--
4	2	--	--	1 - 21.50	1.32	--	--
4	4A	--	--	0 - 2.00	0.06	--	--
5	11A	--	--	0 - 2.00	0.10	--	--
5	9B	--	--	0 - 4.00	0.20	--	--
7	3	--	--	1 - 3.00	1.13	--	--
7	4B	--	--	0 - 73.00	0.80	--	--
				4 - 27.00	4.93		

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **http://eservices.tn.gov.in** என்ற இணைய தளத்தில் **16/07/972/00066/80232** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 15-04-2019 அன்று 03:49:41 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

அ-பதிவேடு விவரங்கள்

மாவட்டம் : பெரம்பலூர்

வட்டம் : ஆலத்தூர்

கிராமம் : பாடாலூர் (கி)

1. புல எண்	4	9. மண் வயனமும் ரகமும்	8 - 4
2. உட்பிரிவு எண்	3A	10. மண் தரம்	16
3. பழைய புல உட்பிரிவு எண்ஸ	4-3 , ,	11 நீர்வை (ரு - ஹெ)	1.09
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	1 - 12.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரு - பை)	1.22
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	376
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.முத்தமிழ்ச்செல்வன் (கா.தாய் கற்பகம்) 2.லோகேஷ் (கா.தாய் கற்பகம்)

குறிப்பு 1:

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **http://eservices.tn.gov.in** என்ற இணைய தளத்தில் **60236** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்

DIRECTOR OF GEOLOGY AND MINING * DEPUTY PERAMBALUR

மாவட்டம் : பெரம்பலூர்

வட்டம் : ஆலத்தூர்

கிராமம் : பாடாலூர் (கி)

1. புல எண்	4	9. மண் வயனமும் ரகமும்	8 - 4
2. உட்பிரிவு எண்	4B	10. மண் தரம்	16
3. பழைய புல உட்பிரிவு எண்	4-4 , ,	11. தீர்வை (ரூ - ஹெ)	1.09
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 9.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொநத தீரவை (ரூபை)	0.10
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	376
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.முத்தமிழ்ச்செல்வன் (கா.தாய் கற்பகம்) 2.லோகேஷ் (கா.தாய் கற்பகம்)

குறிப்பு 1:

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **http://eservices.tn.gov.in** என்ற இணைய தளத்தில் **60236** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்

DIRECTOR OF GEOLOGY AND MINING * DEPUTY PERAMBALUR

மாவட்டம் : பெரம்பலூர்

வட்டம் : ஆலத்தூர்

கிராமம் : பாடாலூர் (கி)

1. புல எண்	7	9. மண் வயனமும் ரகமும்	8 - 4
2. உட்பிரிவு எண்	4A	10. மண் தரம்	16
3. பழைய புல உட்பிரிவு எண்	7-4 , ,	11. தீர்வை (ரூ - ஹெ)	1.09
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 18.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.21
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	376
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.முத்தமிழ்ச்செல்வன் (கா.தாய் கற்பகம்) 2.லோகேஷ் (கா.தாய் கற்பகம்)

குறிப்பு 1:

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **http://eservices.tn.gov.in** என்ற இணைய தளத்தில் **90236** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்

DEPUTY DIRECTOR OF GEOLOGY AND MINING * PERAMBALUR

மாவட்டம் : பெரம்பலூர்

வட்டம் : ஆலத்தூர்

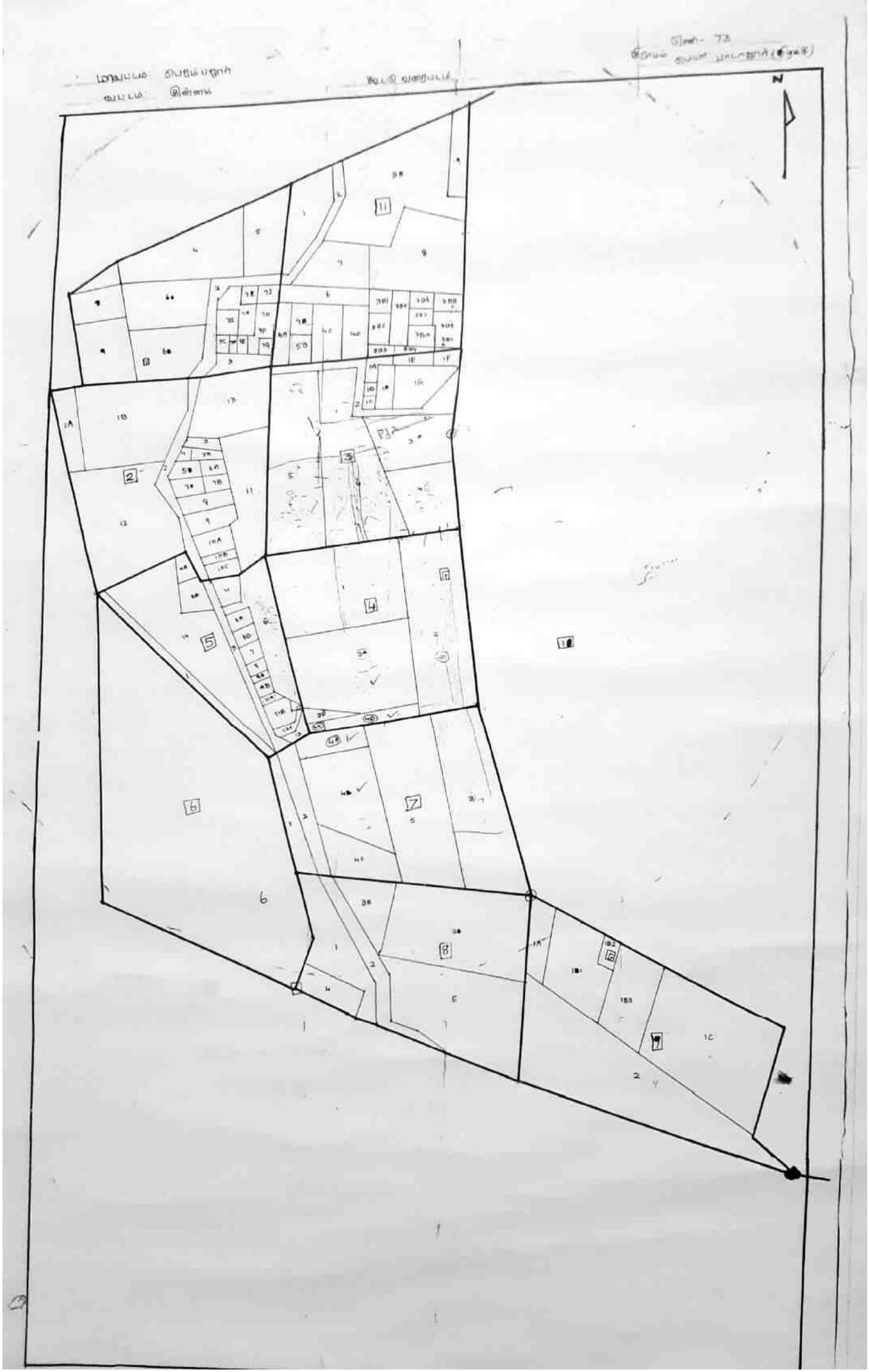
கிராமம் : பாடாலூர் (கி)

1. புல எண்	7	9. மண் வயனமும் ரகமும்	8 - 4
2. உட்பிரிவு எண்	4B	10. மண் தரம்	16
3. பழைய புல உட்பிரிவு எண்	7-4 , ,	11. தீர்வை (ரூ - ஹெ)	1.09
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 73.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.80
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	66
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.பாஸ்கரன்

குறிப்பு 1:

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **http://eservices.tn.gov.in** என்ற இணைய தளத்தில் **90232** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

mk



ANNEXURE-VI MINING PLAN REPORT & PLATES

MINING PLAN

FOR

GRANT OF ROUGH STONE QUARRY LEASE IN PATTA LAND

(Prepared Under Rule 19 (1) Tamil Nadu Minor Mineral Concession Rules, 1959 & As Per Amendment Under Rule 41 & 42)

LOCATION OF THE APPLIED AREA

EXTENT	: 2.13.0 Ha
S.F.NOS.	: 4/3A, 4/4B, 7/4A & 7/4B
VILLAGE	: PADALUR(E)
TALUK	: ALATHUR
DISTRICT	: PERAMBALUR
STATE	: TAMIL NADU

APPLICANT

THIRU.M. BASKARAN,

S/O. THIRU.MUTHUREDDIYAR,
THIRUVALLAKURUCHI,
ALATHUR TALUK,
PERAMBALUR DISTRICT.

PREPARED BY

S.DHANASEKAR, M.Sc.,
RQP/MAS/225/2011/A
8/3, KULLAPPAN STREET,
OPP.INDIAN BANK LINE,
OMALUR TALUK,
SALEM DISTRICT– 636 455.
Email: geodhana@yahoo.co.in
CELL : 98946-28970 & 73733-74702.

M. Ba

PERAMBALUR
DEPUTY DIRECTOR OF GEOLOGY AND MINING

ANNEXURES

SL. NO.	DESCRIPTION	ANNEXURE NO.
1.	PRECISE AREA COMMUNICATION LETTER	I
2.	COPY OF FMB	II
3.	COPY OF LAND DOCUMENTS	III
4.	COPY OF APPLICANT ID PROOF	IV
5.	COPY OF RQP CERTIFICATE	V
6.	COPY OF THE APPLIED LEASE AREA PHOTOS	VI

LIST OF PLATES

SL. NO.	DESCRIPTION	PLATE NO.	SCALE
1.	LOCATION MAP	I	NOT TO SCALE
2.	ROUTE MAP	IA	NOT TO SCALE
3.	TOPOSHEET MAP OF THE LEASE AREA	IB	NOT TO SCALE
4.	SATELLITE IMAGE(LEASE AREA)	IC	NOT TO SCALE
5.	SATELLITE IMAGE(500M RADIUS)	ID	NOT TO SCALE
6.	MINE LEASE PLAN	II	1:1000
7.	SURFACE & GEOLOGICAL PLAN	III	PLAN-1:1000
8.	SURFACE & GEOLOGICAL SECTIONS	III-A	SECTION: HOR:1:1000 VER:1:500
9.	YEAR WISE DEVELOPMENT AND PRODUCTION PLAN	IV	PLAN-1:1000
10.	YEAR WISE DEVELOPMENT AND PRODUCTION SECTIONS	IV-A	SECTION: HOR:1:1000 VER:1:500
11.	MINE LAYOUT AND LAND USE PLAN	V	1:1000
12.	CONCEPTUAL AND FINAL MINE CLOSURE PLAN	VI	PLAN-1:1000
13.	CONCEPTUAL AND FINAL MINE CLOSURE SECTIONS	VI- A	SECTION: HOR:1:1000 VER:1:500
14.	ENVIRONMENTAL PLAN	VII	1:5000
15.	PROGRESSIVE MINE CLOSURE PLAN	VIII	1:1000

M. BASKARAN,
S/o. THIRU.MUTHUREDDIYAR,
THIRUVALLAKURUCHI,
ALATHUR TALUK,
PERAMBALUR DISTRICT.

DEPUTY DIRECTOR OF GEOLOGY AND MINING * PERAMBALUR

CONSENT LETTER FROM THE APPLICANT

I hereby give my consent for preparing the Mining Plan in respect of **ROUGH STONE** quarry over an extent of **2.13.0 hectares** of **PATTA LAND** in **S.F. No. 4/3A(1.12.5), 4/4B(0.09.0), 7/4A(0.18.5) & 7/4B(0.73.0)** of **PADALUR(E)** Village, **ALATHUR** Taluk, **PERAMBALUR** District, **TAMILNADU** State has been prepared by Shri. **S. Dhanasekar,** M.Sc.,Regn.No. **RQP/MAS/225/2011/A.**

I request the Deputy Director, Department of Geology and Mining, PERAMBALUR District to make further correspondence regarding modifications if any in the Mining Plan with the said Recognized Qualified Person on this following address.

S.DHANASEKAR, M.Sc.,
RQP/MAS/225/2011/A
8/3, Kullappan Street,
Opposite Indian bank Line,
Omalur Taluk - 636455
Salem District.
E-Mail: geodhana@yahoo.co.in
Cell: 98946-28970

I hereby undertake that all modifications so made in the Mining Plan by the Recognized Qualified Person may be deemed to have been made with my knowledge and consent and shall be acceptable to me and binding on me in all respects.

Signature of the Applicant

Place: Perambalur

Date:

M. BASKARAN,
S/o. THIRU.MUTHUREDDIYAR,
THIRUVALLAKURUCHI,
ALATHUR TALUK,
PERAMBALUR DISTRICT.

DEPUTY DIRECTOR OF GEOLOGY AND MINING * PERAMBALUR

DECLARATION

I hereby declare that the Mining Plan in respect of **ROUGH STONE** quarry over an extent **2.13.0hectares** of **PATTA LAND** in **S.F. No. 4/3A(1.12.5), 4/4B(0.09.0), 7/4A(0.18.5) & 7/4B(0.73.0)** of **PADALUR(E)** Village, **ALATHUR** Taluk, **PERAMBALUR** District, and **TAMILNADU** State has been prepared with my consultation and I have understood the contents and agree to implement the same in accordance with the Mining Laws.

Signature of the Applicant

Place: Perambalur

Date:

KRK MEMORIAL MINING SERVICES

S.DHANASEKAR
M.Sc., (Geo), M.M.E.A.I
Senior Geologist / Recognized Qualified Person

Off
86680 20217

GST : 33ALIPD6733A1ZO

DIRECTOR OF GEOLOGY AND MINING * DEPUTY
PERAMBALUR

CERTIFICATE

This is to certify that, the provisions of Minor Minerals Conservation and Development Rules, 2010 (MMCDR) have been observed in the Mining Plan for the grant of **ROUGH STONE** quarry lease over an extent of **2.13.0hectares** of **PATTA LAND** in **S.F.No.4/3A(1.12.5), 4/4B(0.09.0), 7/4A(0.18.5) & 7/4B(0.73.0)** of **PADALUR(E)** Village, **ALATHUR** Taluk, **PERAMBALUR** District, **TAMILNADU** State applied by **THIRU. M. BASKARAN** for Applied quarry lease.

Wherever specific permission / exemptions / relaxations or approvals are required, the applicant will approach the concerned authorities of State and Central Governments for granting such permissions etc.

Certified

Signature of Recognized Qualified Person.

S.DHANASEKAR, M.Sc.,(Geo)
RQP/MAS/225/2011/A

Place: SALEM

Date:

11°41'29.45" N
78°07'13.58" E

98946 28970
73733 74702

krkmemorialminingservices@gmail.com
geodhana@yahoo.co.in

Branch
8/3, Kullappan Street.
Opp. Indian Bank Line,
Omalur, Salem - 636 455.

KRK MEMORIAL MINING SERVICES

S.DHANASEKAR
M.Sc.,(Geo), MAIEAI
Senior Geologist / Recognized Qualified Person

Off 86680 20217

GST : 33ALIPD6733A1Z0

DEPUTY DIRECTOR OF GEOLOGY AND MINING PERAMBALUR

CERTIFICATE

This is to Certify that during preparation of Mining Plan for **ROUGH STONE** quarry over an extent of **2.13.0hectares** of **PATTA LAND** in **S.F. No. 4/3A(1.12.5), 4/4B(0.09.0), 7/4A(0.18.5) & 7/4B(0.73.0)** of **PADALUR(E)** Village, **ALATHUR** Taluk, **PERAMBALUR** District, **TAMILNADU** State for **THIRU.M. BASKARAN** covers all the provisions of Mines Act, Rules, and Regulations etc made there under and whenever specific permission are required, the applicant will approach the Director General of Mines Safety, Chennai. The standards prescribed by DGMS in respect of Mines Health will be strictly implemented.

Certified

Signature of Recognized Qualified Person.

S.DHANASEKAR, M.Sc.,(Geo)
RQP/MAS/225/2011/A

Place: SALEM

Date:

41'29.45" N
8°07'13.58" E

98946 28970
73733 74702

krkmemorialminingservices@gmail.com
geodhana@yahoo.co.in

Branch
8/3, Kullappan Street.
Opp. Indian Bank Line,
Omalur, Salem - 636 455.

MINING PLAN FOR MINOR MINERALS

ROUGH STONE QUARRY

PROPOSED PERIOD OF MINING 5 YEARS

Over an extent of 2.13.0hectares of PATTA LAND in

S.F. Nos. 4/3A(1.12.5), 4/4B(0.09.0), 7/4A(0.18.5) & 7/4B(0.73.0) of PADALUR(E) Village,

ALATHUR Taluk,

PERAMBALUR District, TAMILNADU State.

(Prepared Under Rule 19 (1) Tamil Nadu Minor Mineral Concession Rules, 1959 & As Per Amendment Under Rule 41 & 42)

1.0 INTRODUCTION AND EXECUTIVE SUMMARY:

1. **THIRU.M. BASKARAN,** S/o.Thiru.MuthuReddiyar, Thiruvallakuruchi, Alathur Taluk, Perambalur District has applied for the grant of quarry lease to quarry **Rough Stone** over an extent of **2.13.0 hectares** in **PATTA LAND S.F.Nos. 4/3A(1.12.5), 4/4B(0.09.0), 7/4A(0.18.5) & 7/4B(0.73.0)** of **PADALUR(E)** Village, **ALATHUR** Taluk, **PERAMBALUR** District of **TAMILNADU** State for a period of **5** years.
2. The District Collector, **PERAMBALUR** in his letter **Rc. No. 66/G&M/2018 dated 06.03.2019** has directed the applicant to produce approved Mining Plan and Environmental Clearance certificate from the State Level Environment Impact Assessment Authority(SEIAA) for the grant of quarry lease for the applied area.
3. Accordingly, Mining Plan is prepared under Rules 19(1) Tamil Nadu Minor Mineral Concession Rules, 1959 & As per Amendment under Rule 41 & 42 by incorporating the conditions imposed in the precise area communication letter and by incorporating all the details proposed in the letter to obtain environment clearance from State Level Environmental Impact Assessment Authority.
4. In the above circumstances **THIRU. M. BASKARAN** is hereby preparing the mining plan for approval and subsequent submission of Form-I and pre Feasibility report to obtain environmental clearance from the SEIAA of Tamil Nadu, PERAMBALUR to quarry his Applied Rough Stone Quarry.

S.DHANASEKAR, M.Sc.,(Geol)
RQP/MAS/225/2011/A

5. This Mining Plan is prepared for the Rough Stone Quarry for the period of Five years by considering the TNMMCR 1959, and as per the EIA Notification 2006 and subsequent amendments and judgments.

6. Previously the area was leased out for a Rough Stone Quarrying. Present Dimensions of the working old pit in S.F.No.4/3A & 4/4B is Length 120.0m X Width 92.0m X Depth 13.0m = 143520m^3 and S.F.No.7/4A & 7/4B is Length 111.0m X Width 67.0m X Depth 12.0m=89244 m^3. The remaining available Geological Reserves is estimated as 57015m^3 and Mineable Reserves is estimated as **157655m^3** and recoverable reserves is estimated as **149773m^3** of **Rough Stone** after leaving necessary safety distance from the lease boundary as indicated in the precise area letter and relevant mining laws in force.

7. The proposed production scheduled for the Five years about **149773M^3** of Rough Stone.
   Proposed average annual production of Rough Stone is **29955m^3**

8. Environmental parameters,
   i) There is no interstate boundary around 10Kms radius.
   ii) There is no wild life animal sanctuary within 10Kms radius form the project site area under the Wildlife (Protection) Act, 1972. Therefore the project seeks clearance only from State Level Environment Impact Assessment Authority y (SEIAA), under B2 Category.

9. Environmental measures to be adopted shall be,
   i) Dust Control at source while drilling and blasting,
   ii) Dust suppression at loading point and transport haul roads,
   iii) Noise Control in blasting, control of fly rock missiles and vibration by doing peak particle velocity with in standard as prescribed by the DGMS and MoEF.
   iv) Unnecessary land degradation should be avoided or damaged land should be reclaimed or rehabilitated.
   v) Avoid uneven rat hole mining and follow scientific and systematic mining by safe bench system of open cast mining.
   vi) Mining near major fracture zones if any should be avoided to control ground water fluctuation in the adjacent agricultural lands.

vii) Emission test of vehicles should be in stack to maintain minimum emission level of flue gases.

viii) Noise level should not exceed 80db and the vehicles should use only permitted Air Horn while on road near residential areas.

ix) Safety zones as prescribed by the Department of Geology and Mining from adjacent infrastructures should be strictly adhered to.

x) And any other conditions as stipulated by the concerned authorities should be followed to protect the environment.

2.0 EXECUTIVE SUMMARY:

a.	Name of the Village	:	Padalur(E)
b.	Name of the Panchayat / Union	:	Padalur / Alathur
c.	The proposed total Mineable Reserves	:	**157655m^3**
d.	The proposed quantity of reserves (level of production) for **Five Years** to be mined is (Recoverable reserves)	:	**149773m^3**
e.	Total extent of the area	:	**2.13.0Ha**
f.	Proposed Period of mining	:	**Five Years**
g.	Proposed Depth of mining	:	**30m**
h.	Existing Pit Dimension	:	(i) Pit in S.F.No.4/3A & 4/4B is Length 120.0m X Width 92m X Depth 13m =143520 m^3 (ii) Pit in S.F.No.7/4A & 7/4B is Length 111.0m X Width 67m X Depth 12m = 89244 m^3
i.	Average production per year	:	**29955m^3** of **Rough Stone**
j.	Method of mining / level of mechanization	:	Opencast, Semi-mechanized Mining with a bench height of 5m and bench width of 5m is proposed.
k.	Types of Machineries used in the quarry	:	i) Compressor with jack hammer ii) Excavator of 0.90Cbm bucket Capacity
l.	Cost of the Project a. Fixed Cost b. Operational Cost c. EMP Cost		 Rs.23,50,000/- Rs. 20,00,000/- Rs. 3,50,000/-
m.	The area applied for lease is bounded by four corners and the coordinates are Latitude Longitude	: : :	Toposheet No. **58 I/16** 11° 6' 58.93" N 78° 50' 21.64" E

	North East	:	11° 6' 58.93" N	78° 50' 21.64" E
	South East	:	11° 6' 51.10" N	78° 50' 22.05" E
	North West	:	11° 6' 58.09" N	78° 50' 17.38" E
	South West	:	11° 6' 51.63" N	78° 50' 19.47" E

3.0. GENERAL INFORMATION:

3.1	a.	Name of the Applicant	:	**THIRU. M. BASKARAN**
	b.	Address of the Applicant with phone No and e-mail id if any	:	S/o. Thiru.Muthureddiyar, Thiruvallakuruchi, Alathur Taluk, Perambalur District.
	c.	Status of the Applicant	:	Individual
3.2	a.	Mineral Which the applicant intends to mine	:	Rough Stone
	b.	Precise area communication letter No.	:	**Rc. No. 66/G&M/2018 dated 06.03.2019**
	c.	Period of permission	:	Quarry lease period of Five Years
	d.	Name and Address of the RQP preparing Mining Plan	:	**S.Dhanasekar, M.Sc.,** RQP/MAS/225/2011/A 8/3, Kullappan Street, Opposite Indian bank Line, Omalur Taluk -636 455, Salem District. Email: geodhana@yahoo.co.in
	e.	RQP Regn. No.	:	RQP/MAS/225/2011/A Valid up to 12.01.2021.

4.0 LOCATION:

a. **DETAILS OF THE AREA:**

State	District	Panchat / union	Taluk	Village	S.F.Nos	Extent in Hectares
TamilNadu	Perambalur	Padalur / Alathur	Alathur	Padalur (E)	4/3A 4/4B 7/4A 7/4B	1.12.5 0.09.0 0.18.5 0.73.0
					Total =	**2.13.0 Ha**

b.	Classification of the Area (Ryotwari / poramboke / others)	:	It is a Patta Lands, which is not fit for vegetation/cultivation.

c.	Ownership / Occupancy of the Applied area (Surface rights)	:	Patta Land in S.F.Nos. 7/4B stand registered in the name of Thiru. M. Baskaran.,S/o. MuthuReddiyar, vide Patta No.66 and Patta land in S.F.Nos. 7/4A, 4/3A and 4/4B stands registered in the name of 1.Muthuselvam and 2.Lokesh(guardian mother Karpagam), S/o.Baskaran vide Patta No.376. Tmt.Karpagam, W/o.Baskaran, Guardian mother of Pattadars given consent to the applicant. Hence, the applicant has got surface right over the area.
d.	Toposheet No. with Latitude and Longitude	: : :	**Toposheet No. 58 I/16** 11° 6' 58.93" N 78° 50' 21.64" E
e.	Existence of Public Road / Railway line if any nearby the area and approximate distance	:	Perambalur – Alathur Gate = 11.0km. Alathurgate – Perumalpalayam = 2.0km. Quarry site is located in Eastern side at a distance of 1.0km from Perumalpalayam Village.

PART - A

5.0 GEOLOGY AND MINERAL RESERVES:

5.1	a.	Topography	:	1. The area applied for quarry lease is almost Plain terrain with gentle elevation of 1 or 2m and above the ground level and sloping towards Southern covered with **Rough Stone** which does not sustain any type of vegetation. 2. No major river is found nearby the applied area. 3. Water table is noticed at a depth of **50m** from the below surface ground level in the adjacent open well. 4. Temperature of the area is reported to be 18^0C to a maximum of 38^0C during summer. 5. Rainfall of this area is about 800mm to 900 mm during the monsoons in a year.

	b.	Infrastructures nearby the applied lease area.		
		1. Post Office	:	Padalur – 3.4 kms
		2. Police Station	:	Padalur – 3.4kms
		3. G.H	:	Perambalur – 14.0kms
		4. Fire service	:	Perambalur – 14.0 kms
		5. Railway Station	:	Ariyalur – 25.0 kms
		6. School	:	Irur – 1.2 kms
		7. Airport	:	Trichy – 43.0 kms
		8. Seaport	:	Nagapattinam – 120.0 kms
	c.	Regional Geology	:	**PERAMBALUR** District is underlain by the wide range of metamorphic rocks of peninsular gneissic complex. These rocks are extensively weathered and overlain by the recent valley fills and alluvium at places. The geological formations found in the district are Archaean rocks like Gneisses, Granites, Charnockites basic granulites and calc-gneisses. The younger formations are Quartz veins and pegmatite. The generalized stratigraphic succession of the geological formations met within this District is as follows.

	Age	Rock Formation
1.	Recent to Sub recent	Soil, Alluvium
2.	Archaean	Granites, basic granulites, Peninsular Gneiss, Calc Gneiss and Charnockites

	d.	Geology of the Precise Area	:	1. The area is mainly composed of Archaean crystalline metamorphic complex. 2. The rock type noticed in the area for lease is **Charnockite** which contains mostly Quartz and Feldspar with some ferromagnesian minerals. 3. The Charnockite is part of peninsular Gneisses, a high grade metamorphic rock. 4. The general trend of formation is NE–SW and almost vertical dipping. The general geological succession of the area is given as under.

	Age	Rock Formation
1.	Recent to Sub recent	Soil, Alluvium
2.	Archaean	Charnockites
3.	Archaean	Peninsular Gneiss, and Calc Gneiss

13

5.2		Details of Exploration already carried out if any	:	Since the **Rough Stone** is seen from the Surface itself and noticed in the already quarried pit, no exploration is needed. However, the area was personally examined by the Geologist who prepared the Mining Plan.
5.3	a	Estimation of Reserves	:	The Geological and Recoverable reserves are estimated by cross sectional method up to a depth of **37m,** (2.0m Topsoil + 35.0m Rough stone) as the **Rough Stone**. Plans and Sections have been drawn with a scale of 1:1000 and 1:500 respectively.
	b.	**GEOLOGICAL RESERVES:**		

The Geological reserve is estimated as **570145m^3** by area cross sectional method.

GEOLOGICAL RESERVES								
Section	Bench	L (m)	W(m)	D (m)	Volume In M3	Mineable Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil
XY-AB	IV	69	87	5	30015	28514	1501	-
	V	69	87	5	30015	28514	1501	-
	VI	69	87	5	30015	28514	1501	-
	VII	69	87	5	30015	28514	1501	-
	VIII	69	87	5	30015	28514	1501	-
XY-CD	IV	59	104	5	30680	29146	1534	-
	V	59	104	5	30680	29146	1534	-
	VI	59	104	5	30680	29146	1534	-
	VII	59	104	5	30680	29146	1534	-
	VIII	59	104	5	30680	29146	1534	-
X1Y1-EF	I	2	11	2				44
	II	2	11	5	110	105	5	-
	III	2	31	5	310	295	15	-
	IV	75	142	5	53250	50588	2662	-
	V	75	142	5	53250	50588	2662	-
	VI	75	142	5	53250	50588	2662	-
	VII	75	142	5	53250	50588	2662	-
	VIII	75	142	5	53250	50588	2662	-
TOTAL					**570145**	**541640**	**28505**	44

c. **RECOVERABLE RESERVES:**

The mineable reserves and the recoverable reserves are **157655m^3** and **149773m^3** respectively,

MINEABLE RESERVES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M3	Reserves in m3 @ 95%	Mine waste in m3 @ 5%
XY-AB	IV	59	72	5	21240	20178	1062
	V	54	62	5	16740	15903	837
	VI	49	52	5	12740	12103	637
	VII	44	42	5	9240	8778	462
	VIII	39	32	5	6240	5928	312
XY-CD	IV	52	89	5	23140	21983	1157
	V	47	79	5	18565	17637	928
	VI	42	69	5	14490	13766	724
	VII	37	59	5	10915	10369	546
	VIII	32	49	5	7840	7448	392
X1Y1-EF	III	1	20	5	100	95	5
	IV	18	119	5	10710	10175	535
	V	8	109	5	4360	4142	218
	VI	1	99	5	495	470	25
	VII	1	89	5	445	423	22
	VIII	1	79	5	395	375	20
TOTAL					**157655**	**149773**	**7882**

6.0 MINING:

6.1	Method of Mining	:	1. Opencast method of semi-mechanized mining will be adopted to extract **Rough Stone**. 2. Machineries like Tractor mounted compressor attached with Jack hammers is proposed for drilling and blasting. Excavators are proposed for quarrying of Rough Stone and Tippers / Lorries are proposed for the transportation of Rough Stone to the destination.
6.2	Mode of Working	:	It is a semi-mechanized quarrying operation using shot hole drilling with the help of compressor and jack hammers, smooth blasting. Loading by using Hydraulic excavator and loaded directly to the tippers and transported to the crushing plants for breaking into required size from 75mm jelly to 10mm chips.
6.3	Proposed bench height & Width	:	Bench height = 5mts. Bench width = 5mts

6.4	Details of Overburden / Mineral Production proposed for **Five Years.**	:	**Top Soil/ Overburden production details follows:** The Top Soil in this lease area is **Nil.**

Rough Stone production details as follows:

The proposed rate of production of **Rough Stone** is about **149773m^3** for five years. The average proposed rate of production of **Rough Stone** is about **29955m^3** per year at the rate of 95% recovery upto the permissible depth. Proposed Production of five Years.

YEARWISE PRODCUTION AND DEVELOPMENT

Section	Bench	Length in (m)	Width In (m)	Depth In (m)	Volume In M3	RESERVES in m3 @ 95%	REJECT in m3 @ 5%
I-YEAR	IV	59	72	5	21240	20178	1062
	IV	52	89	5	23140	21983	1157
	III	1	20	5	100	95	5
	IV	18	119	5	10710	10175	535
II-YEAR	V	54	62	5	16740	15903	837
	V	47	79	5	18565	17637	928
	V	8	109	5	4360	4142	218
III-YEAR	VI	49	52	5	12740	12103	637
	VI	42	69	5	14490	13766	724
	VI	1	99	5	495	470	25
IV-YEAR	VII	44	42	5	9240	8778	462
	VII	37	59	5	10915	10369	546
	VII	1	89	5	445	423	22
V-YEAR	VIII	39	32	5	6240	5928	312
	VIII	32	49	5	7840	7448	392
	VIII	1	79	5	395	375	20
TOTAL					**157655**	**149773**	**7882**

6.5	a.	Mining	:	Drilling of deep holes will be carried out by using Wagon drilling and shallow holes by jack hammer. Depth of holes shall be 7 to 8m bench height and spacing shall be 2 to 2.5m and burden shall be 1.5 to 2m from the free face. Details of drilling equipments are given below.

Type	No	Dia of hole	Size / Capacity	Make	Motive power	H.P.
Jack Hammer	5	25.5 mm	Hand held	Atlas copco 2Nos	Diesel	60

	b.	Loading	:	Loading of waste and Rough Stone shall be carried out by Excavator into 10 tonne capacity tippers from the working place periodically. Details of loading equipment are given as under.

Type	Nos	Bucket Capacity (MT)	Make	Motive power	H.P.
Hydraulic excavator	1	1.2 M^3	L&T or Ex200	Diesel	120

	c.	Transportation	:	Transport of raw materials and waste shall be done by Tipper of 10 tonnes capacity.

Type	Nos	Size / Capacity	Make	Motive power	H P
Tipper	3	10 M.T	Ashok Leyland	Diesel	110

6.6		Disposal of Overburden	:	The top soil of the lease area is Nil.
6.7		Brief Note on Conceptual Mining Plan for the entire lease period	:	Conceptual Mining Plan is prepared with an object of **Five Years** only with systematic development of bench lay outs, selection of ultimate pit limit, depth of quarrying, ultimate pit slope, selection of sites for construction of infrastructures etc., Average Ultimate Pit dimension in given as Under,

ULTIMATE PIT DIMENSION				
Section	**Bench**	**Length in (m)**	**Width in (m)**	**Depth in (m)**
X1Y1-EF	III	1	20	5
	IV	18	119	5
	V	8	109	5
	VI	1	99	5
	VII	1	89	5
	VIII	1	79	5

Ultimate pit size is designed based on certain practical factors such as the economical depth of mining, safety zones, permissible areas etc.

Afforestation has been proposed on the boundary barrier by planting trees. All the baseline information studies like Air Quality monitoring, Noise and Vibration monitoring, Water Analysis studies will be carried out every year as per the MOEF norms.

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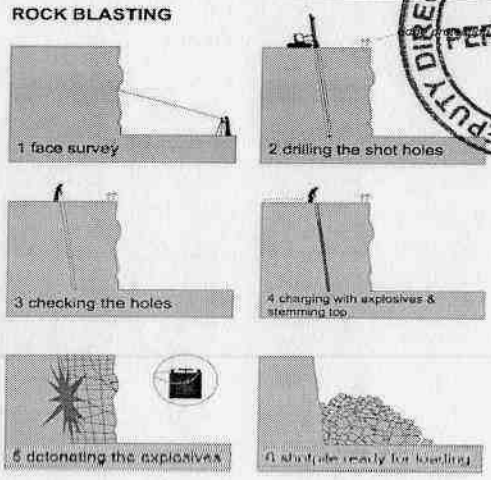
	b	**Energy:** Electricity for mines and lights only at nights (working is restricted on day time only between 8Am to 5Pm). Diesel (HSD) will be used for quarrying machines around **119818 litres** of HSD will be used for the entire project life. Diesel will be brought from nearby diesel pumps. No power is required for the project. Lightings on the night will be taken from nearby electric poles after obtaining permission from concerned authorities. **For Rough stone:** Per hour excavator will consume = 16 litres / hour Per hour excavator will excavate = 20m^3 of rough stone For 149773 m^3 = 149773 / 20 = 7488.6 hours Diesel consume 7488.6 working hours = 7488.6 hours x 16 litres Total diesel consumption = **119818 litres of HSD will be utilized for Rough Stone** Total diesel consumption is around = **119818 litres of HSD for the entire period of life**

7.0 BLASTING:

7.1	Blasting Pattern	:	The massive formation shall be broken into pieces of portable size by drilling and blasting using jack hammers and shot hole blasting. Powder factor of explosives for breaking such hard rock shall be in the order of 6 to 7 tonnes per K.g of explosives. Blasting parameters are as follows.

Diameter of the hole	:	32-36 mm
Spacing	:	60 Cms
Depth	:	1 to 1.5m
Charge / Hole	:	D.Cord with water or 70 gms of gun powder or Gelatine.
Pattern of hole	:	Zig Zag
Inclination of hole	:	70^0 from the horizontal.
Quantity of rock broken	:	0.45 MT x 2.6 = 1.17 MT
Blasting efficiency @ 90%	:	1.17 x 90% = 1.05MT / hole
Charge per hole	:	140 gms of 25mm dia cartridge
Quantity of rock broken per day	:	99.8 M^3

			ROCK BLASTING 
7.2	Types of Explosives	:	Following explosives are recommended for efficient blasting with safe practice.

S. No	Description	Class / Division	Type	Size
1.	Slurry	Class - 3	Nitro Compound	25 x 200
2.	Nitrate Mixture	Class – 2	ANFO (Ammonium nitrate with 12% diesel)	Prepared at the site.
3.	Detonators	Class - 3	Ordinary and elec (OD & ED)	6.5 x 32
4.	Safety fuse	Class - 6	Blue sump fuse coils of 10mts each	

The applicant will approach the District Collector for grant of explosives license as the quantity of daily consumption is very low, i.e., less than 5Kgs.

7.3	Measures proposed to minimize ground vibration due to blasting	:	The following steps shall be adopted to control ground vibration due to blasting. 1. The minimum recommended delay time of 8ms was introduced to minimize ground vibration to avoid constructive interference of blast vibration waves and hence its impact or amplitude is less. 2. Use of Ammonium nitrate fuel oil mixture for shot holes may be avoided because which cause for high fly of rocks in view critical diameter problem. Only high strength explosives like slurry will be used in the form of cartridge. 3. Charge per hole should exceed the powder factor designed for each hole based on the quantum of blasting, strength of rocks, fracture pattern etc.

7.4	Storage of Explosives and safety measures to be taken while blasting.	:	1. The applicant is advised to store the explosives as per the Indian Explosives Act, 1958. 2. The explosives to be used in mines being a [illegible] the District collector may be approached to keep the stocks not exceeding 5kgs at time or any other quantity permitted by the concerned authorities in a portable magazine of S & B types. 3. The applicant is advised to engage an authorized explosive agency to carry out blasting. 4. The blasting time at a day is proposed to be 5 PM to 6 PM. 5. First Aid Box will be keeping ready at all the time. 6. Necessary precautionary announcement will be carried out before the blasting operation.

8.0 MINE DRAINAGE

8.1	Depth of Water table	:	The ground water table is reported as **50m** below ground level in nearby wells. Now, the present quarry shall be proposed above the water table and hence, quarrying may not affect the ground water.
8.2	Arrangement and Places where the mine water is finally proposed to be discharged	:	The ground water may not rise immediately in this type of mining. However, the rain water percolation and collection of water from the seepage shall be less than 300 lpm and it shall be pumped about periodically by a stand by diesel powered Centrifugal pump motivated with 7.5 H.P. Motor. The quality of water is potable and it is not contaminated with any hazardous things.

9.0 OTHER PERMANENT STRUCTURES:

9.1	Habitations / Village	:	There are no villages within a radius of 500m. The nearest habitations with the population is given as under,

Direction	Village	Distance in Kms	Population
North	Perumalpalayam	1.0km	100
East	Karai(West)	4.4km	200
South	Thiruvilakuruchy	1.3km	600
West	Koothanur	4.2Km	800

9.2	Power lines (HT/LT)	:	There is no power lines located within the safety distance prescribed under Tamil Nadu Minor Minerals Concession Rules, 1959.
9.3	Water bodies (River, Pond, Lake, Odai, Channel etc)	:	A Safety zone of 50mtrs should be left out for the Government Poramboke land vari situated in the Southwestern side in S.F.No.7/2. There is no other water bodies are located within a radius of 500m.
9.4	Archeological / Historical Monuments	:	There are no Archeological / Historical Monuments within a radius of 500m.
9.5	Road (NH, SH, Village Road etc)	:	Perambalur – Alathur Gate = 11.0km. Alathurgate – Perumalpalayam = 2.0km. Quarry site is located in Eastern side at a distance of 1.0km from Perumalpalayam Village.
9.6	Places of Worship	:	There are no Places of Worship within a radius of 500m.
9.7	Reserved Forest / Forest / Social Forest / Wild Life Sanctuary etc.,	:	There are no Forests within a radius of 10kms.
9.8	Any Interstate Border, Protected areas under the Wild Life (Protection) Act, 1972, Critically Polluted Areas as Identified by Central Pollution Control Board and Notified Eco sensitive areas	:	There are No Inter State border, Protected area under Wild Life (Protection) Act 1972, nor Critically Polluted area as identified by Central Pollution Control Board and Notified Eco sensitive area within a radius of 10 kms.
9.9	Any Other Structures	:	Nil

10.0 EMPLOYMENT POTENTIAL & WELFARE MEASURES:

10.1		Employment Potential (Management & Supervisory personal)	:	1. As per Mines safety under the provisions of MMR, 1961 under the Mines Act, 1952, whenever the workers are employed more than 10, it is preferred to have a qualified Mining Mate to keep all the production workers directly under his control and supervision. 2. The following man power is proposed for quarrying Rough Stone during the Five Years period to achieve the proposed production and to comply the provisions of the Government norms.

				1. Skilled — Operator — No.
				Mechanic —
				Blaster/Mat — 1 No
				2. Semi – skilled — Driver — 2 Nos
				3. Unskilled — Musdoor / Labours — 7 Nos
				Cleaners — 3Nos
				Office Boy — 1No
				4. Management & Supervisory staff — 3No.
				Total = — 20Nos
10.2		Welfare Measures		
	a.	Drinking Water	:	Drinking water at the rate of 2Ltrs per person shall be provided as per the Mines Rules, 1960. It is proposed to make a borehole for providing uninterrupted supply of drinking water and other utilities.
	b.	Sanitary facilities	:	Semi permanent latrines & urinals shall be maintained at convenient places for use of labours as per the provisions of Rule (33) of the Mines Rules, 1960 separately for males and females. Washing facilities shall also be arranged as per rule (36) of the Mines Rules, 1960.
	c.	First Aid Facility	:	Being a small mine First Aid station as per provisions under Rule (44) of the Mines Rules 1960 will be provided with facilities as per the third schedule as prescribed. Qualified First Aid personnel should be appointed or nominated to attend emergency first aid treatment.
	d.	Labour Health	:	As per Mines Rule, Periodic medical examination has to be arranged for occupational health once in a year in addition to attending medical treatment of occupational injuries under the Rule 45 (A), MR, 1960.
	e.	Precautionary safety measures to the Laborers	:	Safety provisions like helmet, goggles, safety shoes, Dust mask, Ear muffs etc have to be provided as per the circulars and amendments made for Mine labours under the guidance of DGMS being a mechanized operation. Necessary training will be conducted once in a year to all the employees with the help of qualified and experienced officers to train about the safe and system at quarrying operation.

PART – B

11.0 ENVIRONMENTAL MANAGEMENT PLAN:

11.1	Existing Land Use Pattern	:	The existing land use pattern is given as under,

Sl. No.	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)
1.	Quarrying Pit	2.03.0	2.03.0
2.	Infrastructure	Nil	0.01.0
3.	Roads	0.01.0	0.01.0
4.	Green Belt	Nil	0.08.0
5.	Unutilized	0.09.0	Nil
	Total =	**2.13.0Ha**	**2.13.0Ha**

11.2	Water Regime	:	Water table in this area is noticed at a depth of **50m** and presently, the quarrying of Rough Stone is proposed up to a depth of **30m** and hence, it will not affect the ground water depletion of this area.
11.3	Flora and Fauna	:	Except acacia bushes, no other valuable trees are noticed in the applied area. Further, neither flora of botanical interest nor fauna of zoological interest is noticed in this area.
11.4	Climatic conditions	:	Generally sub-tropical climatic condition prevails throughout the year and this District receives rain both in South west and North east monsoon. The average rainfall is about 800mm to 900mm and the temperature ranges from 18^0C during winter and to a maximum of 38^0C during the summer.
11.5	Human Settlement	:	The nearest habitations with the population is given as under,

Direction	Village	Distance in Kms	Population
North	Perumalpalayam	1.0km	100
East	Karai(West)	4.4km	200
South	Thiruvilakuruchy	1.3km	600
West	Koothanur	4.2Km	800

11.6	Plan for Air, Dust Suppression	:	Air or dust expected to be generated from drilling process, hauling roads, places of excavation etc.., will be suppressed by periodical wetting of land by water spraying.

11.7	Plan for Noise Control	:	Quarrying of Rough Stone will be carried out by drilling and blasting by using low power explosives, and hence, noise will be very minimum. However, periodical noise level monitoring will be carried out to check the noise level in and around the quarry site.
11.8	Environmental Impact Assessment Statement Describing Impact on mining on the next Five Years	:	Factors to be considered for EIA are, 1. Dust generation, 2. Land degradation 3. Stabilization and vegetation of dumps 4. Adverse effect on water regime 5. Socio economic benefits arising out of Mining. 6. Noise and Vibration.
	a. Dust	:	Dust is expected to be generated from drilling, hauling roads; place of excavation etc and it will be suppressed by periodical wetting of lands.
	b. Land degradation	:	Land degradation is by means of cutting the trees and removal of fertile soil does not arise. Proposed usage of land for the next Five Years shall be less than **2.13.0 Ha.** Afforestation will be started during the first year of mining operation itself.
	c. Stabilization and vegetation of dumps	:	The topsoil will be spread over the non-active dumps along the slope and edges to plant tree saplings to form vegetal cover over the dumps. Such vegetal cover will prevent erosion of dumps during rainy seasons.
	d. Socio economic benefits arising out of mining	:	1. To provide Employment opportunities for the nearby Villagers. 2. For the cultural development of the nearby Villagers.
	e. Noise and vibration	:	Since, no deep hole blasting is proposed with small dia explosives are used for breaking the hard rock and boulders, the noise and vibration will be very minimum and are within the permissible limits.
11.9	Proposal for Waste Management	:	The wastes are generated during the mining period is **7882m^3** will be proposed to dump into the North Western side of 7.5m & 10.0m boundary barrier of the lease area. **Proposed Mineral Reject dump Dimensions:** 1639sq.m X 4.8m(H) = 7882 m^3

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11.10 .	Proposal of Reclamation of Land affected during mining activities and at the end of mining.	:	The present mining is proposed to an average depth of 30m. The mined out area will be fenced on top of open cast working with S1 fencing. Low lying areas with water logging shall be used for fish culture. No immediate proposals for closure of pit as the Rough Stone persist still at deeper level.
11.11	Program for Afforestation	:	Trees like tamarind, casuarinas etc will be planted along the northern side of lease boundary and avenues as well as over non active dumps at a rate 30 trees per annum with an interval of 5m. The rate of survival expected to be 70% in this area.

11.12. Proposed Financial Estimate / Budget for (EMP) Environment Management

	Fixed Asset Cost:	:	
	1. Land Cost	:	Rs. 20,00,000/- (Patta Lands)
	2. Labour Shed	:	Rs. 50,000/-
	3. Sanitary Facility	:	Rs. 1,00,000/-
	4. Fencing cost	:	Rs. 2,00,000/-
	Total=	:	**Rs.23,50,000/-**
	Operational Cost: **Machinery cost**	:	Rs.20,00,000/-
	EMP Cost:		
	1. Drinking water facility	:	Rs. 1,00,000/-
	2. Safety kits	:	Rs. 50,000/-
	3. Water sprinkling	:	Rs. 50,000/-
	4. Afforestation	:	Rs. 25,000/-
	5. Water quality test	:	Rs. 50,000/-
	6. Air quality test	:	Rs. 25,000/-
	7. Noise/vibration test	:	Rs. 25,000/-
	8. Cost towards charity	:	Rs. 25,000/-
	Total=	:	**Rs. 3,50,000/-**
	Total Project Cost	.	**Rs. 47,00,000/-**

12.0 MINE CLOSURE PLAN:

12.1	Steps proposed for phased restoration, reclamation of already mined out area.	:	The present mining is proposed to an average depth of **30m.** The mined out area will be fenced on top of open cast working with S1 fencing to arrest the entry of cattles and public in to the quarry site.

12.2	Measures to be under taken on mine closure as per Act & Rules	:	Measures will be taken as per the Acts and Rules. The quarried pit will be fenced by using Barbed wire fencing. Green belt development at the rate of 30 trees per year will be proposed.
12.3	Mitigation measures to be undertaken for safety and restoration/ reclamation of the already mined out area	:	The area applied for quarry lease was already held under the quarry lease. The pits were already opened by earlier Quarrying. Hence, the quarrying operation will be continued in the existing pit after making proper benches within the applied area for lease.

13.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

(i) Permission will be obtained from the Director of Mines Safety for extracting the Rough Stone from the Boundary barriers and from slopes.

(ii) Care and precautionary measures will be taken for the safety of workers as per Rules and Acts.

(iii) The applicant will endeavor every attempt to quarry the Rough Stone economically without any wastage and to improve the environment and ecology.

(iv) Accordingly, Mining Plan is prepared under Rule 41 & 42 as amended in Tamil Nadu Minor Mineral Concession Rules, 1959 by incorporating the conditions imposed in the precise area communication letter and by incorporating all the details proposed in the letter to obtain environment clearance from State Level Environmental Impact Assessment Authority.

(v) The proposed production of Rough Stone for Five Years is **149773m^3** and average production per year is **29955m^3**.

S.DHANASEKAR, M.Sc.,(Geo)
RQP/MAS/225/2011/A

This Mining Plan is Approved Subject to the Conditions Stipulation & Indicated to the Mining Plan Approval Letter No. Ro.No.11/G&M/2018dt.8.3.19 Office of the A.D.Geology & Mining Perambalur

This mining plan is approved without prejudice to any other legal stipulations and as per the G.O.(Ms) No.79, Industries (MMC1) Department Dt. 06.04.2015 and subject to further fulfilment of the condition laid down under TNMMCR 1959.

Deputy Director (I/c),
Dept. of Geology and Mining
Perambalur.

தமிழ்நாடு तमिलनाडु TAMILNADU Rs 50 // AL 931850

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26/2/2018 M.பாஸ்கரன் திருவளக்குறிச்சி

குத்தகை ஒப்பந்த பத்திரம்

2018-ம் வருடம், பிப்ரவரி மாதம், 26-ம் தேதி, பெரம்பலூர் மாவட்டம், ஆலத்தூர் வட்டம், பாடாலூர் மஜரா திருவளக்குறிச்சி கிராமத்தில் வசித்து வரும் முத்து ரெட்டியார் மகன் *பாஸ்கரன்-1*

பெரம்பலூர் மாவட்டம், ஆலத்தூர் வட்டம், பாடாலூர் மஜரா திருவளக்குறிச்சி கிராமத்தில் வசித்து வரும் பாஸ்கரன் அவர்களின் மைனர் மகன்கள் முத்தமிழ்ச்செல்வன்-2, லோகேஸ்-3 ஷை 2,3-வது நபர்களான மைனர்களுக்கு கார்டியனும், தாயாருமான ஷை விலாசத்தில் வசித்து வரும் பாஸ்கரன் மனைவி கற்பகம் கார்டியன் ஹோதாவில் மட்டும் ஆகிய நாம் அனைவரும் சேர்ந்து செய்துகொண்ட குத்தகை ஒப்பந்தம் என்னவென்றால்,

1)

2) மைனர்களுக்கு கார்டியன்

நம்மில் 2,3-வது நபர்களான மைனர்களுக்கு சொந்தமானதை அவர்களுக்கு கார்டியனான தாய் கற்பகம் அவர்கள் பராமரித்து வருகின்ற கீழ்க்கண்ட நிலத்தை நம்மில் 1-வது நபர் பாஸ்கரன் அவர்கள் குத்தகைக்கு விடுமாறு கேட்டதற்கு ஷை கார்டியனான கற்பகம் அவர்களும் ஒப்புக்கொண்டு அதன்படி கீழ்க்கண்ட நிலத்தை நம்மில் 1-வது நபர் பாஸ்கரன் அவர்கள் நாளது முதல் பத்து வருடங்களுக்கு குத்தகைக்கு ஒப்புக்கொண்டுள்ளார்.

ஷை குத்தகைக்காக நம்மில் 2,3-வது நபர்களின் கார்டியனான கற்பகம் அவர்கள் ஷை நிலத்துக்கு ரொக்க குத்தகையாக வருடம் ஒன்றுக்கு ரூபாய். 5,000/- ஐந்தாயிரம் வீதம் கொடுக்க வேண்டும் என்று 1-வது நபரிடம் கேட்டதற்கு 1-வது நபரும் சம்மதித்து ஒப்புக்கொண்டுள்ளார்.

இனி நம்மில் 1-வது நபர் பாஸ்கரன் அவர்கள் கீழ்க்கண்ட சொத்தை நாளது முதல் பத்து வருடங்களுக்கு குத்தகைக்கு ஏற்றுக்கொண்டு நிலங்களில் அரசு அனுமதி பெற்று கல் வெட்டி எடுத்துக்கொண்டு தொழில் செய்துக்கொள்வதற்கும் அதற்கு தேவையான, சகல காரியங்களை மேற்கொண்டும் தொழில் செய்துக்கொள்ள வேண்டியது.

குத்தகை தொகையான மேலே ஒப்புக்கொண்டுள்ள ரொக்க குத்தகையான ரூபாய். 5,000/- (ரூபாய் ஐந்தாயிரம்) பூராவையும் நம்மில் 1-வது நபர் பாஸ்கரன் அவர்கள் ஒவ்வொரு வருடமும், இதே காலாவதியில் நம்மில் 2,3-வது நபர்களின் கார்டியனான கற்பகம் அவர்களிடம் பாக்கியில்லாமல் கொடுத்து வந்து ரசீது பெற்றுக்கொள்ள வேண்டியது.

அதன்பிரகாரம் குத்தகை தொகையை கற்பகம் அவர்கள் 1-வது நபரிடமிருந்து ரொக்கமாய் பெற்றுக்கொண்டு அதற்கு அவரிடம் ரசீது கொடுத்துவிட வேண்டியது.

1) [signature]

மைனர்களுக்கு கார்டியன்

2) [signature]

[signature]

குத்தகை நிலங்களில் 1-வது நபர் பாஸ்கரன் அவர்கள் பத்து வருடங்களுக்கு நிலங்களில் அரசு அனுமதியுடன் கல் எடுத்துக்கொள்வதில் நம்மில் கற்பகம் அவர்களுக்கு எவ்வித ஆட்சேபனையும் கிடையாது.

ஷை பத்து வருடம் குத்தகை காலம் முடிந்ததும் நாம் விருப்பப்பட்டால் மறுபடியும் இதையே புதுப்பித்துக்கொள்ளலாம். இல்லையேல் குத்தகை காலம் முடிந்தவுடன் நம்மில் 1-வது நபர் நிலத்தை நம்மில் கற்பகம் அவர்களிடம் ஒப்படைத்து விடவேண்டியது. இந்தப்படி நாம் சம்மதித்து செய்துக்கொண்ட குத்தகை ஒப்பந்த பத்திரம் ஆகும்.

சொத்து விபரம்

பெரம்பலூர் மாவட்டம், ஆலத்தூர் வட்டம், பாடாலூர் கிழக்கு கிராம எல்லையில்

அ.பு.சர்வே எண். 4/3A. ஹெக். 1.12.5 ஏர்ஸ்

அ.பு.சர்வே எண். 4/4B. 0.09.0 ஏர்ஸ்

அ.பு.சர்வே எண். 7/4A. 0.18.5 ஏர்ஸ்

ஆக கூடுதல் ஹெக். 1.40.0 ஏர்ஸ் நிலம் முழுவதும் பாத்தியப்பட்டது.

ஷை நிலங்களுக்கு மாமூல் வழிநடை பாதை பாத்தியமும், சகல பாத்தியமும் உள்பட பாத்தியப்பட்டது.

1.

2. மைனர்களுக்கு கார்டியன்

சாட்சிகள்: 1) K. K (K. KANNAN) S/o Krishnamoorthy, VAZHAIYUR(PO), Trichy(DT).

2) P. S/o பெருமாள், நெடுங்கூர், திருச்சி.

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2009 ஆம் வருடம் மார்ச் மாதம் 6 ம் தேதி பெரம்பலூர் மாவட்டம், குன்னம் வட்டம், இரூர் மஜ்ரா, ஆலத்தூர்கேட்டில் வசித்து வரும் திரு.M.பாஸ்கரன் அவர்கள் மகன்கள் மைனர் சுமார் 5 வயதுள்ள B.முத்தமிழ்செல்வன் – 1 ஷை மைனர் சுமார் 1 வயதுள்ள B.லோகேஷ் – 2 இவர்களுக்கு கார்டியனும் போஷகரும் தாயுமான ஷை திரு.M.பாஸ்கரன் அவர்கள் மனைவி அடையாள விவரம் வாக்காளர் அடையாள அட்டை எண் DBW2119329 திருமதி.B.கற்பகம் ஷை மைனர்களுக்கு கார்டியன் என்ற முறையில் மட்டும் ஆகிய உங்களுக்கு,

மைனர்களுக்கு கார்டியன்

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மா.ந. நீதிமன்ற முத்திரைதாள
விற்பனையாளர், துறையூர்.
L.C. No: 15203/88

--2--

ஷை மாவட்டம், ஷை வட்டம், ஷை இரூர் கிராமத்தில் நம்பர் 165 க்கு புது எண் 3/189 மெயின்ரோடு, என்ற முகவரியில் வசித்து வரும் திரு.அண்ணாமலை அவர்கள் மகன்கள் அடையாள விவரம் வாக்களர் அடையாள அட்டை எண் 16/G/0245154 திரு.மூக்கன் – 1 ஷை 1 நபரின் உடன் பிறந்த சகோரன் அடையாள விவரம் குடும்ப அட்டை எண். 16/G/0884473 திரு.சொக்கலிங்கம் – 2 ஆகிய நாங்கள் சேர்ந்து எழுதிக் கொடுத்த கிரைய பத்திரம் என்னவென்றால்

மைனர்களுக்கு கார்டியன்

भारतीय गैर न्यायिक INDIA NON JUDICIAL

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सत्यमेव जयते

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மைனர்களுக்கு கார்டியன் தாய் கற்பகம்

ஆலத்தூர் கேட்

V. சீதாராமன்
பா.ந. நீதிமன்ற முத்திரைத்தாள் விற்பனையாளர், துறையூர்.
L.C. No: 15203/88

--3--

எங்களுக்கு சொந்தமான இதனடியில் சொத்து விபரத்தில் கண்டுள்ள நிலம்,கிணர் வகையராக்களை தங்களிடம் விற்பனை செய்து விலை பேசி நிச்சயித்த கிரையம் ரூ 1,00,000/- ரூபாய் ஒரு லட்சமும் எங்கள் குடும்ப நிர்வாக செலவுக்கு வேண்டி ரொக்கமாக பெற்றுக் கொண்டு விட்டபடியால் ஷை கிரைய சொத்துக்களை நீங்கள் நாளது தேதி முதல் அடைந்து சர்வசுதந்திர பாத்தியமாய் கிரயவிற் கிரையங்களுக்கு யோக்கியமாய் ஆண்டு அனுபவித்து கொள்ள வேண்டியது. ஷை கிரைய சொத்துக்களில் எவ்வித வில்லங்கமும் இல்லை இருந்தால் எங்கள் இதர சொத்துக்களை கொண்டு தீர்த்துக் கொடுப்போம். இனி

அ.செக்கன்

மைனர்களுக்கு கார்டியன்

B. Karpagam

1015 9

5 9

தமிழ்நாடு தமிழ்நாடு TAMILNADU

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V. சீதாராமன்
M.A. B.L. நீதிமன்ற முத்திரைதாள்
விற்பனையாளர், எழும்பூர்
L.C. No: 15203/03

--4--

ஷை கிரைய சொத்துக்களில் எங்களுக்காவது எங்கள் பின்னிட்ட உள்வாரிசுகளுக்காவது எவ்வித பாகப் பாத்திய உரிமையும் பின் தொடர்ச்சியும் அர்த்த ரீதியாக கிடையாது. இன்றே ஷை கிரைய சொத்துக்களை உங்கள் அனுபவ சுவாதீனத்தில் விட்டு பட்டா தங்கள் பெயருக்கு மாற்ற மனுவும் கொடுத்துள்ளோம். ஷை சொத்து பாடாலூர் கிராம பஞ்சாயத்து ஆலத்தூர் யூனியன் எல்லைக்குட்பட்டது.

மைனர்களுக்கு கார்டியன்

B. kalyan

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L 686504

V.R.பார்த்தசாரதி

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<u>சொத்துவிபரம்</u>

பெரம்பலூர் டி, அரிடி, செட்டிகுளம் சப்டி,குன்னம் வட்டம், பாடாலூர் மஜ்ரா, திருவளக்குறிச்சி கிராமத்தில் எங்களுக்கு பூர்வீகமாய் பாத்தியப்பட்டு எங்களில் 1 நபரின் பெயரில் 342 தனிபட்டாவிலும் எங்கள் பெயரில் 767 கூட்டுபட்டாவிலும் நிலஉரிமை பதிவேடு எண் 074273,137409 ன் படி கிடைத்து நாங்கள் கிஸ்து செலுத்தி ஆண்டனுபவித்து வருகிற

மைீ பாடாலூர் கிழக்கு கிராமத்திய அ.பு.சர்வே எண்

மைனர்களுக்கு கார்டியன்

4/4B **0.09.0** ஏர்ஸ் ஏக் **0.22** சென்டும் இதற்கு பழைய சர்வே எண் 554/4 ஆகும்.

5/11B **0.08.0** ஏர்ஸ் ஏக் **0.20** சென்ட்டும் இதற்கு பழைய சர்வே எண் 553/11 ஆகும்.

7/4A **0.18.5** ஏர்ஸ் ஏக் **0.46** சென்ட்டும் இதற்கு பழைய சர்வே எண் 555/4 ஆகும்.

இதற்கு பாசனமான கிணர் சர்வே எண் **5/12B 0.01.0** ஏர்ஸ் ஏக் **0.02** சென்டில் உள்ள கல்கட்டு கிணர் கவலைதுலை வீதி வாய்கால் வகையராவில் 3 ல் 2 பாகம். இதற்கு பழைய சர்வே எண் 553/12 ஆகும். இனம் 3 அயிட்டத்திலும் கூடுதல் நிலம் ஏக் **0.88** சென்ட்டு நிலம் பூராவும் ஷை நிலங்களுக்குண்டான மாமூலான கிணர்பாசன வாய்கால் மாமூலான வழிநடை பாதைபாத்தியம் உள்பட ஷை சொத்தின் சந்தை மதிப்பு ரூபாய் ஒரு லட்சத்து நான்கு ஆயிரத்து தொள்ளாயிரத்து நான்கு ஆகும்.

மைனர்களுக்கு கார்டியன்

சாட்சிகள்

1.

2.

ஆவணம் அமைத்தவர்:- N.Kannan L No.A49/AYR/2000 செட்டிகுளம்

5. 1968 [illegible]

[illegible]

[illegible] 3 [illegible]

சர்வே எண்	விஸ்தீர்ணம்	[illegible]	மதிப்பு தொகை
	[illegible]		
4/4B	0.29.0 - 0.22	புஞ்சை	ரூ 22726.00
புல எண் 554/4 ஆகும்			
5/11B	0.28.0 - 0.20	"	ரூ 20660.00
புல எண் 553/11 ஆகும்			
7/4A	0.18.5 - 0.46	"	ரூ 47518.00
புல எண் 555/4 ஆகும்			
5/12B	0.01.0 - 0.22 [illegible]		ரூ 14000.00
[illegible] 3 [illegible]			
புல எண் 553/12 ஆகும்			
Total	0.88	ஆகும்	ரூ 104904.00

[illegible]

B. [illegible]

[illegible]

8502

1015

தமிழ்நாடு தமிழ்நாடு TAMILNADU ரூ 5000/-

F 145631

20119
5.2.09

மைனர் முத்தமிழ் செல்வனுக்கு
காரியன் தாயி கர்நகம்
ஆலத்தூர்கேட்

V.R.பார்த்தசாரதி
சார்பதிவாளர்
உரிமம்/21048/அ1/79
செட்டிகுளம்தமிழ்நாடு

கிரையபத்திரம்

மார்க்கட் மதிப்பு ரூபாய் **2,08,500/-**

கிரையம் ரூபாய் **2,08,000/-**

2009 ஆம் வருடம் பிப்ரவரி மாதம் 5–ம் தேதி பெரம்பலூர் மாவட்டம், குன்னம் வட்டம், இரூர் மஜ்ரா ஆலத்தூர்கேட் கிராமத்தில் வசித்து வரும் திரு.M.பாஸ்கரன் அவர்கள் மகன்கள் மைனர் சுமார் 5 வயதுள்ள முத்தமிழ்செல்வன்–1 ஷை மைனர் சுமார் 1 வயதுள்ள லோகேஷ்–2 ஷ்ஷ 1,2, நபர்களுக்கு கார்டினும் போஷகரும் தாயுமான ஷை திரு.M.பாஸ்கரன் அவர்கள் மனைவி அடையாள விபரம்: வாக்காளர் அட்டை எண் DBW2119329 திருமதி.B.கற்பகம் ஷை மைனர்களுக்கு கார்டியன் என்ற முறையில் மட்டும் ஆகிய உங்களுக்கு,

भारतीय गैर न्यायिक INDIA NON JUDICIAL

भारत

रु.5000 Rs.5000

पाँच हजार रुपये FIVE THOUSAND RUPEES

सत्यमेव जयते

INDIA

தமிழ்நாடு तमिलनाडु TAMILNADU Rs 5000/- F 1456

20120
5.2.09

மைனர் முத்தமிழ்செல்வனுக்கு
காப்பாளர் தாய் கற்பகம்
ஆலத்தூர்கேட்

V.R.பார்த்தசாரதி
உ.எண்./23048/அ1/79
செட்டிகுளம் தமிழ்நாடு

--2--

பெரம்பலூர் மாவட்டம், குன்னம் வட்டம், இரூர் மஜ்ரா ஆலத்தூர்கேட் கிராமத்தில் நம்பர் 122 க்கு புது எண் 233 என்ற முகவரியில் வசித்து வரும் திரு.கலியபெருமாள் அவர்கள் மகன் விவசாயம் அடையாள விபரம் குடும்ப அட்டை எண் 16/G/0245784 திரு.K.மதியழகன் ஆகிய நான் எழுதிகொடுத்த கிரைய பத்திரம் என்னவென்றால்,

K. மதியழகன்

மைனர் சார்பு காப்பாளர்

B. Karthy

भारतीय गैर न्यायिक INDIA NON JUDICIAL

भारत

रु.5000 Rs.5000

पाँच हज़ार रुपये FIVE THOUSAND RUPEES

सत्यमेव जयते

INDIA

தமிழ்நாடு तमिलनाडु TAMILNADU Rs.5000/-

F 14563

20121
5.2.09

V.R.பார்த்தசாரதி
சார்பதிவு மு.வி.
உ.எண்./23048/அ1/79
செட்டிகுளம் தமிழ்நாடு

--3--

எனக்கு சொந்தமான இதனடியில் சொத்துவிவரத்தில் கண்டுள்ள மானாவரி சாகுபடியாகும் விளை நிலத்தை தங்களிடம் விலைபேசி விலை நிச்சயித்தது ரூபாய் 2,08,000/- இந்த ரூபாய் இரண்டு லட்சத்து எட்டு ஆயிரமும் நான் என் குடும்ப நிர்வாக செலவுக்கு வேண்டி ரொக்கமாக பெற்று கொண்டு விட்டபடியால்

B. karthi

தமிழ்நாடு தமிழ்நாடு TAMILNADU Rs.1000/- D 25691

115

4.2.09

J. GEETHA
STAMP VENDOR

--4--

ஷை கிரைய சொத்தை நீங்கள் நாளது தேதி முதல் அடைந்து சர்வ சுதந்திர பாத்தியமாய் கிரைய விற் கிரையங்களுக்கு யோக்கியமாய் ஆண்டனுபவித்து கொள்ள வேண்டியது. ஷை கிரைய சொத்தில் எவ்வித வில்லங்கமும் இல்லை இருந்தால் என் இதர சொத்தைக் கொண்டு தீர்த்துக் கொடுப்பேன். இனி ஷை கிரைய சொத்தில் எனக்காவது

M L

भारतीय गैर न्यायिक INDIA NON JUDICIAL

भारत

एक हजार रुपये ONE THOUSAND RUPEES

रु.1000 Rs.1000

सत्यमेव जयते

INDIA

தமிழ்நாடு तमिलनाडु TAMILNADU ரூ.1000/- D 25691

116 நைனா நீதிநரம்பு ஜெனிவனுக்கு காரியக் கிராமம் அலத்தூர் கேட்

4.2.09

J. Geetha
J.GEETHA
STAMP VENDOR
L.No: 10/2008/TRY
Pullampadi, Tamilnadu

--5--

என் பின்னிட்ட உள்வாரிசுக்களுக்காவது எவ்வித பாகப் பாத்திய உரிமையும் பின் தொடர்ச்சியும் அர்த்த ரீதியாக கிடையாது. இன்றே ஷை கிரைய சொத்தை உன் அனுபவ சுவாதீனத்தில் விட்டு பட்டா தங்கள் பெயருக்கு மாற்ற மனுவும் கொடுத்துள்ளேன். ஷை சொத்து பாடாலூர் கிராம பஞ்சாயத்து ஆலத்தூர் யூனியன் எல்லைக்குள்பட்டது

12. 20திருத்தங்கள்

B. Kafym

505 9
7 8

சொத்துவிபரம்

பெரம்பலூர் டி, அரிடி, செட்டிகுளம் சப்டி, குன்னம் வட்டம், பாடாலூர் மஜ்ரா திருவளக்குறிச்சி கிராமத்தில் நான் கடந்த 25.10.2007 ந் தேதி இரூர் கிராமத்திலிருக்கும் தங்கவேல் மகன் நாகராஜ் என்பவரிடமிருந்து ஷை சப்டியில் 1.4705/2007 எண்ணாக கிரையம் பெற்று கிரையபாத்தியப்படி அடைந்து என் பெயரில் 376 தனிப்பட்டாவில் கிடைத்து கிஸ்து செலுத்தி ஆண்டனுபவித்து வருகிற ஷை பாடாலூர் கிழக்கு கிராமத்திய அ.பு.சர்வே எண்

554/3A ஏக் 2.78 சென்ட்டு நிலம் ஷை நிலத்திற்கு புதிய சர்வே எண் 4/3A ஹெக்டேர் 1.12.5 ஏர்ஸில் கட்டுபட்டது. ஷை நிலத்திற்குண்டான மாமூலான வழிநடை பாதைபாத்தியம் உள்பட. இதற்கு ஆதரவாக நான் கிரையம் பெற்றுள்ள அசல் ஆவணத்தையும் தங்களிடம் கொடுத்துள்ளேன். ஷை சொத்தின் சந்தை மதிப்பு ரூபாய் இரண்டு லட்சத்து எட்டு ஆயிரத்து ஐந்து நாறு ஆகும்.

சாட்சிகள்

1.

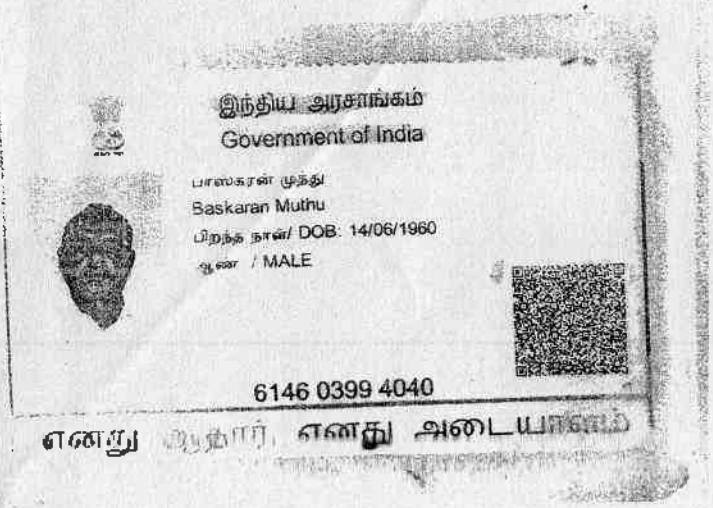
2.

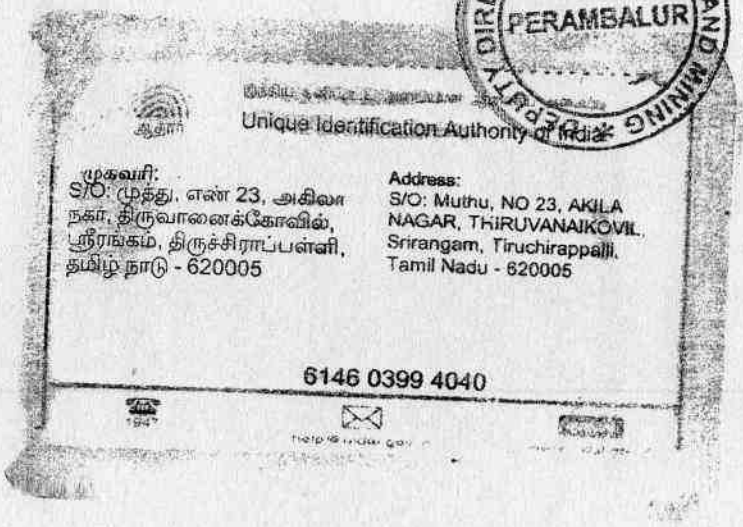
ஆவணம் அமைத்தவர்

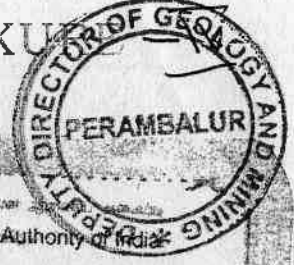
(N.KANNAN) Chettikulam L.No A49/AYR/2000

S.DHANASEKAR, M.Sc.,(Geo)
RQP/MAS/225/2011/A

ANNEXU


இந்திய அரசாங்கம்
Government of India
பாஸ்கரன் முத்து
Baskaran Muthu
பிறந்த நாள்/ DOB: 14/06/1960
ஆண் / MALE
6146 0399 4040
எனது ஆதார், எனது அடையாளம்





S.DHANASEKAR, M.Sc.,(Geo)
RQP/MAS/225/2011/A

ANNEXURE

DEPUTY DIRECTOR OF GEOLOGY AND MINING * PERAMBALUR

CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON TO PREPARE MINING PLANS

(Under Rule 22 C of Mineral Concession Rules 1960)

Shri S. DHANASEKAR resident of Old No.6, New No.8/3, Kullappan Street, Opp. Indian Bank Line, Omalur (P.O), Salem – 636 455, son of Shri A. SUNDARAM having given satisfactory evidence of his qualifications and experience is hereby granted recognition under Rule 22C of the Mineral Concession Rules, 1960 as a Qualified Person to prepare Mining Plans.

His registration number is **RQP/MAS/225/2011/A**

recognition is valid for a period of ten years ending 12.01.2021.

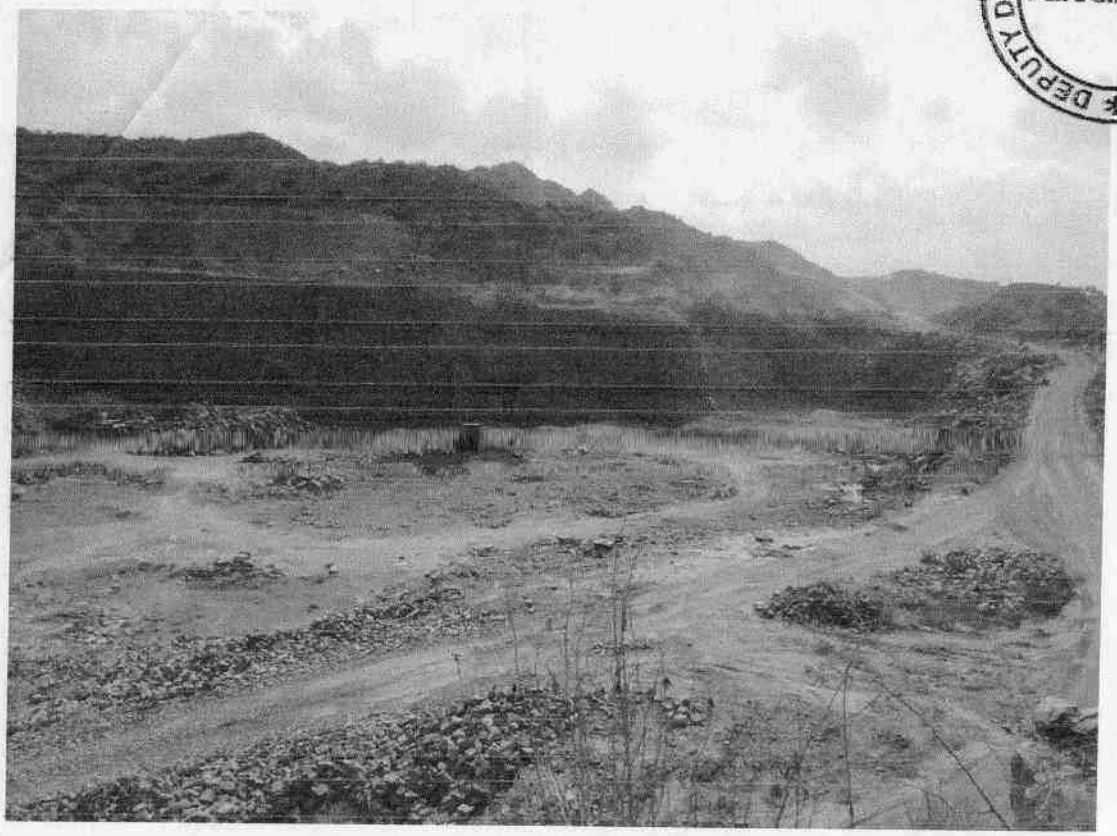
Regional Controller of Mines
Indian Bureau of Mines
Chennai Region

Place : Chennai
Date : 13.01.2011

S.DHANASEKAR, M.Sc.,(Geo)
RQP/MAS/225/2011/A

ANNEXURE- VI

GENERAL VIEW OF THE LEASE APPLIED AREA



S.DHANASEKAR, M.Sc.,(Geo)
RQP/MAS/225/2011/A

11° 6'54.99"N

11° 6'58.93"N

N

DEPUTY DIRECTOR OF GEOLOGY AND MINING * PERAMBALUR

PLATE NO-I

DATE OF SURVEY: 08.03.2019

APPLICANT:

Thiru.M.BASKARAN,
S/o.Thiru.MUTHU REDDIYAR,
THIRUVALLAKURUCHI,
ALATHUR TALUK,
PERAMBALUR DISTRICT.

INDEX

QUARRY LEASE AREA :

TOPO SHEET NO. : 58-I/16

LATITUDE : 11° 6'58.93"N to 11° 6'54.99"N

LONGITUDE : 78°50'21.64"E to 78°50'18.73"E

LOCATION:

EXTENT	: 2.13.0 Ha
S.F.NO	: 4/3A,4/4B,7/4A & 7/4B
VILLAGE	: PADALUR (EAST)
TALUK	: ALATHUR
DISTRICT	: PERAMBALUR

LOCATION PLAN

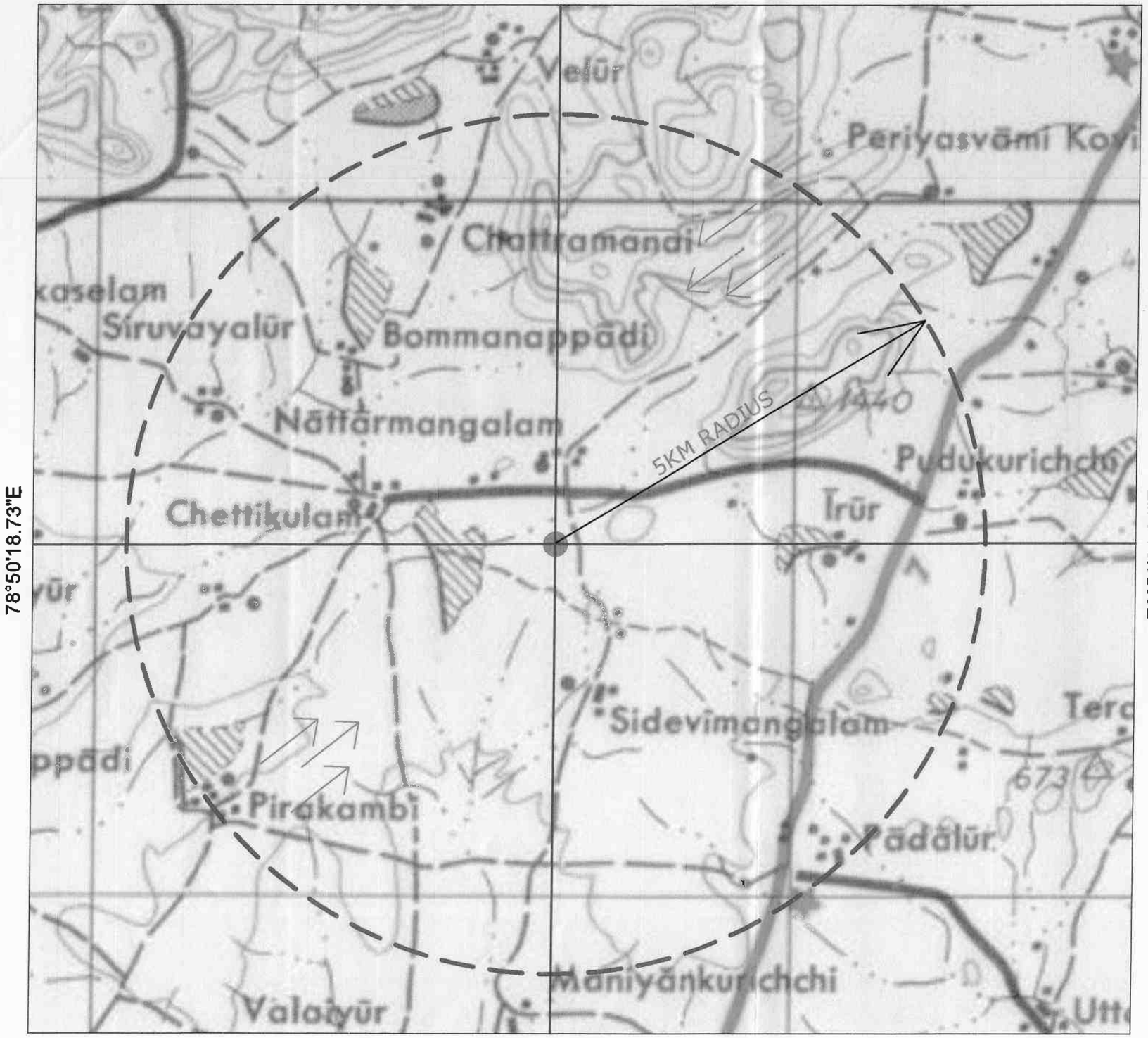
NOT TO SCALE

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

11° 6'54.99"N



78°50'18.73"E

78°50'21.64"E

11° 6'58.93"N

N

PLATE NO-IB

DATE OF SURVEY: 08.03.2019

APPLICANT:

Thiru.M.BASKARAN,
S/o.Thiru.MUTHU REDDIYAR,
THIRUVALLAKUDICHI,
ALATHUR TALUK,
PERAMBALUR DISTRICT.

DEPUTY DIRECTOR OF GEOLOGY AND MINING * PERAMBALUR

INDEX

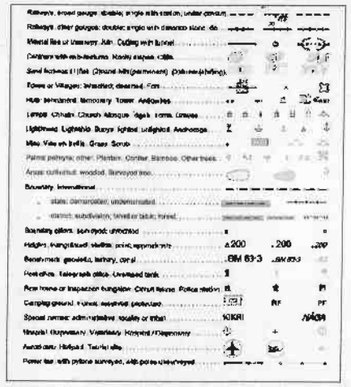
QUARRY LEASE AREA :

5 KM RADIUS

TOPO SHEET NO. : 58-I/16

LATITUDE : 11° 6'58.93"N to 11° 6'54.99"N

LONGITUDE : 78°50'21.64"E to 78°50'18.73"E



LOCATION:

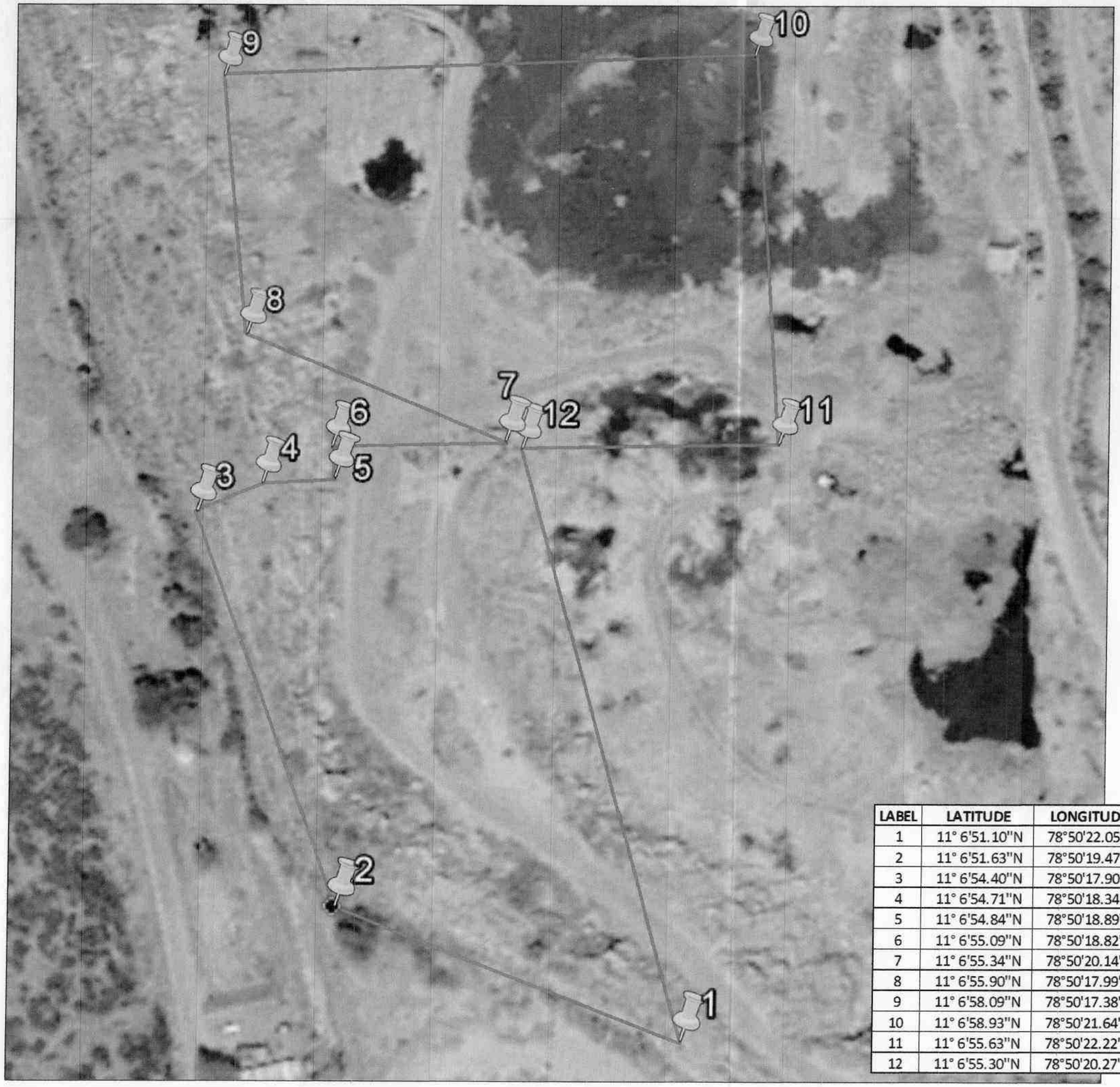
EXTENT	: 2.13.0 Ha
S.F.NO	: 4/3A,4/4B,7/4A & 7/4B
VILLAGE	: PADALUR (EAST)
TALUK	: ALATHUR
DISTRICT	: PERAMBALUR

TOPO SHEET MAP
OF THE LEASE AREA
NOT TO SCALE

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A



LABEL	LATITUDE	LONGITUDE
1	11° 6'51.10"N	78°50'22.05"E
2	11° 6'51.63"N	78°50'19.47"E
3	11° 6'54.40"N	78°50'17.90"E
4	11° 6'54.71"N	78°50'18.34"E
5	11° 6'54.84"N	78°50'18.89"E
6	11° 6'55.09"N	78°50'18.82"E
7	11° 6'55.34"N	78°50'20.14"E
8	11° 6'55.90"N	78°50'17.99"E
9	11° 6'58.09"N	78°50'17.38"E
10	11° 6'58.93"N	78°50'21.64"E
11	11° 6'55.63"N	78°50'22.22"E
12	11° 6'55.30"N	78°50'20.27"E

N

DEPUTY DIRECTOR OF GEOLOGY AND MINING * PERAMBALUR

PLATE NO-IC

DATE OF SURVEY: 08.03.2019

APPLICANT:

Thiru.M.BASKARAN,
S/o.Thiru.MUTHU REDDIYAR,
THIRUVALLAKURUCHI,
ALATHUR TALUK,
PERAMBALUR DISTRICT.

INDEX

QUARRY LEASE AREA

TOPO SHEET NO. : 58-I/16

LATITUDE : 11° 6'58.93"N to 11° 6'54.99"N

LONGITUDE : 78°50'21.64"E to 78°50'18.73"E

LOCATION:

EXTENT : 2.13.0 Ha
S.F.NO : 4/3A,4/4B,7/4A & 7/4B
VILLAGE : PADALUR (EAST)
TALUK : ALATHUR
DISTRICT : PERAMBALUR

SATELLITE IMAGE
(LEASE AREA)
NOT TO SCALE

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

11° 6'58.93"N
78°50'21.64"E

11° 6'54.99"N
78°50'18.73"E

11° 6'55.63"N
78°50'22.22"E

11° 6'51.10"N
78°50'22.05"E

N
W E
S

DEPUTY DIRECTOR OF GEOLOGY AND MINING * PERAMBALUR

PLATE NO-ID

DATE OF SURVEY: 08.03.2019

APPLICANT:

Thiru.M.BASKARAN,
S/o.Thiru.MUTHU REDDIYAR,
THIRUVALLAKURUCHI,
ALATHUR TALUK,
PERAMBALUR DISTRICT.

INDEX

QUARRY LEASE AREA

500m RADIUS

300M RADIUS

TOPO SHEET NO. : 58-I/16

LATITUDE : 11° 6'58.93"N to 11° 6'54.99"N

LONGITUDE : 78°50'21.64"E to 78°50'18.73"E

LOCATION:

EXTENT : 2.13.0 Ha
S.F.NO : 4/3A,4/4B,7/4A & 7/4B
VILLAGE : PADALUR (EAST)
TALUK : ALATHUR
DISTRICT : PERAMBALUR

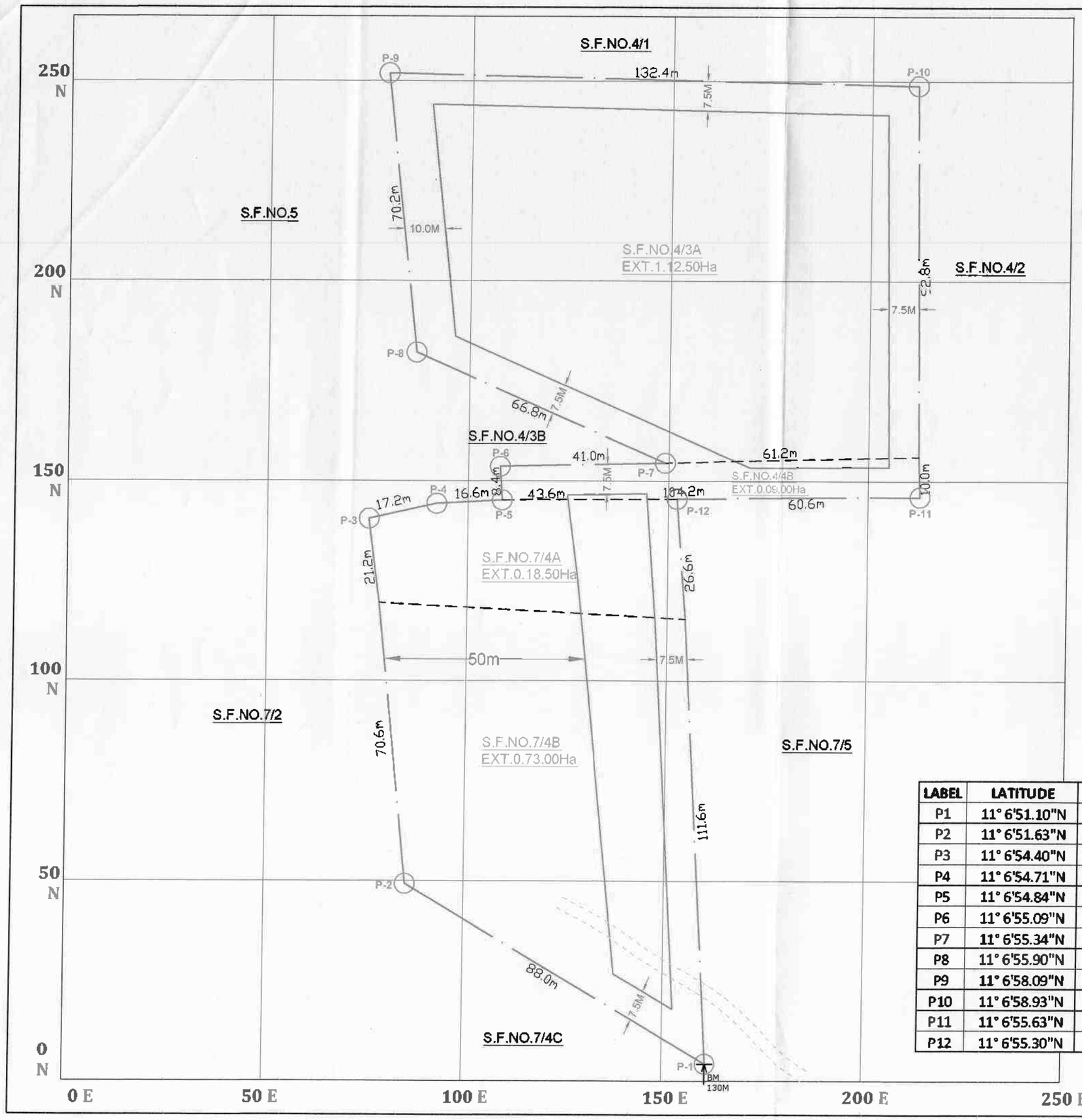
SATELLITE IMAGE
(500m RADIUS)

SCALE 1 : 5000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A



LABEL	LATITUDE	LONGITUDE
P1	11° 6'51.10"N	78°50'22.05"E
P2	11° 6'51.63"N	78°50'19.47"E
P3	11° 6'54.40"N	78°50'17.90"E
P4	11° 6'54.71"N	78°50'18.34"E
P5	11° 6'54.84"N	78°50'18.89"E
P6	11° 6'55.09"N	78°50'18.82"E
P7	11° 6'55.34"N	78°50'20.14"E
P8	11° 6'55.90"N	78°50'17.99"E
P9	11° 6'58.09"N	78°50'17.38"E
P10	11° 6'58.93"N	78°50'21.64"E
P11	11° 6'55.63"N	78°50'22.22"E
P12	11° 6'55.30"N	78°50'20.27"E

DEPUTY DIRECTOR OF GEOLOGY AND MINING * PERAMBALUR

PLATE NO-II

DATE OF SURVEY: 08.03.2019

APPLICANT:

Thiru.M.BASKARAN,
S/o.Thiru.MUTHU REDDIYAR,
THIRUVALLAKURUCHI,
ALATHUR TALUK,
PERAMBALUR DISTRICT.

INDEX

- QUARRY LEASE BOUNDARY
- 7.5m,10.0m & 50.0m SAFETY DISTANCE
- BENCH MARK (BM 130M)
- APPROACH ROAD
- BOUNDARY PILLARS (P-1)

LOCATION:

EXTENT : 2.13.0 Ha
S.F.NO : 4/3A,4/4B,7/4A & 7/4B
VILLAGE : PADALUR (EAST)
TALUK : ALATHUR
DISTRICT : PERAMBALUR

MINE LEASE PLAN

SCALE 1 : 1000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

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RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

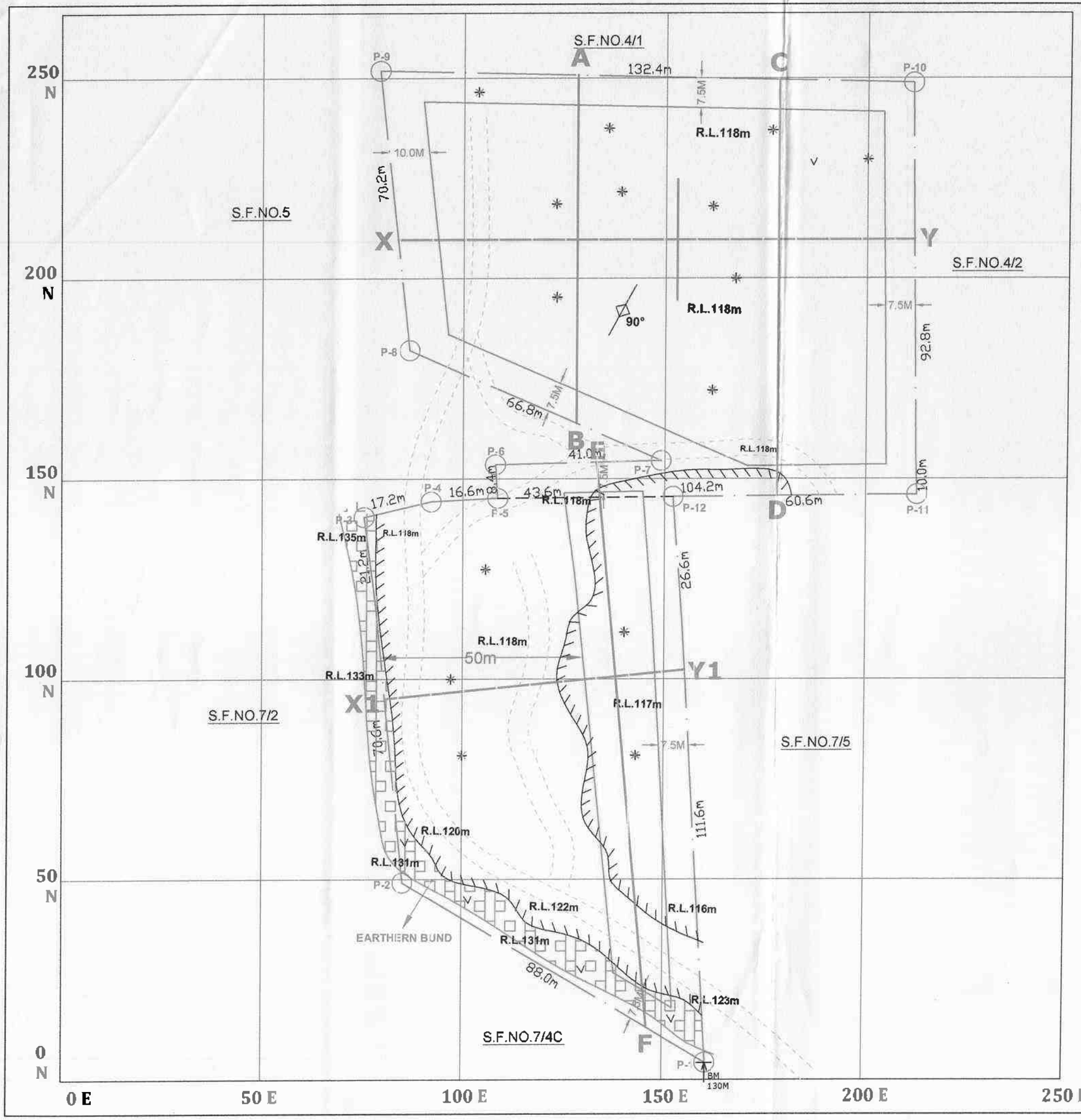

PLATE NO-III

DATE OF SURVEY: 08.03.2019

APPLICANT:

Thiru.M.BASKARAN,
S/o.Thiru.MUTHU REDDIYAR,
THIRUVALLAKURUCHI,
ALATHUR TALUK,
PERAMBALUR DISTRICT.

DIRECTOR OF GEOLOGY AND MINING PERAMBALUR

INDEX

QUARRY LEASE BOUNDARY	
7.5m,10.0m & 50.0m SAFETY DISTANCE	
TOPSOIL	V V V
ROUGH STONE	* * *
WORKING PIT	
STRIKE & DIP	90°
BENCH MARK	BM 130M
MINE ROAD	
BOUNDARY PILLARS	P-1
EARTHERN BUND	

LOCATION:

EXTENT	: 2.13.0 Ha
S.F.NO	: 4/3A,4/4B,7/4A & 7/4B
VILLAGE	: PADALUR (EAST)
TALUK	: ALATHUR
DISTRICT	: PERAMBALUR

SURFACE AND GEOLOGICAL PLAN

SCALE 1 : 1000

Prepared By:

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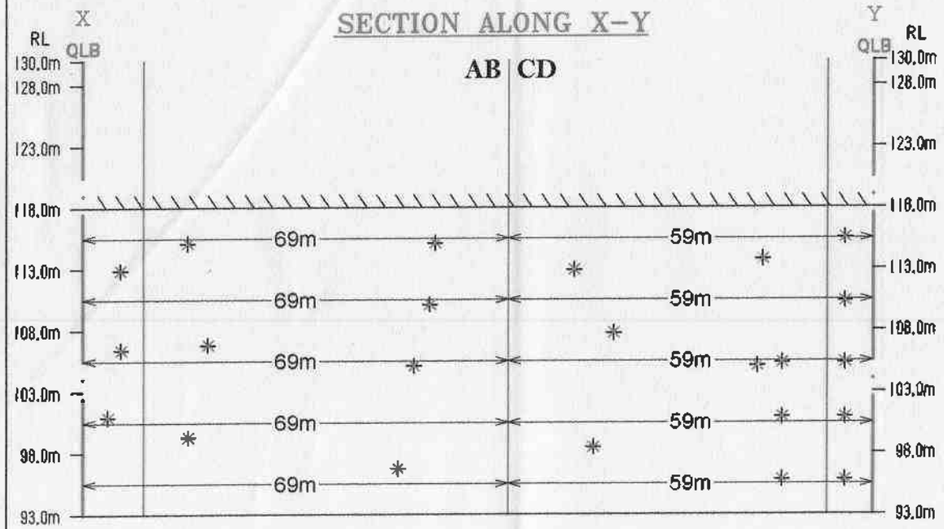
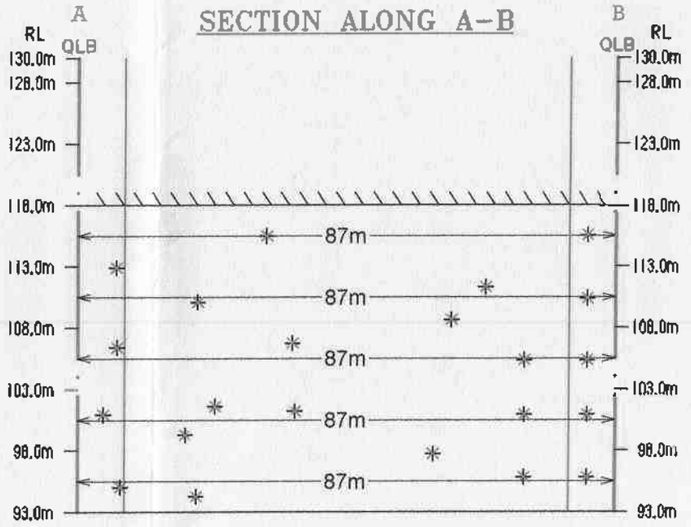
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

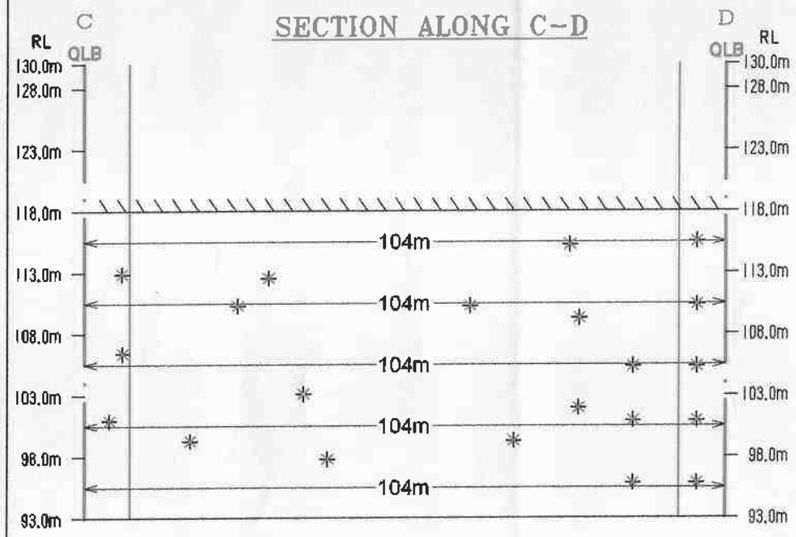
SECTION ALONG X-Y



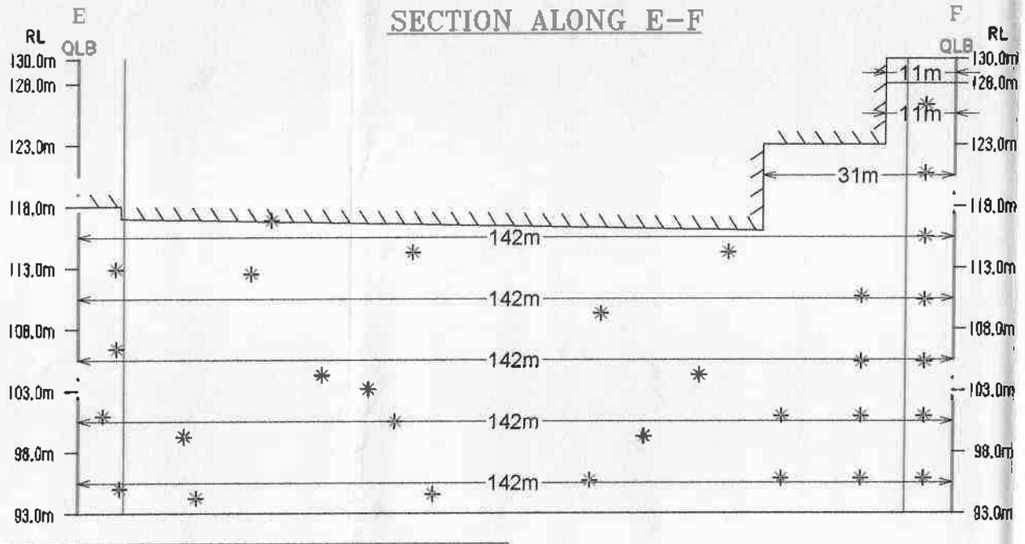
SECTION ALONG A-B



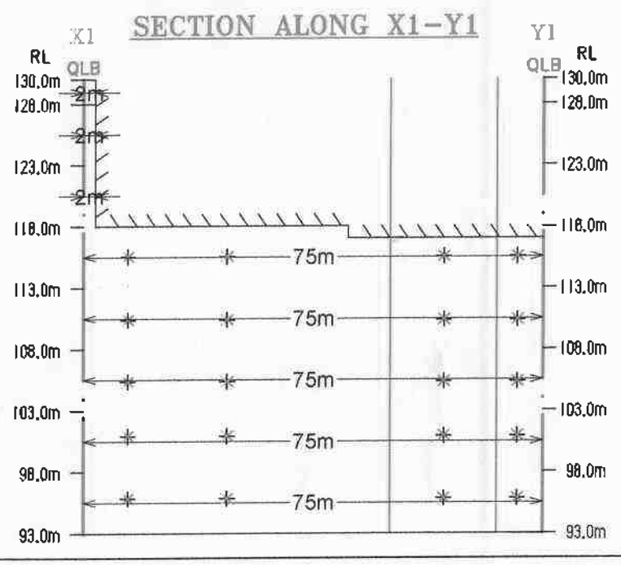
SECTION ALONG C-D



SECTION ALONG E-F



SECTION ALONG X1-Y1



GEOLOGICAL RESERVES								
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in M3	Mineable Reserves in m3 @ 95%	Mine waste in m3 @ 5%	TOP SOIL
XY-AB	IV	69	87	5	30015	28514	1501	-
	V	69	87	5	30015	28514	1501	-
	VI	69	87	5	30015	28514	1501	-
	VII	69	87	5	30015	28514	1501	-
	VIII	69	87	5	30015	28514	1501	-
XY-CD	IV	59	104	5	30680	29146	1534	-
	V	59	104	5	30680	29146	1534	-
	VI	59	104	5	30680	29146	1534	-
	VII	59	104	5	30680	29146	1534	-
	VIII	59	104	5	30680	29146	1534	-
X1Y1-EF	I	2	11	2				44
	II	2	11	5	110	105	5	-
	III	2	31	5	310	295	15	-
	IV	75	142	5	53250	50588	2662	-
	V	75	142	5	53250	50588	2662	-
	VI	75	142	5	53250	50588	2662	-
	VII	75	142	5	53250	50588	2662	-
	VIII	75	142	5	53250	50588	2662	-
TOTAL					570145	541640	28505	44

DEPUTY DIRECTOR OF GEOLOGY AND MINING * PERAMBALUR

PLATE NO-III-A

DATE OF SURVEY: 08.03.2019

APPLICANT:

Thiru.M.BASKARAN,
S/o.Thiru.MUTHU REDDIYAR,
THIRUVALLAKURUCHI,
ALATHUR TALUK,
PERAMBALUR DISTRICT.

INDEX

QUARRY LEASE BOUNDARY

7.5m,10.0m & 50.0m SAFETY DISTANCE

TOPSOIL

ROUGH STONE

LOCATION:

EXTENT : 2.13.0 Ha
S.F.NO : 4/3A,4/4B,7/4A & 7/4B
VILLAGE : PADALUR (EAST)
TALUK : ALATHUR
DISTRICT : PERAMBALUR

SURFACE AND GEOLOGICAL SECTIONS

SCALE:- HOR 1 : 1000
VER 1 : 500

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

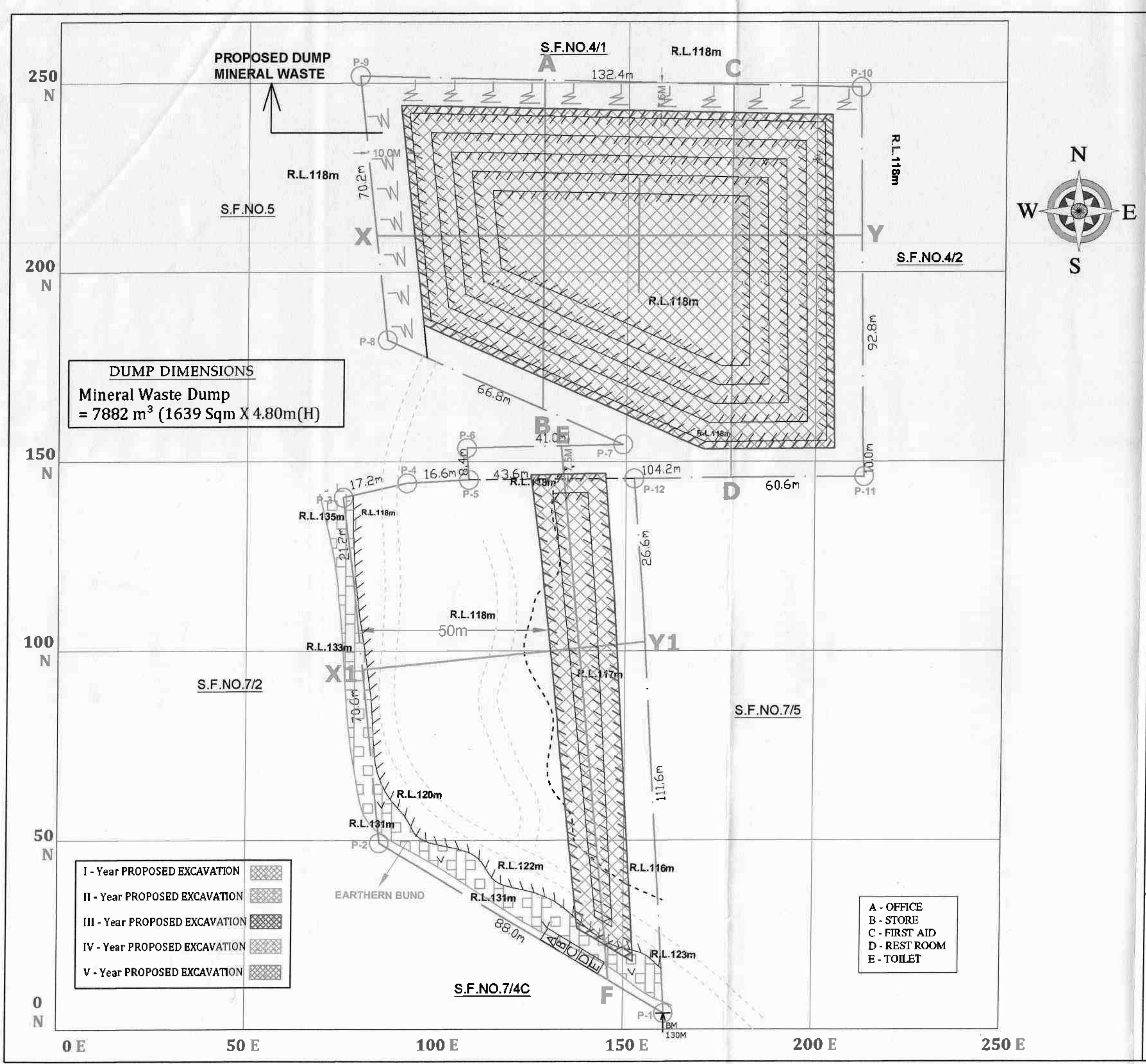

PROPOSED DUMP
MINERAL WASTE
S.F.NO.4/1
R.L.118m
A
C
132.4m
P-9
P-10
R.L.118m
S.F.NO.5
X
Y
R.L.118m
S.F.NO.4/2
70.2m
10.0M
92.8m
P-8
66.8m
B
E
41.0m
P-6
P-7
DUMP DIMENSIONS
Mineral Waste Dump
= 7882 m³ (1639 Sqm X 4.80m(H)
17.2m
P-4
16.6m
P-5
43.6m
104.2m
P-12
60.6m
D
10.0m
P-11
R.L.135m
R.L.118m
21.2m
26.6m
R.L.118m
50m
R.L.133m
Y1
X1
R.L.117m
S.F.NO.7/2
70.6m
S.F.NO.7/5
111.6m
R.L.120m
R.L.131m
P-2
R.L.122m
R.L.116m
EARTHERN BUND
R.L.131m
88.0m
R.L.123m
I - Year PROPOSED EXCAVATION
II - Year PROPOSED EXCAVATION
III - Year PROPOSED EXCAVATION
IV - Year PROPOSED EXCAVATION
V - Year PROPOSED EXCAVATION
A - OFFICE
B - STORE
C - FIRST AID
D - REST ROOM
E - TOILET
S.F.NO.7/4C
F
P-1
BM 130M
250 N
200 N
150 N
100 N
50 N
0 N
0 E
50 E
100 E
150 E
200 E
250 E
N
S
E
W

PLATE NO-IV

DATE OF SURVEY: 08.03.2019

APPLICANT:

Thiru.M.BASKARAN,
S/o.Thiru.MUTHU REDDIYAR,
THIRUVALLAKURUCHI,
ALATHUR TALUK,
PERAMBALUR DISTRICT.

INDEX

QUARRY LEASE BOUNDARY	
7.5m,10.0m & 50.0m SAFETY DISTANCE	
TOPSOIL	V V V
ROUGH STONE	* * *
WORKING PIT	
BENCH MARK	BM 130M
MINE ROAD	
BOUNDARY PILLARS	P-1
EARTHERN BUND	
PROPOSED DUMP	
ULTIMATE PIT LIMIT	

LOCATION:

EXTENT	: 2.13.0 Ha
S.F.NO	: 4/3A,4/4B,7/4A & 7/4B
VILLAGE	: PADALUR (EAST)
TALUK	: ALATHUR
DISTRICT	: PERAMBALUR

YEARWISE DEVELOPMENT & PRODUCTION PLAN

SCALE 1 : 1000

Prepared By:

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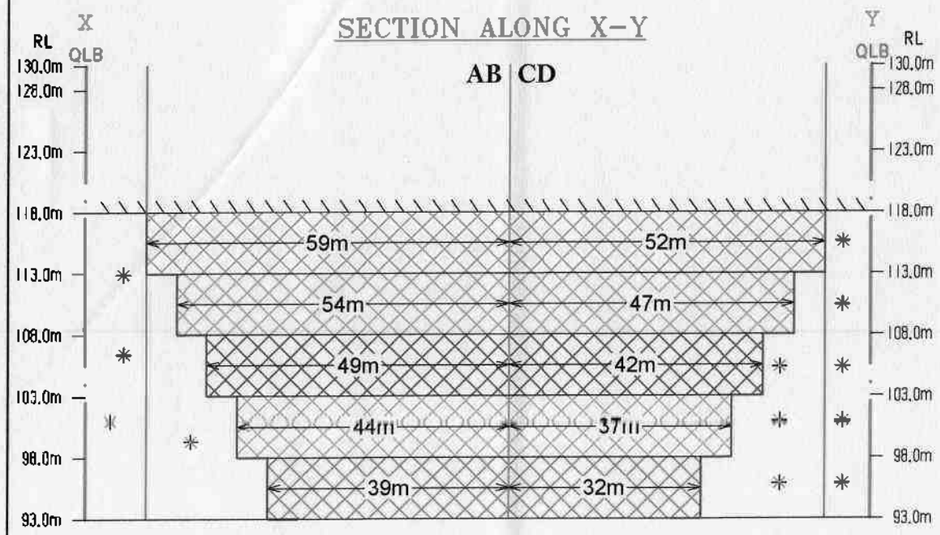
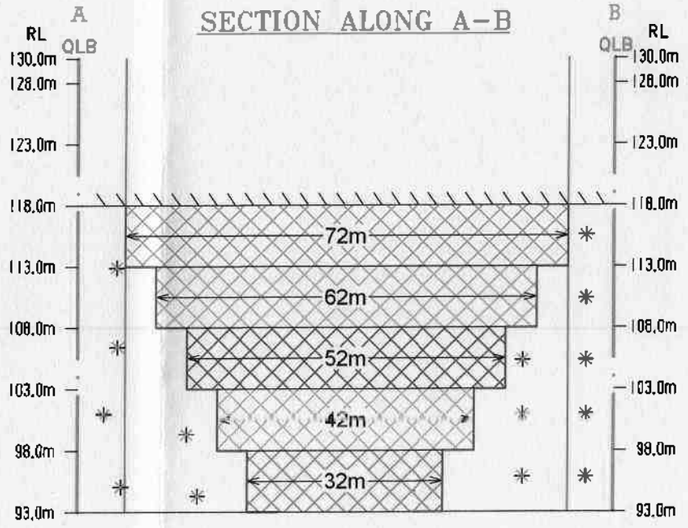
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

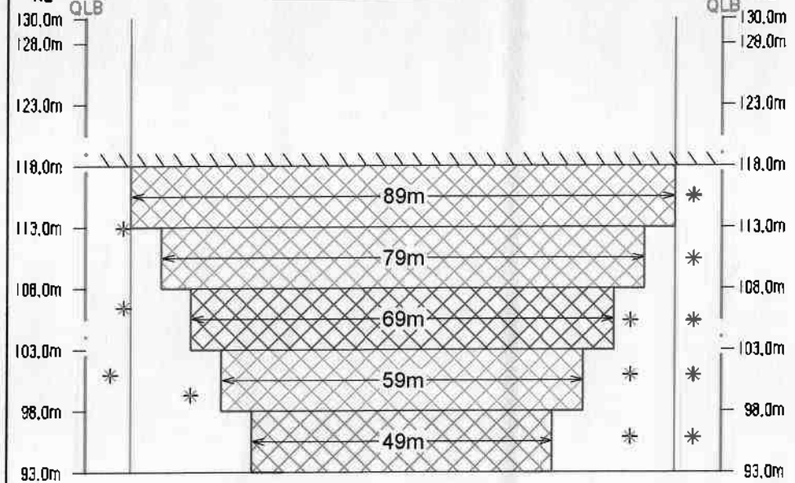
SECTION ALONG X-Y



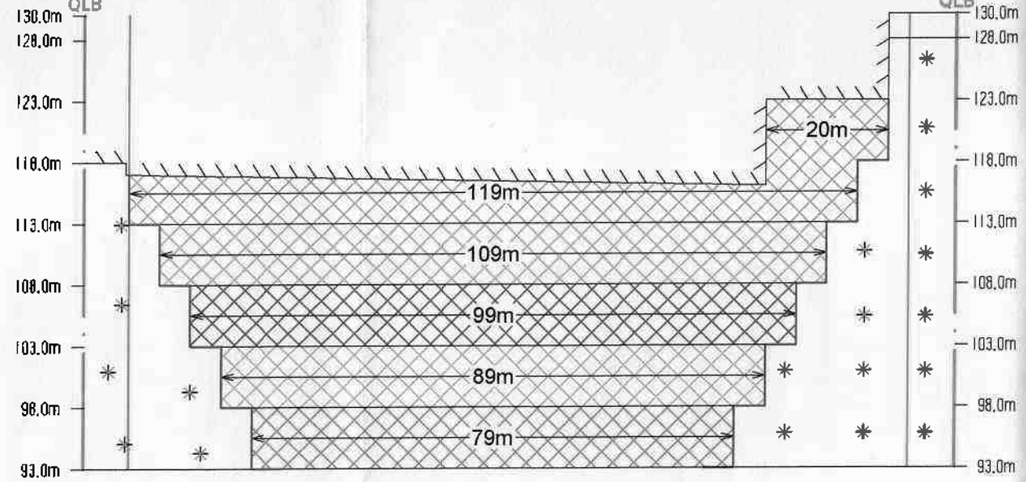
SECTION ALONG A-B



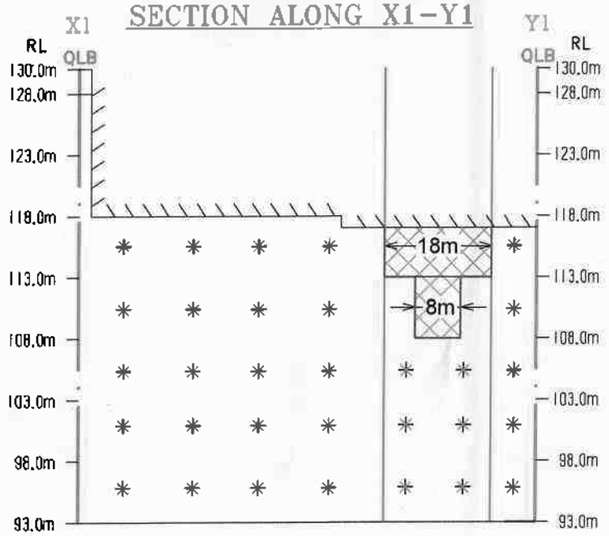
SECTION ALONG C-D



SECTION ALONG E-F



SECTION ALONG X1-Y1



YEARWISE PRODUCTION AND DEVELOPMENT

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M3	RESERVES in m3 @ 95%	REJECT in m3 @ 5%
I-YEAR	IV	59	72	5	21240	20178	1062
	IV	52	89	5	23140	21983	1157
	III	1	20	5	100	95	5
	IV	18	119	5	10710	10175	535
II-YEAR	V	54	62	5	16740	15903	837
	V	47	79	5	18565	17637	928
	V	8	109	5	4360	4142	218
III-YEAR	VI	49	52	5	12740	12103	637
	VI	42	69	5	14490	13766	724
	VI	1	99	5	495	470	25
IV-YEAR	VII	44	42	5	9240	8778	462
	VII	37	59	5	10915	10369	546
	VII	1	89	5	445	423	22
V-YEAR	VIII	39	32	5	6240	5928	312
	VIII	32	49	5	7840	7448	392
	VIII	1	79	5	395	375	20
TOTAL					157655	149773	7882

I - Year PROPOSED EXCAVATION
II - Year PROPOSED EXCAVATION
III - Year PROPOSED EXCAVATION
IV - Year PROPOSED EXCAVATION
V - Year PROPOSED EXCAVATION

DEPUTY DIRECTOR OF GEOLOGY AND MINING * PERAMBALUR

PLATE NO-IV-A

DATE OF SURVEY: 08.03.2019

APPLICANT:

Thiru.M.BASKARAN,
S/o.Thiru.MUTHU REDDIYAR,
THIRUVALLAKURUCHI,
ALATHUR TALUK,
PERAMBALUR DISTRICT.

INDEX

QUARRY LEASE BOUNDARY

7.5m,10.0m & 50.0m SAFETY DISTANCE

TOPSOIL

ROUGH STONE

ULTIMATE PIT SLOPE

LOCATION:

EXTENT	: 2.13.0 Ha
S.F.NO	: 4/3A,4/4B,7/4A & 7/4B
VILLAGE	: PADALUR (EAST)
TALUK	: ALATHUR
DISTRICT	: PERAMBALUR

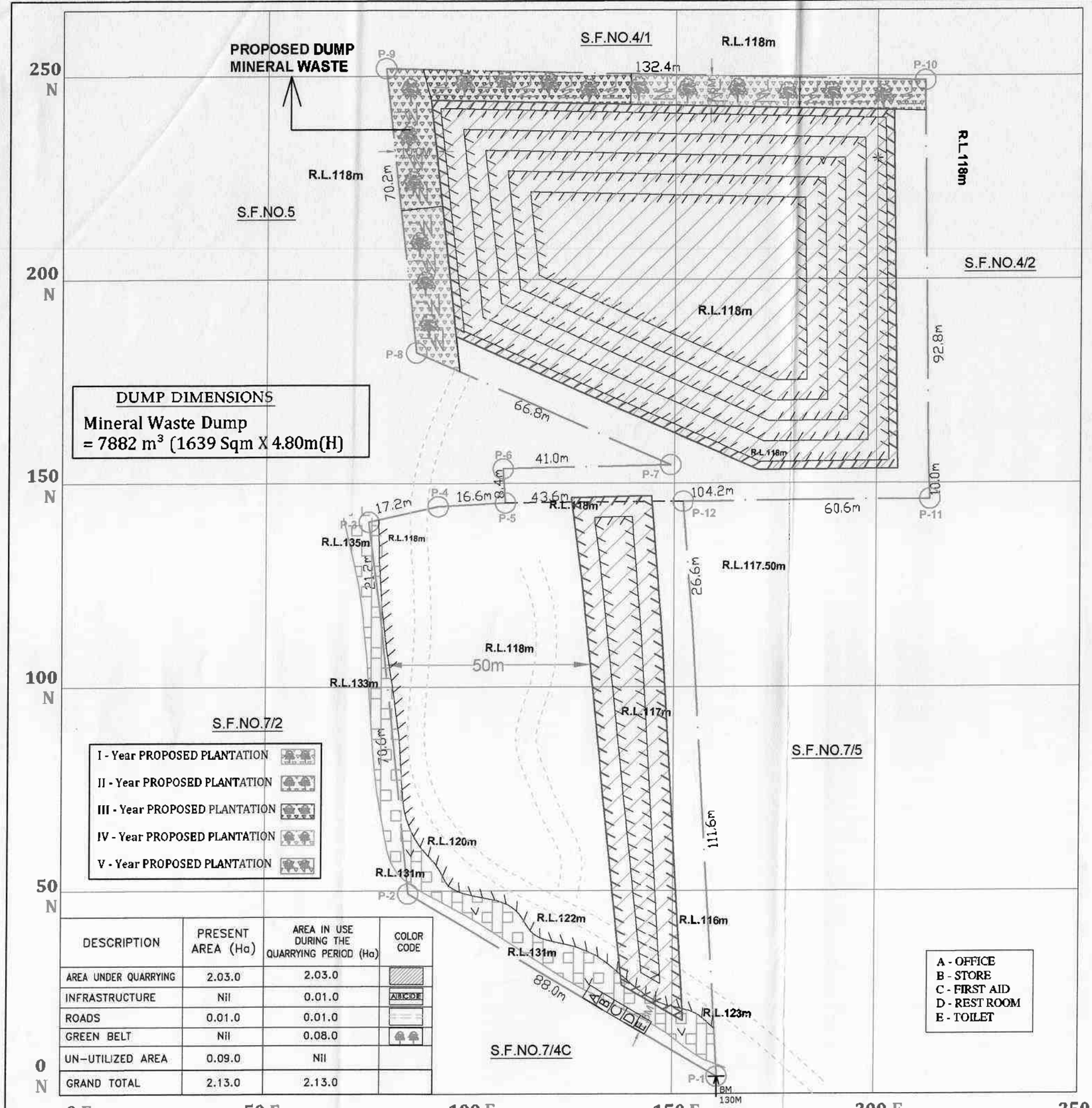
YEARWISE DEVELOPMENT & PRODUCTION SECTIONS

SECTION HOR 1 : 1000
VER 1 : 500

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A



DUMP DIMENSIONS

Mineral Waste Dump
= 7882 m^3 (1639 Sqm X 4.80m(H)

DESCRIPTION	PRESENT AREA (Ha)	AREA IN USE DURING THE QUARRYING PERIOD (Ha)	COLOR CODE
AREA UNDER QUARRYING	2.03.0	2.03.0	
INFRASTRUCTURE	Nil	0.01.0	ABCDE
ROADS	0.01.0	0.01.0	
GREEN BELT	Nil	0.08.0	
UN-UTILIZED AREA	0.09.0	Nil	
GRAND TOTAL	2.13.0	2.13.0	

PLATE NO-V

DATE OF SURVEY: 08.03.2019

APPLICANT:

Thiru.M.BASKARAN,
S/o.Thiru.MUTHU REDDIYAR,
THIRUVALLAKURICHI,
ALATHUR TALUK,
PERAMBALUR DISTRICT.

DIRECTOR OF GEOLOGY & MINING * PERAMBALUR

INDEX

- QUARRY LEASE BOUNDARY
- 7.5m,10.0m & 50.0m SAFETY DISTANCE
- TOPSOIL
- ROUGH STONE
- WORKING PIT
- BENCH MARK
- MINE ROAD
- BOUNDARY PILLARS
- EARTHERN BUND
- PROPOSED DUMP
- MINE LAYOUT

LOCATION:

EXTENT	: 2.13.0 Ha
S.F.NO	: 4/3A,4/4B,7/4A & 7/4B
VILLAGE	: PADALUR (EAST)
TALUK	: ALATHUR
DISTRICT	: PERAMBALUR

MINE LAYOUT PLAN AND LAND USE PATTERN

SCALE 1 : 1000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

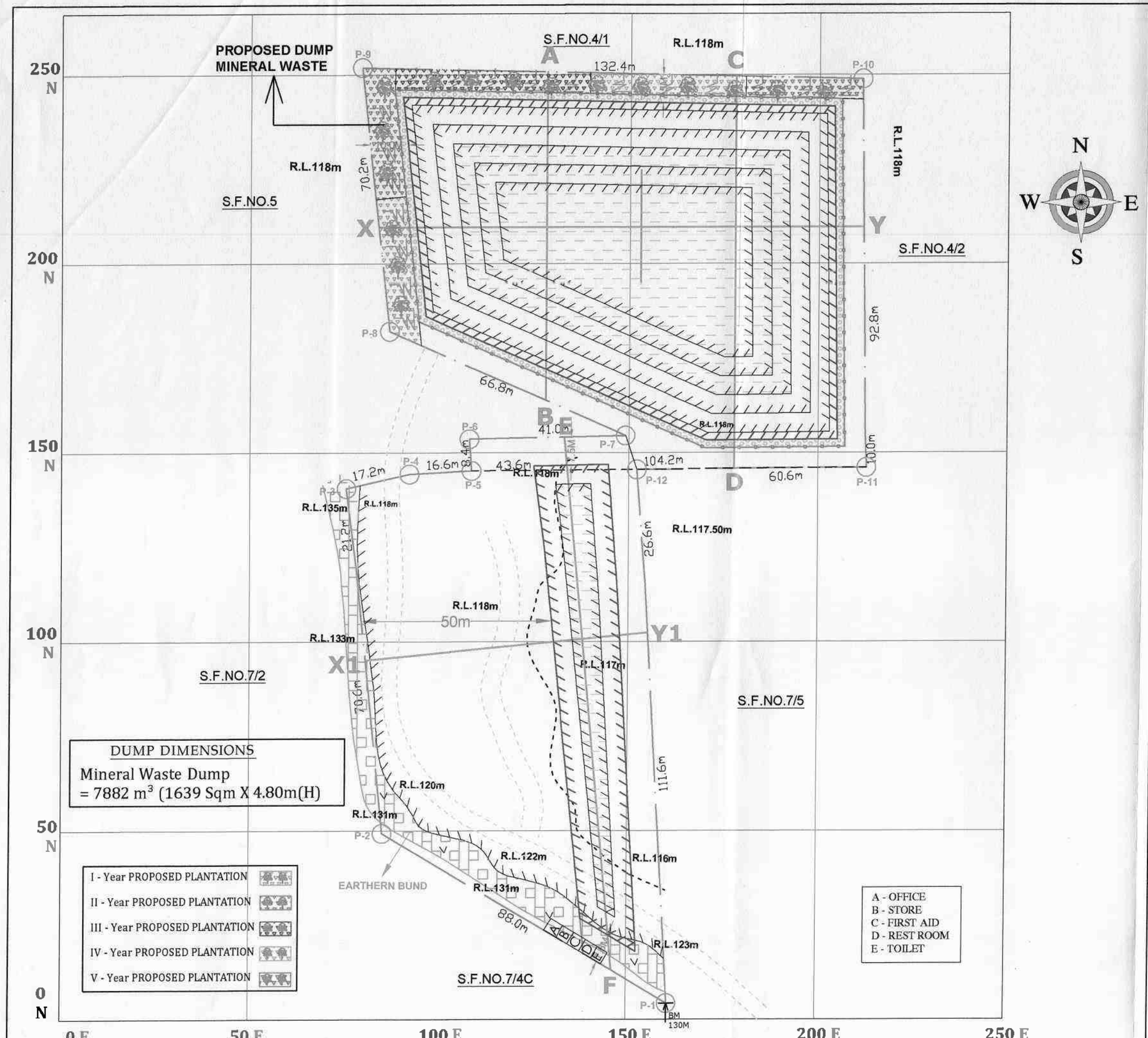
PLATE NO-VI

DATE OF SURVEY: 08.03.2019

APPLICANT

Thiru.M.BASKARAN
S/o.Thiru.MUTHU REDDIYAR,
THIRUVALLAKURUCHI,
ALATHUR TALUK,
PERAMBALUR DISTRICT.

DIRECTOR OF GEOLOGY AND MINING * PERAMBALUR



DUMP DIMENSIONS

Mineral Waste Dump
= 7882 m^3 (1639 Sqm X 4.80m(H)

I - Year PROPOSED PLANTATION
II - Year PROPOSED PLANTATION
III - Year PROPOSED PLANTATION
IV - Year PROPOSED PLANTATION
V - Year PROPOSED PLANTATION

A - OFFICE
B - STORE
C - FIRST AID
D - REST ROOM
E - TOILET

INDEX

- QUARRY LEASE BOUNDARY
- 7.5m,10.0m & 50.0m SAFETY DISTANCE
- TOPSOIL
- ROUGH STONE
- WORKING PIT
- BENCH MARK
- MINE ROAD
- BOUNDARY PILLARS
- EARTHERN BUND
- PROPOSED DUMP
- FENCING
- PARAPET WALL
- PROPOSED WATER STORAGE
- ULTIMATE PIT LIMIT

LOCATION:

EXTENT	: 2.13.0 Ha
S.F.NO	: 4/3A,4/4B,7/4A & 7/4B
VILLAGE	: PADALUR (EAST)
TALUK	: ALATHUR
DISTRICT	: PERAMBALUR

CONCEPTUAL / FINAL MINE CLOSURE PLAN

SCALE 1 : 1000

Prepared By:

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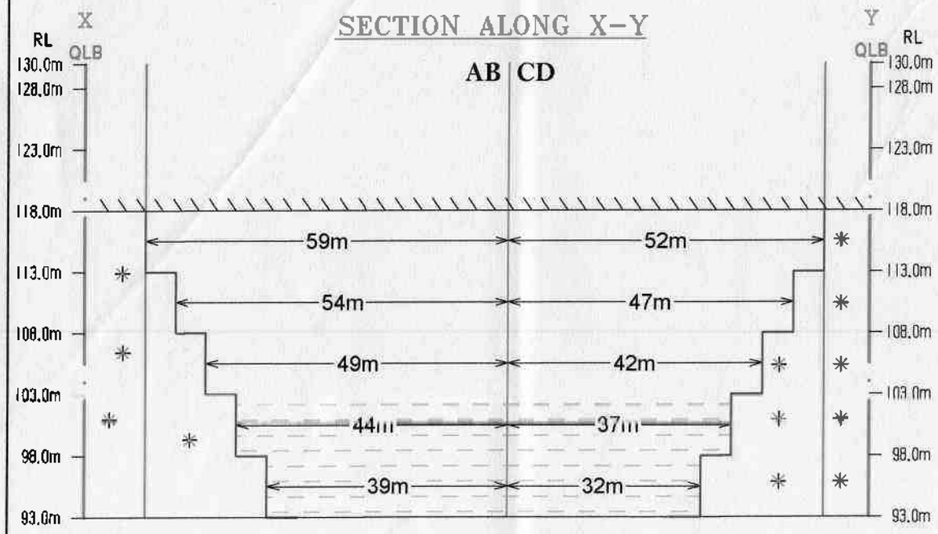
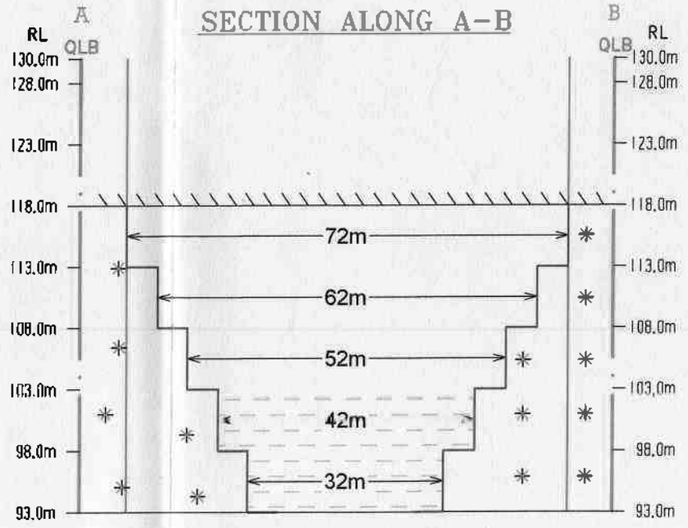
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

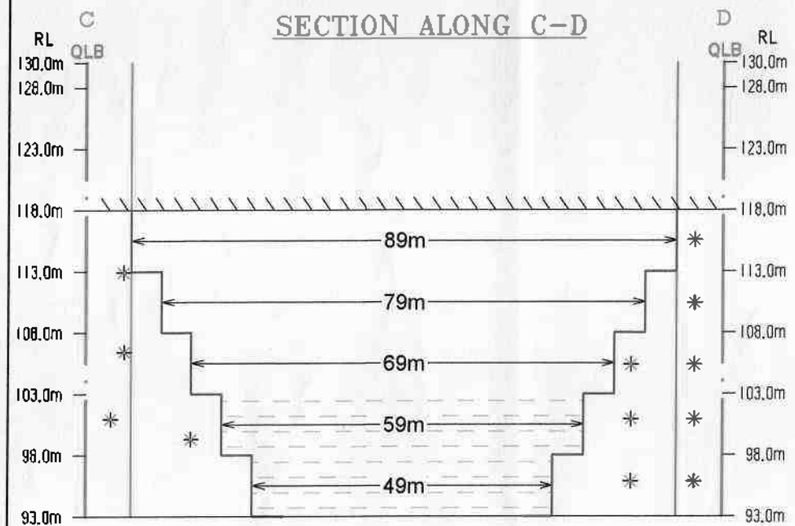
SECTION ALONG X-Y



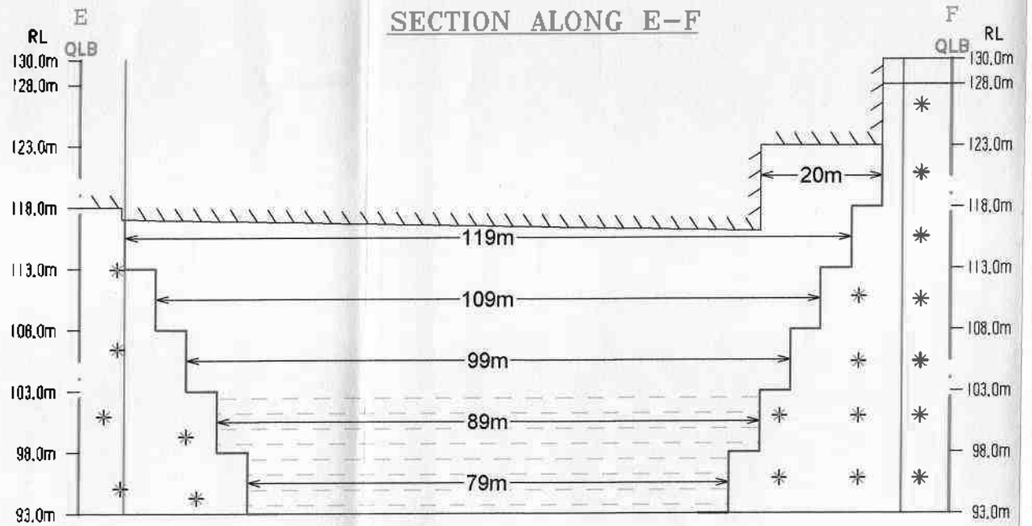
SECTION ALONG A-B



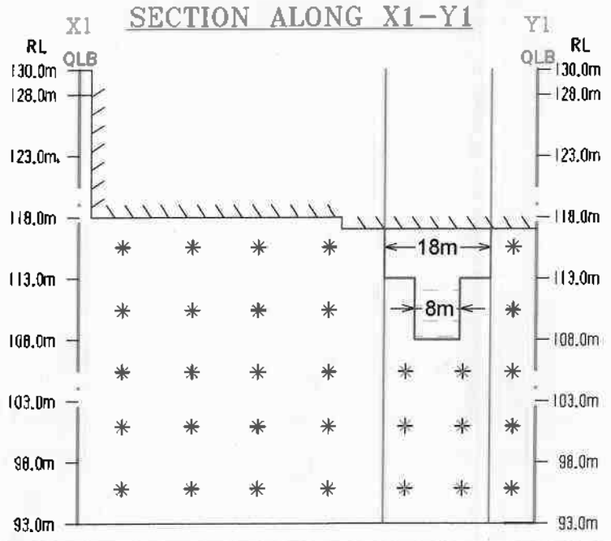
SECTION ALONG C-D



SECTION ALONG E-F



SECTION ALONG X1-Y1



MINEABLE RESERVES

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in M3	Reserves in m3 @ 95%	Mine waste in m3 @ 5%
XY-AB	IV	59	72	5	21240	20178	1062
	V	54	62	5	16740	15903	837
	VI	49	52	5	12740	12103	637
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	VII	37	59	5	10915	10369	546
	VIII	32	49	5	7840	7448	392
X1Y1-EF	III	1	20	5	100	95	5
	IV	18	119	5	10710	10175	535
	V	8	109	5	4360	4142	218
	VI	1	99	5	495	470	25
	VII	1	89	5	445	423	22
	VIII	1	79	5	395	375	20
TOTAL					157655	149773	7882

ULTIMATE PIT DIMENSION

Section	Bench	Length in (m)	Width in (m)	Depth in (m)
X1Y1-EF	III	1	20	5
	IV	18	119	5
	V	8	109	5
	VI	1	99	5
	VII	1	89	5
	VIII	1	79	5

DEPUTY DIRECTOR OF GEOLOGY AND MINING * PERAMBALUR

PLATE NO-VI-A

DATE OF SURVEY: 08.03.2019

APPLICANT:

Thiru.M.BASKARAN,
S/o.Thiru.MUTHU REDDIYAR,
THIRUVALLAKURUCHI,
ALATHUR TALUK,
PERAMBALUR DISTRICT.

INDEX

- QUARRY LEASE BOUNDARY
- 7.5m,10.0m & 50.0m SAFETY DISTANCE
- TOPSOIL
- ROUGH STONE
- ULTIMATE PIT SLOPE
- PROPOSED WATER STORAGE

LOCATION:

EXTENT	: 2.13.0 Ha
S.F.NO	: 4/3A,4/4B,7/4A & 7/4B
VILLAGE	: PADALUR (EAST)
TALUK	: ALATHUR
DISTRICT	: PERAMBALUR

CONCEPTUAL / FINAL MINE CLOSURE SECTIONS

SECTION HOR 1 : 1000
VER 1 : 500

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

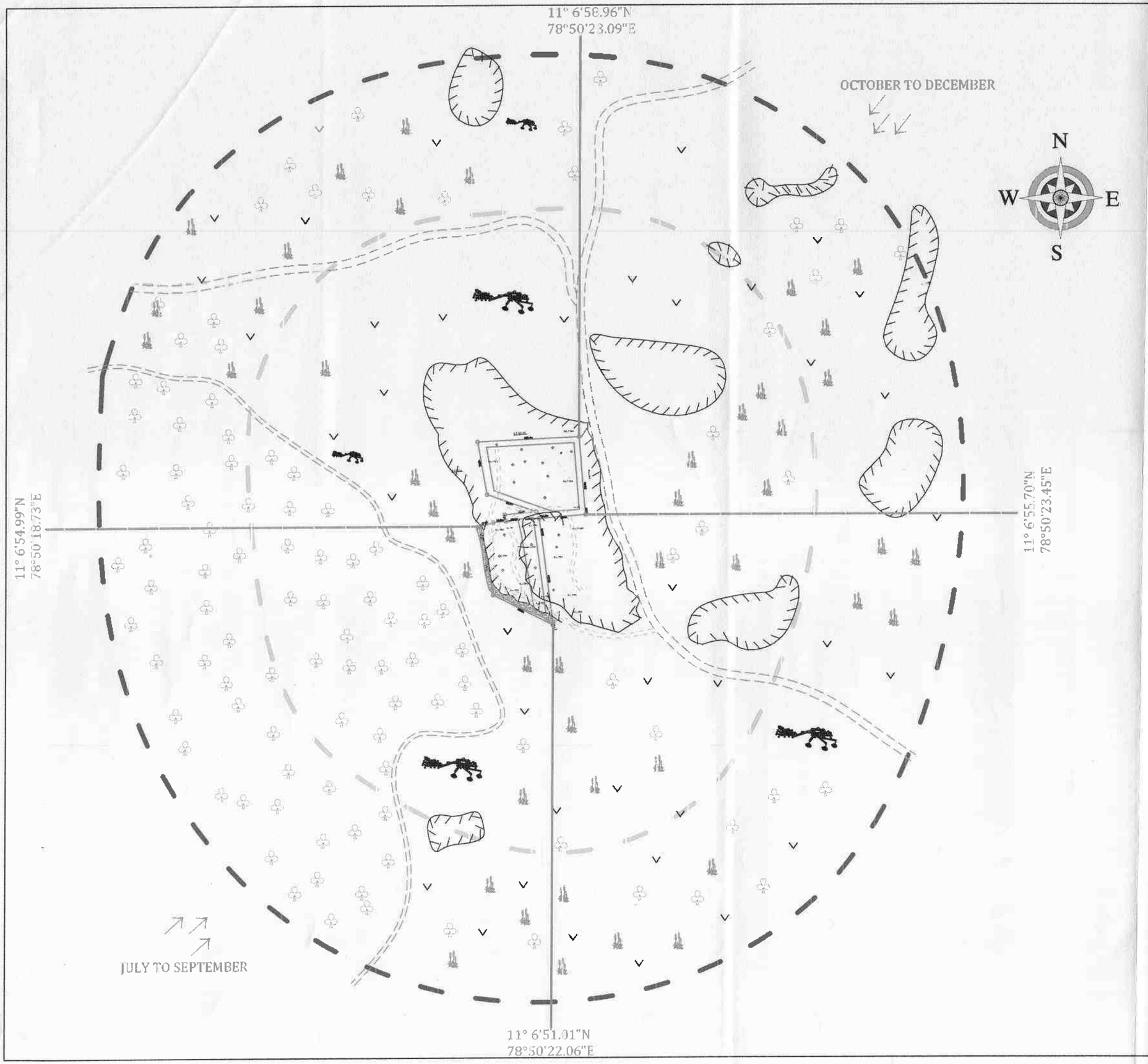


PLATE NO-VII

DATE OF SURVEY: 08.03.2019

APPLICANT:

Thiru.M.BASKARAN,
S/o.Thiru.MUTHUREDDIYAR,
THIRUVALLAKURUCHI,
ALATHUR TALUK,
PERAMBALUR DISTRICT.

INDEX

- Q.L.BOUNDARY
- 500m RADIUS
- 300m RADIUS
- TREES
- MINE ROAD
- APPROACH ROAD
- WIND DIRECTION
- DRY AGRICULTURAL LAND
- SHRUB
- ADJACENT QUARRY
- CRUSHER UNIT

TOPO SHEET NO. : 58-I/16

LATITUDE : 11° 6'58.96"N to 11° 6'54.99"N

LONGITUDE : 78°50'23.09"E to 78°50'18.73"E

LOCATION:

EXTENT	: 2.13.0 Ha
S.F.NO	: 4/3A,4/4B,7/4A & 7/4B
VILLAGE	: PADALUR (EAST)
TALUK	: ALATHUR
DISTRICT	: PERAMBALUR

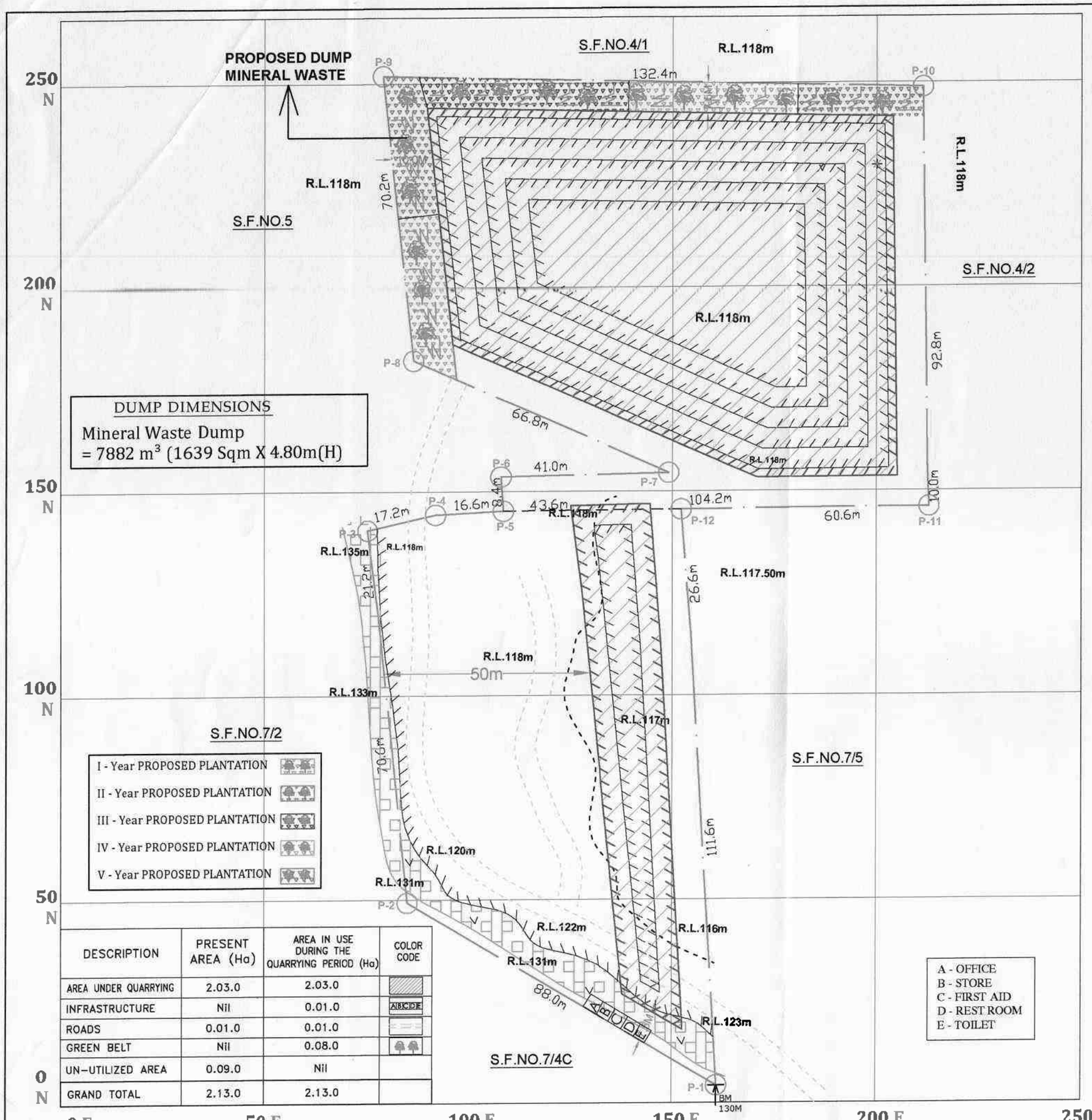
ENVIRONMENTAL PLAN

SCALE 1 : 5000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A



DUMP DIMENSIONS

Mineral Waste Dump
= 7882 m^3 (1639 Sqm X 4.80m(H)

I - Year PROPOSED PLANTATION
II - Year PROPOSED PLANTATION
III - Year PROPOSED PLANTATION
IV - Year PROPOSED PLANTATION
V - Year PROPOSED PLANTATION

DESCRIPTION	PRESENT AREA (Ha)	AREA IN USE DURING THE QUARRYING PERIOD (Ha)	COLOR CODE
AREA UNDER QUARRYING	2.03.0	2.03.0	
INFRASTRUCTURE	Nil	0.01.0	A,B,C,D,E
ROADS	0.01.0	0.01.0	
GREEN BELT	Nil	0.08.0	
UN-UTILIZED AREA	0.09.0	Nil	
GRAND TOTAL	2.13.0	2.13.0	

A - OFFICE
B - STORE
C - FIRST AID
D - REST ROOM
E - TOILET

PLATE NO-VIII

DATE OF SURVEY: 08.03.2019

APPLICANT:

Thiru.M.BASKARAN,
S/o.Thiru.MUTHU REDDIYAR,
THIRUVALLAKURICHI,
ALATHUR TALUK,
PERAMBALUR DISTRICT.

DIRECTOR OF GEOLOGY PERAMBALUR

INDEX

- QUARRY LEASE BOUNDARY
- 7.5m,10.0m & 50.0m SAFETY DISTANCE
- TOPSOIL
- ROUGH STONE
- WORKING PIT
- BENCH MARK
- MINE ROAD
- BOUNDARY PILLARS
- EARTHERN BUND
- PROPOSED DUMP
- MINE LAYOUT

LOCATION:

EXTENT	: 2.13.0 Ha
S.F.NO	: 4/3A,4/4B,7/4A & 7/4B
VILLAGE	: PADALUR (EAST)
TALUK	: ALATHUR
DISTRICT	: PERAMBALUR

PROGRESSIVE MINE CLOSURE PLAN

SCALE 1 : 1000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

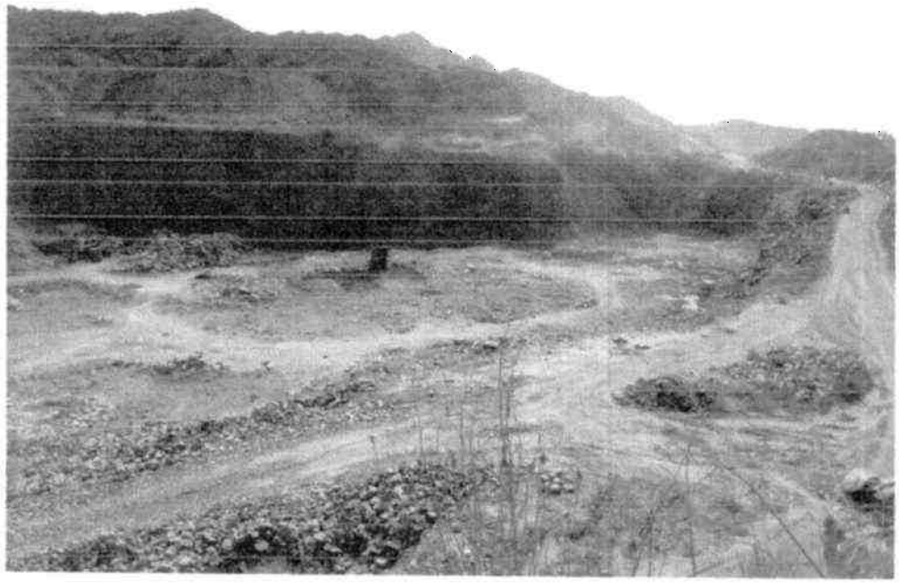
S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

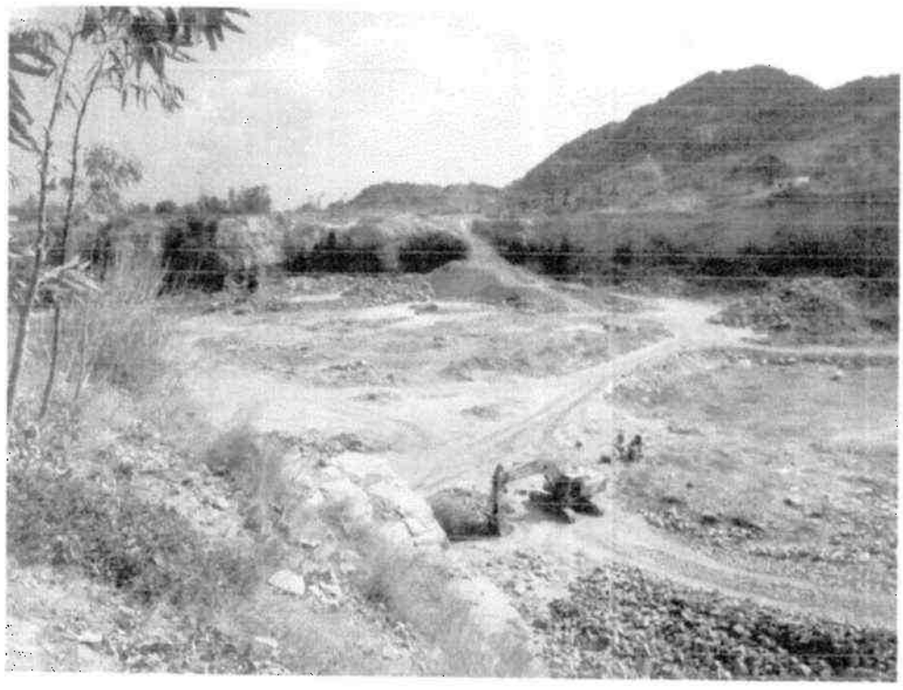
ANNEXURE-VII

VAO CERTIFICATE

THIRU.M. BASKARAN Rough stone Quarry in the S.F. Nos. **4/3A (1.12.5Ha.), 4/4B (0.09.0 Ha.), 7/4A (0.18.5Ha.) & 7/4B (0.73.0)** (Extent 2.13.0 ha) Padalur(E) Village, Alathur Taluk, Perambalur District.

GENERAL VIEW OF THE LEASE APPLIED AREA





M. BASKARAN
(Deponent)

(VAO)

பெரம்பலூர் மாவட்டம், ஆலத்தூர் வட்டம்

73. பாடாலூர் (கி) கிராம நிர்வாக அலுவலர்

அவர்களின் சான்று

ஆலத்தூர் வட்டம், பாடாலூர் (கி) கிராம புல எண் 4-3A, 4-4B 7-4A 7-4B ஆகிய புல எண்களின் மொத்த பரப்பளவு 2.13.0 ஹெக்டேர் பரப்பளவில், அமைய உள்ள குவாரி புல எண்களுக்கு அருகில் 500 மீட்டர் சுற்றளவு பரப்பில் கிராம இருப்பு, கோவில்கள், குடியிருப்பு வீடுகள் வழிபாட்டு தலங்கள் ஏரிகள், புராதன சின்னங்கள் ஏதும் இல்லை என சான்று அளிக்கப்படுகிறது

(கையொப்பம்)

ANNEXURE-VIII EXPLOSIVE AGREEMENT

தமிழ்நாடு तमिलनाडु TAMIL NADU 29AB 426166

K. Sambath
Vijayapuram.

திருமதி S.ருபா
முத்திரைத்தாள் விற்பனையாளர்.
S.V.L.No.53/AYR/97
பெரம்பலூர்- 621 212

25230
13/07/16

BLASTING OR CONTRACT AGREEMENT

K.SAMBATH M/S DHANALAKSHMI EXPLOSIVES, VIJAYAPURAM, THONDAMANDURAI POST, VEPPANTHATTAI TALUK, PERAMBALUR DISTRICT having Explosive Licence No. E/HQ/TN/22/489(E83148) and Explosive Magazine situated at **VIJAYAPURAM** Village hereinafter referred as part 1 entered into an Blasting Contract Agreement with

M. BASKARAN,
S/O MUTHU REDDIAR,
THIRUVALAKURICHI, PADALUR (PO)
ALATHUR (TK), PERAMBALUR (DT) - 621109

having their mines/quarry in S.F. No. 4/3A, 4/4B, 7/4A & **Village,** PADALUR (EAST) ALATHUR. **Taluk,** PERAMBALUR, 7/4B **District** hereinafter referred as party 2 on and both the parties agreed for the followings :

b) Party 1 has to use his explosives and he has to do the Blasting Work, in the Mines / Quarry with an authorized short firer permit holder, which is issued by the Explosives Department, Madras.

c) Party 2 has to pay for the coat of the explosives, transport charges, and other expenses incidental to blasting to party 1 as agreed by both the parties 1 and 2.

d) Party 2 has to make his own arrangement to remove all the broken materials at his own cost.

e) This agreement is valid from the date of signing by both the parties till the completion of Blasting Contract work from party 2 by giving in writing for clearing the Agreement.

PARTY – 1

K. S2

K.SAMBATH
M/S DHANALAKSHMI EXPLOSIVES,
VIJAYAPURAM,
THONDAMANDURAI POST,
VEPPANTHATTAI TALUK,
PERAMBALUR DISTRICT.

PARTY 2

M. B

WITNESS:

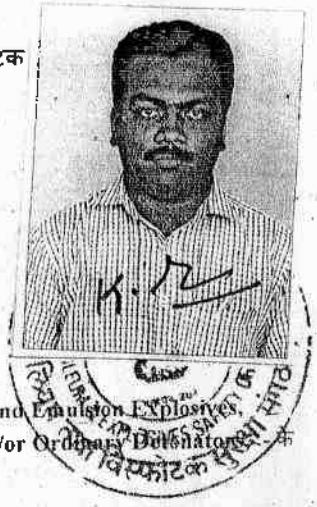
1. K. K (K.KANNAN) S/O K.KRISHNAMOORTHY, VAZHAIYUR (PO), TRICHY (DT) - 621104

2. D. (D.SARATH KUMAR) S/O C.DHARMALINGAM 2/117 WEST STREET NATTARMANGALAM (PO) PERAMBALUR (DT)

अनुज्ञप्ति प्ररुप एल.ई.-3 | LICENCE FORM LE-3

(विस्फोटक नियम, 2008 की अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) से (घ) देखिए।)
(See article 3(a) to (d) of Part 1 of Schedule IV of Explosives Rules, 2008)

(ग) उपयोग के लिए एक समय पर वर्ग 1,2,3,4,5 या वर्ग 7 के विस्फोटक या किसी मैगजीन में वर्ग 6 के विस्फोटक
Licence to possess : (c) for use,explosives of class 1, 2,3,4,5,6 or 7 in a magazine



अनुज्ञप्ति सं. (Licence No.) : E/HQ/TN/22/489(E83148)
वार्षिक फीस रुपए (Annual Fee Rs): 6800/-

1. Licence is hereby granted to

M/s. Dhanalakshmi Explosives (अधिभोगी / Occupier : Shri K. Sambath), 47, Vijayapuram, Thondamandurai Post, Veppanthatai Tk.., Town/Village - Vijayapuram, District-PERAMBALUR, State-Tamil Nadu, Pincode - 0

को अनुज्ञप्ति अनुदत्त की जाती है।

2. अनुज्ञप्तिधारी की प्रास्थिति | Status of licensee : **Partnership Firm**

3. अनुज्ञप्ति निम्नलिखित प्रयोजनों के लिए विधिमान्य है। : possess for use of **Nitrate mixture - Slurry and Emulsion Explosives, Safety Fuse, Detonating Fuse, Electric and/or Ordinary Detonators** के उपयोग के लिए
Licence is valid only for the following purpose.

4. अनुज्ञप्ति 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 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 - Slurry and Emulsion Explosives	2 ,0	0	2500 Kg.
2.	Safety Fuse	6 ,1	0	10000 Mtrs
3.	Detonating Fuse	6 ,2	0	10000 Mtrs
4.	Electric and/or Ordinary Detonators	6 ,3	0	44000 Nos.

(ख) किसी एक कलैंडर मास में ख़रीदे जाने वाले विस्फोटक की मात्रा [अनुच्छेद 3(ख) और (ग) के अधीन अनुज्ञप्ति के लिए] : **10 times as above.**
(b) Quantity of explosives to be purchased in a calendar month[applicable for licence under article 3(b) and (c)]

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञप्त परिसर की पुष्टि होती है। रेखाचित्र क्र. (Drawing No.) E/HQ/TN/22/489(E83148)
The licensed premises shall conform to the following drawing(s): दिनांक (Dated) 25/07/2016

6. अनुज्ञप्ति परिसर निम्नलिखित पते पर स्थित हैं। The licensed premises are situated at following address:
Survey No. 340/1, ग्राम (Town/Village) : **Village-Thondamandurai Melpagam, Taluk-Veppanthatalis थाना (Police Station) : Arumpavoor**
जिला (District) **PERAMBALUR** राज्य (State) **Tamil Nadu** पिनकोड (Pincode) **0**
दूरभाष (Phone) ई मेल (E-Mail) फैक्स (Fax)

7. अनुज्ञप्ति परिसर में निम्नलिखित सुविधाएं अंतर्विष्ट हैं। : **a main high explosives magazine room, a lobby and a detonator storage room**
The licensed premises consist of following facilities.

8. अनुज्ञप्ति समय -समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विरचित विस्फोटक नियम, 2004 के उपबंधो, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपाबद्धों 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. अनुज्ञप्ति प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञप्ति की शर्तें और अतिरिक्ति शर्तें।
   Conditions and Additional Conditions of this licence signed by the licensing authority.
3. दूरी प्ररूप DE-2 | Distance Form DE-2.

9. यह अनुज्ञप्ति तारीख **31 मार्च 2020** तक विधिमान्य रहेगी। This licence shall remain valid till **31st day of March 2020.**

यह अनुज्ञप्ति, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट-VII के अधीन तथा उपवर्णित इस अनुज्ञप्ति की शर्तों का अधिक्रमण करने या यदि अनुज्ञप्त परिसर योजना या उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिसंहृत की जा सकती है, जहां वह लागू हो।
This licence is liable to be suspended or revoked for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Set VIII, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and Annexure attached hereto.

तारीख | The Date - 16/11/2015

मुख्य विस्फोटक नियंत्रक | Chief Controller of Explosives

Amendments :
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 25/07/2016

नवीनीकरण के पृष्ठांकन के लिए स्थान
Space for Endorsement of Renewal

नवीकरण की तारीख Date of Renewal	समाप्ति की तारीख Date of Expiry	अनुज्ञापन प्राधिकारी के हस्ताक्षर और स्टाम्प Signature of licensing authority and stamp

कानूनी चेतावनी : विस्फोटकों को गलत ढंग से चलाने या उनका दुरूपयोग विधि के अधीन गंभीर दांडिक अपराध होगा।
Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

अनुज्ञप्ति प्ररूप एल.ई. -10 | Form LE-10
शॉट फायर कर्ता प्रमाण-पत्र | **Shot Firer's Certificate**
(अनुसूची IV के भाग 1 का अनुच्छेद 10 देखें | See article 10 of Part 1 of Schedule IV)
[विस्फोटक नियम, 2008 का नियम 107(5) देखें | see rule 107(5) of Explosives Rules, 2008]

(खान अधिनियम,1952 के अधीन न आने वाले क्षेत्र में विस्फोट करने के लिए सक्षमता प्रमाणपत्र)
(Certificate of competency to carry out blasting of explosives in area not coming under t

संख्या | No.: E/SC/TN/30/645(E31943)

प्रमाणित किया जाता है कि *श्री K.Sambath*,
जिनका जन्म. 06/06/1981 को हुआ था, जो S/o.K.Kannusamy, Vijayapuram, Thondamandurai Post,Perambalur taluk, PERAMBALUR, Tamil Nadu के निवासी है ने ,चेन्नै स्थित तारीख को आयोजित शॉट फायर की परीक्षा तारीख को उत्तीर्ण कर ली है और वह विस्फोटक अधिनियम, 1884 और उसके अधीन विरचित नियमों के उपबंधों के अधीन रहते हुए खान अधिनियम, 1952 की परिधि के अधीन आनेवाले खानों से अन्यथा क्षेत्र में नीचे यथा उल्लिखित विस्फोटकों का उपयोग करते हुए विस्फोट प्रचालन करने के लिए प्राधिकृत है।

This is to certify that *Shri K.Sambath*,
born on 06/06/1981 ,resident of S/o.K.Kannusamy, Vijayapuram, Thondamandurai Post,Perambalur taluk, PERAMBALUR, Tamil Nadu passed the **shotfirer's examination** held on conducted by **Chennai** and is authorised to conduct blasting operations as mentioned below using explosives in areas other than mines coming under the purview of the Mines Act 1952, subject to the provisions of the Explosives Act, 1884 and the rules framed thereunder.

विस्फोट करने के प्राधिकृत वर्ग, प्रवर्ग और प्रकार :
वर्ग:(ख), श्रेणी: सामान्य जमीन के ऊपर, जमीन के ऊपर ब्लास्टिंग आपरेशन

Authorised class, category and type of blasting :
Class : (B), Category : General aboveground, All phases of aboveground blasting operation

[नियम 107 का उप-नियम (5) का स्पष्टीकरण देखें | See explanation of sub-rule (5) of rule 107]

यह प्रमाणपत्र **31/03/2012** (जारी करने की तारीख से पांच वर्ष) तक विधिमान्य होगा |
This certificate shall remain valid till 31/03/2012 (five years from the date of issue)

यह प्रमाण-पत्र, अधिनियम या उसके अधीन विरचित नियमों अथवा इस प्रमाण-पत्र की शर्तों का कोई अतिक्रमण करने पर या यदि आवेदक द्वारा आवेदन प्ररूप में दी गई सूचना में कोई फर्क या विचलन होता है तो निलम्बित या अभिखंडित कर दिया जाएगा।

This certificate is liable to be suspended or revoked for any violation of the Act or rules framed thereunder or the conditions of this certificate or if there is any discrepancy or deviation in the information or suppression of facts furnished by the applicant in his application form.

Sd/-

स्थान | Place : चेन्नै | **Chennai**
दिनांक | Date: **22/08/2007**

संयुक्त मुख्य विस्फोटक नियंत्रक | **Joint Chief Controller of Explosives**
दक्षिणांचल, चेन्नै | **South Circle, Chennai**

Amendments :
- Change in Postal Address/Purpose/Attached to Magazine dated : 07/01/2016

पुनर्विधिमान्यकरण के लिए पृष्ठांकन
Endorsement for revalidation

पुनर्विधिमान्यकरण की तारीख Date of Revalidation	समाप्ति की तिथि Date of Expiry	अनुज्ञप्ति प्राधिकारी के हस्ताक्षर Signature of licensing authority
13/02/2017	31/03/2022	Jt. Chief Controller of Explosives, South Circle, Chennai

कानूनी चेतावनी : विस्फोटकों को गलत ढंग से चलाने या उनका दुरूपयोग विधि के अधीन गंभीर दांडिक अपराध होगा।
Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

Licence Endorsed under Rule 107(3) of Explosives Rules,2008
By Shri PRASHANT YADAV, Dy. Controller of Explosives, Chennai on 20/01/2016

अनुज्ञप्ति प्ररूप एलई – 7 / LICENCE FORM LE-7
(विस्फोटक नियम 2008 की अनुसूची 4 के भाग-I का अनुच्छेद 7 देखें)
(See article no 7 of Part I of Schedule IV of Explosives Rules, 2008)

अनुज्ञप्ति : सड़क वैन में विस्फोटकों के परिवहन के लिए
Licence to : transport explosives in a road van

अनुज्ञप्ति संख्या / Licence No. : E/SC/TN/25/1060(E91365)
वार्षिक फीस रूपए / Annual Fee Rs : 2500/-

1. अनुज्ञप्ति एतद्द्वारा जारी की जाती है
Licence is hereby granted to : **DHANALAKSHMI EXPLOSIVES (Occupier : K. Sambath)**
47, Middle Street, Vijayapuram,,
District-PERAMBALUR, State-Tamil Nadu, Pincode-621103
2. अनुज्ञप्तिधारी की प्रास्थिति / Status of licensee : **Company**
3. सड़क वैन की विशिष्टियाँ / Particulars of the road van:

पंजीकरण संख्या / Registration No.	TN-46/S-9921
यान का मेक एवं मॉडल / Make and model of vehicle	Mahindra Bolero Maxi
लदान रहित वजन / Unladen weight	1710 Kg(s)
लदान सहित अधिकतम वजन / Maximum laden weight	2960 Kg(s)
परिवहन के लिए अनुज्ञेय विस्फोटकों की अधिकतम मात्रा Maximum quantity of explosives permitted for transport	1250 Kg(s)
इंजिन संख्या / Engine No.	GLF4L59233
चैसिस संख्या / Chassis No.	MA1ZT2GLKF2L24325
अन्य फिटिंग्स का विवरण / Desription of Other Fittings	Spark arrester, fire extinguishers, battery cut-off switch, fire screen, open door
वाहन के लिए अनुमत्य विस्फोटकों की मात्रा / Quantity of Explosives permitted to carry	1250 Kg(s)

4. अनुज्ञप्त परिसर निम्नलिखित आरेखण (आरेखणों) के अनुरूप होना चाहिए / The licensed premises shall conform to the following drawing(s):
आरेखण संख्या / Drawing No : E/SC/TN/25/1060(E91365) दिनांक / dated : 20/01/2016
5. समय समय पर यथा संशोधित विस्फोटक अधिनियम, 1884 और उसके अधीन बनाए गए विस्फोटक नियम, 2008 के उपबन्धों और शर्तों एवं निम्नलिखित अनुलग्नकों के अधीन अनुज्ञप्ति प्रदान 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 thereunder and the conditions and the following annexures....
(क) उपर्युक्त क्रम संख्या 4 में यथाकथित सड़क वैन का आरेखण / (a) Drawings of the road van as stated in serial no.4 above.
(ख) अनुज्ञापन प्राधिकारी द्वारा हस्ताक्षरित शर्तें / (b) Conditions signed by the licensing authority.
6. यह अनुज्ञप्ति तारीख **31 मार्च 2019** तक विधिमान्य रहेगी / This licence shall remain valid till **31st day of March 2019**

यह अनुज्ञप्ति, अधिनियम या उसके अधीन विरचित नियमों या इस अनुज्ञप्ति की शर्तों के उल्लंघन, अनुसूची 5 के भाग 4 में सन्दर्भित, जहाँ भी लागू हो, या कि अनुज्ञप्त परिसर आरेखण या उससे संलग्न उपाबद्धों में दर्शाए गए विवरण के अनुरूप नहीं पाए जाने पर निलम्बित या प्रतिसंहृत की जा सकती है ।
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 , 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.

दिनांक / Date: 20/01/2016

Sd/-
संयुक्त मुख्य विस्फोटक नियंत्रक | Joint Chief Controller of Explosives
दक्षिणांचल, चेन्नै | South Circle, Chennai

अनुज्ञप्ति के नवीनीकरण हेतु पृष्ठांकन / Endorsement for renewal of licence:

नवीनीकरण की तिथि Date of Renewal	वैधता समाप्ति की तिथि Date of Expiry	अनुज्ञापन प्राधिकारी के हस्ताक्षर Signature of licensing authority
04/01/2019	31/03/2024	Jt. Chief Controller of Explosives, South Circle, Chennai

04/01/2019

वैधानिक चेतावनी : विस्फोटकों का लापरवाही से प्रयोग या दुरूपयोग, विधि के अधीन गम्भीर दाण्डिक अपराध होगा ;
Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

ANNEXURE-IX NABET CERTIFICATE

QUALITY COUNCIL® OF INDIA
Creating an Ecosystem for Quality

National Accreditation Board for Education and Training

Certificate of Accreditation

Eco Tech Labs Pvt Ltd.,

48, 2nd Main Road, Ram Nagar South Extension, Pallikaranai, Chennai- 600100, T.N.

*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 - including Open cast only	1	1 (a) (i)	B
2	Thermal power plants	4	1(d)	A
3	Coal washeries	6	2 (a)	B
4	Metallurgical industries - Ferrous only	8	3 (a)	B
5	Synthetic organic chemicals industry (dyes & dye intermediates; bulk drugs and intermediates excluding drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals and chemical intermediates)	21	5 (f)	A
6	Airports	29	7 (a)	A
7	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes	31	7 (c)	A
8	Building and construction projects	38	8 (a)	B
9	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in SAAC minutes dated Apr. 20, 2021 and supplementary minutes dated Oct.19, 2021 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/22/2217 dated Jan. 19, 2022. The accreditation needs to be renewed before the expiry date by Eco Tech Labs Pvt. Ltd., Chennai following due process of assessment.

Sr. Director, NABET
Dated: Jan. 19, 2022

Certificate No.
NABET/EIA/2124/SA 0147

Valid up to
Sep. 15, 2023

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