

# Draft Environmental Impact Assessment Report

Thiru.Venkata Reddy Rough Stone Quarry-  
2.38.5 Ha

At

S.F No 1267/2, 1268/2, 1268/3 of Kammandoddi  
Village, Shoolagiri Taluk, Krishnagiri District.



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

Category of the Project: B1 (Cluster Mining)

**Project Proponent:**

Thiru. P. Venkata Reddy  
S/O G. Pillareddy  
Kukkalapalli Village,  
Kammandoddi Post, Shoolagiri Taluk  
Krishnagiri District,  
Pincode-635 109

**Prepared By:**

M/s Ecotech Labs Pvt. Ltd.    
NABET Accredited EIA Consultant  
48, 2<sup>nd</sup> Main road, Ram Nagar South Extension,  
Pallikaranai, Chennai -600100

**ETL/EAQM/17/November/1(a)/ Venkata Reddy**

**NOVEMBER 2022**

<b>Project</b>	<b>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</b>	<b>EIA Report</b>
<b>Project Proponent</b>	<b>Thiru.P.Venkatareddy</b>	
<b>Project Location</b>	<b>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</b>	

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## **Abbreviation**

LU –Land use

AP – Air Pollution monitoring, prevention and control

AQ- Meteorology, 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 –Solid and Hazardous waste management



SC- Soil conservation

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<b>Project Location</b>	<b>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</b>	

## Declaration of Experts contributing to the EIA

Declaration by experts contributing to the EIA report for Rough Stone Quarry (minor mineral) mining project of Thiru.P.Venkatareddy over an extent of 2.38.5 Ha is situated at S.F.Nos. 1267/2, 1268/2 & 1268/3 Kammandoddi Village, Shoolagiri Taluk, Krishnagiri 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.

<b>Project</b>	Rough Stone Quarry-2.38.5 Ha
<b>Type &amp; Category</b>	1 (a) Mining of Minerals
<b>Project Proponent</b>	Thiru.P.Venkatareddy
<b>Environment Consultant with their Accreditation Status</b>	M/s. Eco Tech Labs Pvt. Ltd., QCI Accredited
<b>NABET Certificate No.</b>	NABET/ EIA/2124/ SA 0147
<b>EIA Coordinator Name</b>	Dr. A. Dhamodharan (Mining of Minerals)
<b>Signature</b>	
<b>Period of Involvement</b>	 June to August 2022
<b>Contact Information</b>	<b>M/s. Eco Tech Labs Pvt. Ltd.</b> No. 48, 2nd Main Road, Ram Nagar South Extension Pallikaranai, Chennai - 600 100 Mobile: +91 9789906200 E-mail: dhama@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.

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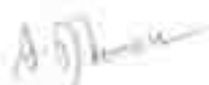


<b>S. No.</b>	<b>Functional areas</b>	<b>Name of the expert/s</b>	<b>Involvement (Period and task)</b>	<b>Signature and date</b>
1	AP	Mrs. K. Vijayalakshmi	Selection of Baseline Monitoring stations based on the wind direction, Interpretation of Baseline data by comparing it with standards prescribed 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.	

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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	



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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.	

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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 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	NV	Mrs. K. Vijayalakshmi	1. Selection of monitoring locations 2. Interpretation of baseline data 3. Prediction of impacts due to noise pollution and suggestion of appropriate mitigation measures	
11	LU	Dr. T. P. Natesan	Preparation of land use, land cover maps for the study area using satellite imagery.	
12	RH	Mrs. K. Vijayalakshmi	1. Identification of the risk 2. Interpreting consequence contours 3. Suggesting risk mitigation measures	

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**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 S.F.Nos. 1267/2, 1268/2 & 1268/3, Kammandoddi Village, Shoolagiri Taluk, Krishnagiri 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:** NABET/EIA/2124/SA 0147

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## **EXECUTIVE SUMMARY**

### **1. Project Background:**

The Proposed project is Scheme of mining with Mine Closure Plan with a total extent area is 2.38.5 hectares, It is a Patta land in Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District. It is a proposed Rough Stone quarry. The category of the project is B1 (cluster), the lease area exhibits undulated terrain and gently sloping towards western side covered with Rough Stone.

The quarry operation is proposed to carry out with conventional open cast mechanized mining with 5.0 meter vertical bench with a bench width of 5.0 meter. The Quarry operation involves shallow jack hammer drilling, slurry blasting, loading and transportation.

The quarry operation is proposed up to depth of 43m (1.0m Topsoil + 42.0m Rough Stone). Geological Resources is estimated at **9,44,148 m<sup>3</sup>** of Rough stone and Mineable Reserves is estimated at **4,05,339 m<sup>3</sup>** of Rough Stone and after leaving necessary safety distance from the lease boundary as indicated in the precise area letter and relevant mining laws in force. Production Schedule is proposed production of **4,05,339 m<sup>3</sup>** of Rough Stone for the period of Five years.

The Scheme of Mining was approved by Assistant Director, Geology and Mining, Krishnagiri vide letter Roc No.1123/2021/Mines dated:23.04.2021 for a period of 2022-2023 to 2026-2027. The project area does not fall in Hill Area Conservation Authority region. There is no interstate boundary, CRZ zone, Western Ghats, notified Bird sanctuaries, wild life sanctuaries as per Wild life protection Act 1972, within the radius of 15Km.

### **PRESENT QUARRY ACTIVITY**

The Scheme of Mining along with Progressive Mine Closure Plan has been proposed for Rough Stone Quarry in Patta Land S.F.Nos.1267/2, 1268/2 & 1268/3 over an extent of 2.38.5 Ha. in Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District.

<i>Project</i>	<i>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</i>	<i>EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Venkatareddy</i>	
<i>Project Location</i>	<i>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</i>	

The fresh Mining Plan was approved by Deputy Director, Geology and Mining, Krishnagiri vide letter Roc No.721/2015/Mines dated:30.9.2016 for a period of 2017-2018 to 2021-2022. Please refer Annexure-V. Copy of Approved Mining plan Letter.

Accordingly, the Lessee had obtained Environmental Clearance from SEIAA-TN vide Lr.No. SEIAA- TN/F.No.5883/1(a)/EC.No:3902/2016 dated 13.06.2017. Please refer Annexure- III.

The Mining Lease was granted in Rc.No.721/2015/Mines-2 dated:30.10.2017 for the period of Five years.

The lease deed was executed on 10.11.2017. Mining operation commenced on 01.01.2018. The lease will expire on 09.11.2022.

However as per the recent Amendment TNMMCR, G.O.(Ms)No.208 Industries (MMC.1) Department dated 21.09.2020. the validity of the Mining Lease is extended upto 09.11.2027.

This Scheme of Mining for the period 2022-2023 to 2026-2027 is prepared and submitted under Rule 12 of MMCDR,2010 and 41 & 42 of TNMMCR, 1959 for approval.

The Scheme of Mining was approved by Assistant Director, Geology and Mining, Krishnagiri vide letter Roc No.1123/2021/Mines dated:23.04.2021 for a period of 2022-2023 to 2026-2027.

The mining operations are done by opencast semi-mechanized methods with jack hammer drilling and blasting, hydraulic excavators are used for loading the Rough stone from pithead to the needy crushers.

## **2. Nature & Size of the Project**

The Rough Stone Quarry over an extent of 2.38.5 Hectares land is located Kammandoddi Village of Shoolagiri Taluk, Krishnagiri District.

Mineral intends to quarry	: Rough stone
District	: Krishnagiri
Taluk	: Shoolagiri
Village	: Kammandoddi
S. F. Nos.	: 1267/2, 1268/2 & 1268/3
Extent	: 2.38.5 Hectares

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<b>Project Location</b>	<b>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</b>	

**Table 1: Brief Description of the Project**

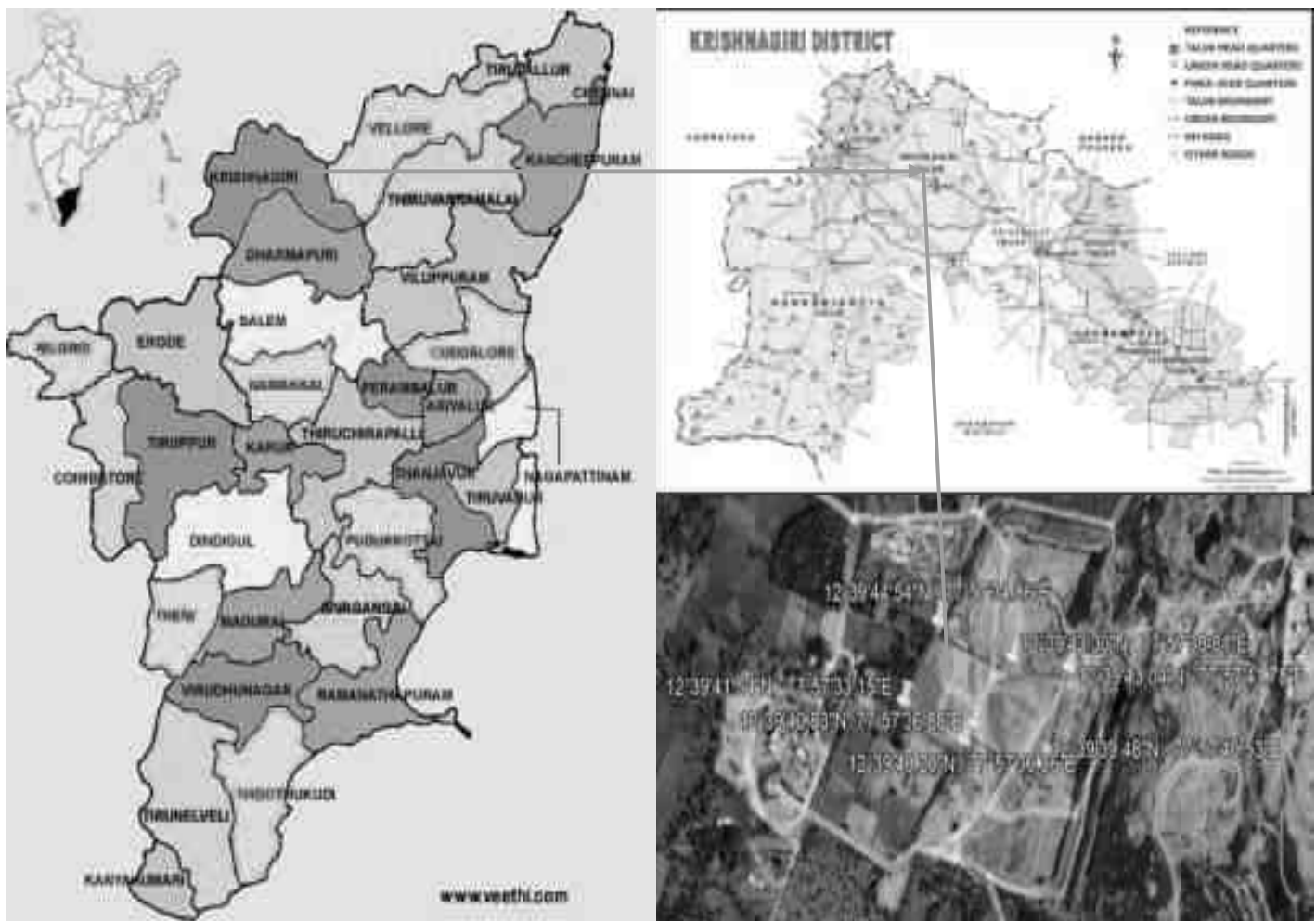
<b>S. No</b>	<b>Particulars</b>	<b>Details</b>
1	Latitude	12°39'42.99"N to 12°39'41.44"N
2	Longitude	77°57'41.79" E to 77°57'33.09"E
3	Site Elevation above MSL	739 m AMSL
4	Topography	Undulated terrain
5	Land use of the site	Own Patta land
6	Extent of lease area	2.38.5 Ha
7	Nearest highway	NH 44 – Dharmapuri-Bengaluru Road, 1.8 km, N SH 85 – Attibele Rayakottai Road – 10.4 km, S
8	Nearest railway station	Kelamangalam Railway Station – 11.5 km, SW
9	Nearest airport	Hosur Airport – 21.2 km, W
10	Nearest town / city	Town - Kammandoddi – 5.4 -NW City - Shoolagiri – 5.9 Km -NE District - Krishnagiri - 31.2 Km -SE
11	Rivers / Canal	<ul style="list-style-type: none"> <li>• Gobasandram River – 4.0 km, NW</li> <li>Ponnaiyar River- 4.2 km, S</li> </ul>
12	Lake	<ul style="list-style-type: none"> <li>• Kammandoddi Lake – 2.7 km, NW</li> <li>• Konerapalli Lake- 2 km, N</li> <li>• Chappadi Lake- 2.2 km, NE</li> <li>• Bukkasagaram- 7 km, N</li> <li>❖ Doripalli Lake- 5.3 km, N</li> </ul>
13	Hills / valleys	Nil in 15 km radius
14	Archaeologically places	Nil in 15 km radius
15	National parks / Wildlife Sanctuaries	Nil in 15 Km radius
16	Reserved / Protected Forests	<ul style="list-style-type: none"> <li>• Sanamavu Reserved Forest- 6.6 km, SW</li> <li>• Perandapalli Forest- 4.8 km, W</li> </ul>
17	Seismicity	Proposed Lease area come under Seismic zone-II (low risk area)
18	Defense Installations	Nil in 15 Km radius

### 3. Need for the Project

❖ The mining activities as proposed are the backbone of all construction and infrastructure projects as the raw material for construction is available only from such mining. The Rough stone extracted will be transported to be Stone crusher of district Krishnagiri.

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<b>Project Location</b>	<b>Kammandoddi Village, Shoalagiri Taluk, Krishnagiri District</b>	

- ❖ The raw Rough stone as well as the crushed material of stone is in high demand in real estate, construction projects as well as in building construction projects.
- ❖ Rough stone is quarried for producing crusher aggregates to the nearby building contractors, road contractors and nearby villagers.
- ❖ After quarrying the entire reserves mined out, the area will be used as water reservoir to have an artificial recharge to the nearby wells.
- ❖ No damage to the land is caused, no reclamation or back filling is required.



**Figure 1: Location Map of the Project Site**

<b>Project</b>	<b>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</b>	<b>EIA Report</b>
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**Figure 2: Google Image of the Project Site**

#### **4. Charnockite**

Krishnagiri District is comprised of Archaean peninsular gneisses such as Charnockites, Hornblende gneisses, Biotite gneisses and migmatites, dolerites and are intruded by younger formations like pegmatite

and quartz veins. The peninsular gneisses/ migmatite consists of biotite mica, plagioclase and orthoclase feldspar and quartz and are found as sheet rocks. The rock formations surrounded by shear zones in between the country rocks and later period of intrusions, fractured / joint, weathered rock formations, the metamorphosed rock formations are in enormous in nature. The massive rock formations which are not suitable for the productions of granite slabs are also suitable and used to produce rough stones. The predominant occurrence of granitic gneissic rock formations which are most suitable to produce rough stone, jelly and for making M. Sand, crusher dust.



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## 5. Geological Resources

The geological reserves have been calculated based on the cross section method

**Table 2. Geological resources**

<b>GEOLOGICAL RESERVES</b>								
<b>Section</b>	<b>Bench</b>	<b>Length in (m)</b>	<b>Width in (m)</b>	<b>Depth in (m)</b>	<b>Volume In M<sup>3</sup></b>	<b>Geological Reserves in m3 @ 95%</b>	<b>Mine waste in m3 @ 5%</b>	<b>Top Soil in m<sup>3</sup></b>
XY-AB	I	109	111	1				12099
	II	109	111	7	84693	80458	4235	
	III	109	111	7	84693	80458	4235	
	IV	109	111	7	84693	80458	4235	
	V	109	111	7	84693	80458	4235	
	VI	109	111	7	84693	80458	4235	
	VII	109	111	7	84693	80458	4235	
<b>Total=</b>					<b>508158</b>	<b>482748</b>	<b>25410</b>	<b>12099</b>
XY- CD	I	13	23	1				299
	II	43	41	7	12341	11724	617	
	III	115	98	7	78890	74946	3944	
	IV	115	98	7	78890	74946	3944	
	V	115	98	7	78890	74946	3944	
	VI	115	98	7	78890	74946	3944	
	VII	115	98	7	78890	74946	3944	
	VIII	115	98	7	78890	74946	3944	
<b>Total=</b>					<b>485681</b>	<b>461400</b>	<b>24281</b>	<b>299</b>
<b>Grand Total=</b>					<b>993839</b>	<b>944148</b>	<b>49691</b>	<b>12398</b>

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**Table 3. Year wise Production Plan**

<b>YEARWISE DEVELOPMENT &amp; PRODUCTION RESERVES</b>									
<b>YEAR</b>	<b>Section</b>	<b>Bench</b>	<b>L (m)</b>	<b>W (m)</b>	<b>D(m)</b>	<b>Volume In M<sup>3</sup></b>	<b>Recoverable Reserves in m3 @ 95%</b>	<b>Mine waste in m3 @ 5%</b>	<b>Top Soil in m<sup>3</sup></b>
10.11.2022- 09.11.2023	XY-AB								
		I	102	94	1				9588
		II	101	92	7	65044	61792	3252	
	XY- CD	I	3	5	1				15
		II	33	22	7	5082	4828	254	
	III	105	69	7	50715	48179	2536		
	<b>Total=</b>					<b>120841</b>	<b>114799</b>	<b>6042</b>	<b>9603</b>
10.11.2023- 09.11.2024	XY-AB								
		III	96	82	7	55104	52349	2755	
	XY- CD	IV	100	59	7	41300	39235	2065	
	<b>Total=</b>					<b>96404</b>	<b>91584</b>	<b>4820</b>	
10.11.2024- 09.11.2025	XY-AB								
		IV	91	72	7	45864	43571	2293	
	XY- CD	V	95	49	7	32585	30956	1629	
	<b>Total=</b>					<b>78449</b>	<b>74527</b>	<b>3922</b>	
10.11.2025- 09.11.2026	XY-AB								
		V	86	62	7	37324	35458	1866	
	XY- CD	VI	90	39	7	24570	23342	1228	
	<b>Total=</b>					<b>61894</b>	<b>58800</b>	<b>3094</b>	
10.11.2026- 09.11.2027	XY-AB								
		VI	81	52	7	29484	28010	1474	
		VII	76	42	7	22344	21227	1117	
	XY- CD	VII	85	29	7	17255	16392	863	
	<b>Total=</b>					<b>69083</b>	<b>65629</b>	<b>3454</b>	
<b>Grand Total=</b>						<b>426671</b>	<b>405339</b>	<b>21332</b>	<b>9603</b>

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## 6. Mining

### *Opencast mining*

The quarry operation is proposed to carry out with conventional open cast mechanized mining with 5.0 meter vertical bench with a bench width of 5.0 meter. The Quarry operation involves shallow jack hammer drilling, slurry blasting, loading and transportation.

### **Process Description**

- The reserves and resource are arrived based upon the Geological investigation
- Removal of Topsoil by Excavators and directly Loaded Into Tippers.
- Removal of Rough Stone by Excavators by Drilling and Blasting.
- Shallow Drilling With Jackhammer of 25.5mm Dia.
- Minimum Blasting With Class 3 Explosives.
- Loading of Rough Stone By Excavators Into Tippers.

## 7. Water Requirement

Total water requirement for the mining project is 2 KLD. Domestic water will be sourced from nearby Kammandoddi Village and other water will be source from nearby road tankers supply.

**Table 4. Water Balance**

<b>Purpose</b>	<b>Quantity</b>	<b>Source</b>
Drinking Water	1.0 KLD	Drinking water will be brought from the approved water vendors in the nearby villages.
Green belt	0.5 KLD	Other domestic activities through road tankers supply
Dust suppression	0.5 KLD	From road tankers supply
<b>Total</b>	<b>2.0 KLD</b>	

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## 8. Man Power

Total manpower required for the project is approximately 14 persons. Workers will be from nearby villages.

**Table 5. Man Power**

1.	Skilled	Operator	8 No.
		Foreman/ Part time	1 No.
		Mining Engineer	
		Blaster /Mate	1 No.
2.	Semi-skilled		3 No.
3.	Unskilled		1 Nos
		Total =	14 Nos

No child less than 18 years will be entertained during quarrying operations.

## 9. Solid Waste Management

**Table 6 Solid Waste Management**

S. No	Type	Quantity	Disposal Method
1	Organic	2.7 kg/day	Municipal bin including food waste
2	Inorganic	4.05 kg/day	TNPCB authorized recyclers

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

**Table 7. 500m Radius Cluster Mine**

### 1) Existing other quarries:

S. No.	Name of the lessee / Permit Holder	Village & Taluk	S. F. No.	Extent	Lease Period
1.	Thiru.P.Venkata Reddy	Kammandoddi Village & Shoolagiri Taluk	1267/2, 1268/2, 1268/3	2.38.5 Ha	10.11.2017 to 09.11.2022

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2.	Thiru.Rajappa	Kammandoddi Village & Shoolagiri Taluk	1266	4.04.5 Ha	13.10.2017 to 12.10.2027
3.	Thiru.Surendiran	Kammandoddi Village & Shoolagiri Taluk	1269/2A	1.66.5 Ha	13.10.2017 to 12.10.2022
4.	Tmt.V.Renuka	Kammandoddi Village & Shoolagiri Taluk	1269/2B	1.27.0 Ha	13.10.2017 to 12.10.2022
5.	Thiru.S.Madhu	Kammandoddi Village & Shoolagiri Taluk	1151 etc.,	1.27.0 Ha	06.12.2019 to 05.12.2029
6.	Thiru.G.Ashoka	Kammandoddi Village & Shoolagiri Taluk	754 & 760 (Part 3)	3.66.0 Ha	17.02.2022 to 16.02.2032

## 2) Proposed Area:

<b>S. No.</b>	<b>Name of the applicant</b>	<b>Village &amp; Taluk</b>	<b>S. F. No.</b>	<b>Extent</b>
1.	Thiru. P.Narayanappa	Kammandoddi Village & Shoolagiri Taluk	754 & 760 (part-1)	1.80.0 Ha
2.	Thiru.K.Govindhappa	Kammandoddi Village & Shoolagiri Taluk	754 & 760 (part-2)	2.10.0 Ha
3.	Thiru.Mallikarjun	Kammandoddi Village & Shoolagiri Taluk	754 & 760 (part-4)	3.50.0 Ha

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4.	Thiru.V.Karunanithi	Kammandoddi Village & Shoolagiri Taluk	754 & 760 (part-5)	4.30.0 Ha
5.	M/s Royal Blue Metals	Kammandoddi Village & Shoolagiri Taluk	1151, 1155, 1212 to 1219, 1222, 1225 & 1226/A (part-1)	2.70.0 Ha
6.	M/s Royal Blue Metals	Kammandoddi Village & Shoolagiri Taluk	1151, 1155, 1212 to 1219, 1222, 1225 & 1226/A (part-2)	2.87.0 Ha
7.	Thiru.K.Murugesh	Kammandoddi Village & Shoolagiri Taluk	1151, 1155, 1212 to 1219, 1222, 1225 & 1226/A (part-3)	2.82.0 Ha
8.	Thiru.S.R.Sambang	Kammandoddi Village & Shoolagiri Taluk	1151, 1155, 1212 to 1219, 1222, 1225 & 1226/A (part-4)	2.23.0 Ha

### 3) Lease Expired/Old quarries:

S. No.	Name of the applicant	Village & Taluk	S. F. No.	Extent	Lease Status
1.	Thiru.Subramani	Kammandoddi Village & Shoolagiri Taluk	1278/2, 1278/3,4	0.82.0	02.06.2003 to 01.06.2008 (Lease expired)

The Total extent of the Existing / Lease expired / Proposed quarries are 37.39.5 Ha

## 10. Land Requirement

The total extent area of the project is 2.38.5 Ha, Own Patta land in Kammandoddi Village of Shoolagiri Taluk, Krishnagiri District.

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**Table 8 Land Use Breakup**

<b>SL. NO.</b>	<b>LAND USE</b>	<b>PRESENT AREA (HECT)</b>	<b>AREA IN USE DURING THE QUARRYING PERIOD (HECT)</b>
1.	Area under Quarrying	0.76.5	1.76.5
2.	Infrastructure	Nil	0.01.0
3.	Roads	0.01.0	0.01.0
4.	Green Belt & Dump	Nil	0.60.0
5.	Unutilized Area	1.61.0	Nil
	<b>Total</b>	<b>2.38.5</b>	<b>2.38.5</b>

## 11. Human Settlement

There are no habitations within 500m radius. There are villages located in this area within 5km radius of the quarry.

**Table 9 Habitation**

<b>S.No</b>	<b>Direction</b>	<b>Village</b>	<b>Distance</b>	<b>Population</b>
1	North	Koneripalli	1.8 km	200
2	South	Thirumalaigowni Kotta	1.2 km	400
3	West	Kukkala Palli	2.0 km	250
4	East	Chappadi Village	1.4 km	250

## 12. Power Requirement

The 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.

## 13. Scope of the Baseline Study

This chapter contains information on existing environmental scenario on the following parameters.

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1. Micro – Meteorology
2. Water Environment
3. Air Environment
4. Noise Environment
5. Soil / Land Environment
6. Biological Environment
7. Socio-economic Environment

### **13.1 Micro – Meteorology**

Meteorology plays a vital role in affecting the dispersion of pollutants, once discharged into the atmosphere. Since meteorological factors show wide fluctuations with time, meaningful interpretation can be drawn only from long-term reliable data.

- i) Average Minimum Temperature : 33.7 °C
- ii) Average Maximum Temperature. : 24.2 °C
- iii) Average Annual Rainfall of the area : 922.8 mm

### **13.2 Air Environment**

Ambient air monitoring was carried out on monthly basis in the surrounding areas of the Mine Lease area to assess the ambient air quality at the source. To know the ambient air quality at a larger distance i.e. in the study area of 5 km. radius, air quality survey has been conducted at 5 locations. Major air pollutants like Particulate Matter (PM10), Sulphur Dioxide (SO<sub>2</sub>), Nitrogen Dioxide (NO<sub>2</sub>) were monitored, and the results are summarized below.

The baseline levels of PM10 (59-35 µg/m<sup>3</sup>), PM2.5 (28-16 µg/m<sup>3</sup>), SO<sub>2</sub> (13-5µg/m<sup>3</sup>), NO<sub>2</sub> (28-10 µg/m<sup>3</sup>), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from February to April 2021.

### **13.3 Noise Environment**

Ambient noise levels were measured at 5 locations around the proposed project site. The maximum Day noise and Night noise were found to be 55 dB(A) and 44 dB(A) respectively in Shoolagiri Police



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Station. The minimum Day Noise and Night noise were 49 dB(A) and 39 dB(A) respectively which was observed in Project Site & Government High School, Devasanapalli.

### **13.4 Water Environment**

- The average pH ranges from 6.97-7.9.
- /TDS value varied from 528 mg/l to 1395 mg/l
- Hardness varied from 220 to 859 mg/l
- Chloride varied from 72.8 to 362 mg/l

### **13.5 Land Environment**

The analysis results shows that the majority of soil in the project and surrounding area is slightly alkaline in nature and pH value ranges from 6.45 to 8.51 with organic matter 1.4 % to 4.8 %. The concentration of Nitrogen, Phosphorus & Potassium has been found to be in good amount in the soil samples.

### **13.6 Biological Environment**

The proposed Mining lease area is mostly dry barren ground with small shrubs and bushes. No specific endangered flora & fauna exist within the mining lease area.

## **14. Rehabilitation/ Resettlement**

- The overall land of the mine is private patta land. There are no displacement of the population within the project area and adjacent nearby area. Social development of nearby villages will be considered in this project.
- The mine area does not cover any habitation. Hence the mining activity does not involve any displacement of human settlement.

## **15. Greenbelt Development**

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.

<i>Project</i>	<i>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</i>	<i>EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Venkatareddy</i>	
<i>Project Location</i>	<i>Kammandoddi Village, Shoologiri Taluk, Krishnagiri District</i>	

3. Local trees like Vilvam, Pungam, Naval etc will be planted along the lease boundary and avenues as well as over Non-active dumps at a rate of 80 trees per annum with interval 5m.

4. The rate of survival expected to be 70% in this area

**Table.10 Plantation/ Afforestation Program**

<b>Scientific Name</b>	<b>Local Name</b>
<i>Diospyro sebenum</i>	Karungali
<i>Aegle marmelos</i>	Vilvam
<i>Lagerstromia speciosa</i>	Poo Marudhu
<i>Toona ciliate</i>	Sandhana Vembu
<i>Morinda citrifolia</i>	Vellai nuna
<i>Pongamia Pinnata</i>	Pungam
<i>Prosopis cinera</i>	Vannimaram
<i>Syzygium cumini</i>	Naval
<i>Premna tomentosa</i>	Purangai Naari
<i>Litsea glutinosa</i>	Pisinpattai
<i>Chloroxylon sweitenia</i>	Purasamaram
<i>Strychnos potatorum</i>	Therthang Kottai

- The development of greenbelt in the periphery of the mine area.
- Trees will be planted along the sides of the lease boundary and avenues as well as Non-active dumps at a rate of 1200 trees with an interval of 5m in 3 rows with tall and long tree species alternative rows.

## **16. Anticipated Environmental Impacts**

### **16.1 Air Environment and Mitigation Measures**

1. Water sprinkling will be done on the roads & unpaved roads.
2. Proper mitigation measures like water sprinkling will be adopted to control dust emissions.
3. Plantation will be carried out on approach roads, solid waste site & nearby mine premises.

<i>Project</i>	<i>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</i>	<i>EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Venkatareddy</i>	
<i>Project Location</i>	<i>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</i>	

4. To control the emissions regular preventive maintenance of equipments will be carried out.

### **16.2 Noise Environment and Mitigation Measures**

1. Periodical monitoring of ambient noise will be done as per CPCB guidelines.
2. No other equipment except the transportation vehicles and excavator for loading will be allowed.
3. Noise generated by these equipments shall be intermittent and does not cause much adverse impact.

### **17. Responsibilities for Environmental Management Cell (EMC)**

The responsibilities of the EMC include the following:

- i. Environmental Monitoring of the surrounding area
- ii. Developing the green belt/Plantation
- iii. Ensuring minimal use of water
- iv. Proper implementation of pollution control measures

### **18. Environmental Monitoring Program**

A monitoring schedule with respect to Ambient Air Quality, Water & Wastewater Quality, Noise Quality as per Tamil Nadu State Pollution Control Board (TNPCB), shall be maintained.

### **19. Project Cost**

The total project cost is **Rs 70,90,000** for deployment of machinery and creation of infrastructural facilities like approach road, Mine office / Workers Shed, First Aid Room etc., including electrifications and water supply

**Table .11 Project Cost details**

<b>S. No.</b>	<b>Description</b>	<b>Cost</b>
1	Project Cost	25,90,000
2	Expenditure Cost	40,00,000

<i>Project</i>	<i>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</i>	<i>EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Venkatareddy</i>	
<i>Project Location</i>	<i>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</i>	

3	EMP Cost	5,00,000
	<b>Total</b>	<b>70,90,000</b>

## 20. Corporate Environmental Responsibility

The Corporate Environment Responsibility (CER) fund will be provided to the below activity.

**Table 12 CER Cost**

<b>S.No.</b>	<b>CER Activity</b>	<b>CER 2% of the project cost (Rs.)</b>
1.	Developing Sports facilities and Providing Toilet, Water Filter facilities to Government Schools in Kammandoddi Village	<b>5,00,000</b>

## 21. Benefits of the Project

- There is positive impact on socio-economics of people living in the villages. Mining operations in the subject area has positive impact by providing direct and indirect jobs opportunities
- The project is environmentally compatible, financially viable and would be in the interest of construction industry thereby indirectly benefiting the masses.
- Quarrying in this area is not going to have any negative impact on the social or cultural life of the villagers in the near vicinity.

<i>Project</i>	<i>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</i>	<i>EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Venkatareddy</i>	
<i>Project Location</i>	<i>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</i>	

# 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 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.

## 1.2 General Information on Mining of Minerals

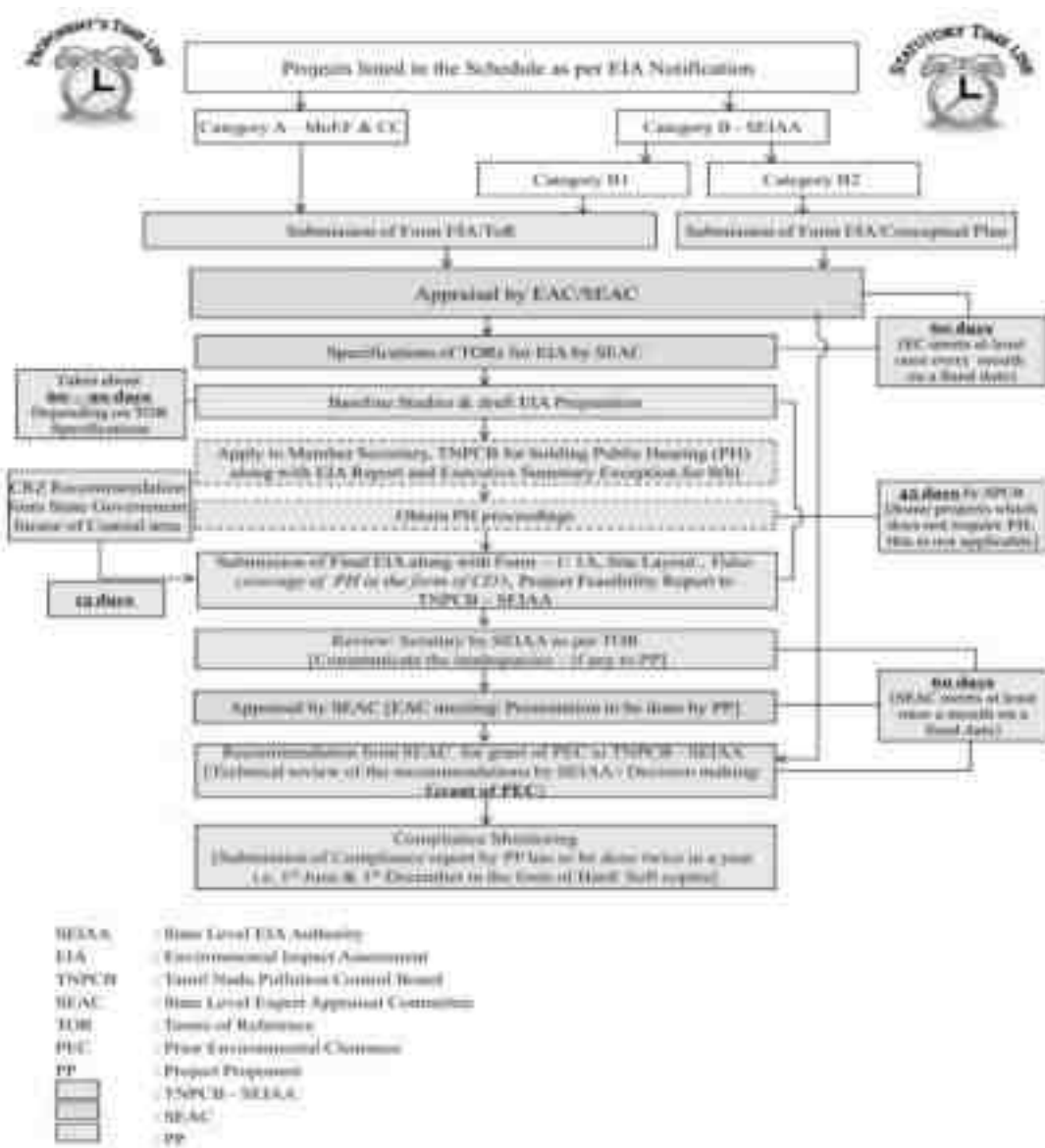
Krishnagiri District is covered with wide range of metamorphic rocks of peninsular gneissic complex. These rock formations occur as massive hillocks all over the district in government lands and patta lands, and extensively weathered formations are overlined by soil / alluvium deposits with an average thickness of 1 to 5mts. Rough stone deposits suitable for the production of Jelly, cut stones and Pillar Stones are available throughout the Krishnagiri District. Rough stones are widely used in this district as building stones, boulders, cut stones and for the production of Jelly, M.Sand, Crusher Dust. The rock products which are produced not only used in the Krishnagiri District alone but also transported to the neighboring districts. These products enter into the market in different parts of the country.

## 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.

<b>Project</b>	<b>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</b>	<b>EIA Report</b>
<b>Project Proponent</b>	<b>Thiru.P.Venkatareddy</b>	
<b>Project Location</b>	<b>Kammandoddi Village, Shoologiri Taluk, Krishnagiri District</b>	



#### 1.4 Terms of Reference (ToR)

The terms of Reference has been issued by SEAC TN vide Letter No. SEIAA-TN/F.No. 9320/SEAC/ToR-1237/2022 Dated: 30.08.2022. 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.

<i>Project</i>	<i>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</i>	<i>EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Venkatareddy</i>	
<i>Project Location</i>	<i>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</i>	

## 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**

<b>S. No.</b>	<b>Description</b>	<b>Frequency of Monitoring</b>
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.

<i>Project</i>	<i>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</i>	<i>EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Venkatareddy</i>	
<i>Project Location</i>	<i>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</i>	

**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.



<i>Project</i>	<i>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</i>	<i>EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Venkatareddy</i>	
<i>Project Location</i>	<i>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</i>	

**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.P.Venkatareddy  
Status of the Proponent : Private & Individual  
Proponent's Name & Address : S/o. G. Pillareddy  
Kukkalapalli Village,  
Kammandoddi Post,  
Shoolagiri Taluk,  
Krishnagiri 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 mechanized open cast method on allotted mine lease area at Kammandoddi Village, Shoolagiri Taluk of Krishnagiri District, Tamil Nadu. It is an undulated terrain. The total allotted mine lease for the proposed project is 2.38.5 Ha with their maximum production capacity i.e. **405339 m<sup>3</sup>** of Rough stone for (Sixty months) Five years only.

<i>Project</i>	<i>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</i>	<i>EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Venkatareddy</i>	
<i>Project Location</i>	<i>Kammandoddi Village, Shoalagiri Taluk, Krishnagiri District</i>	

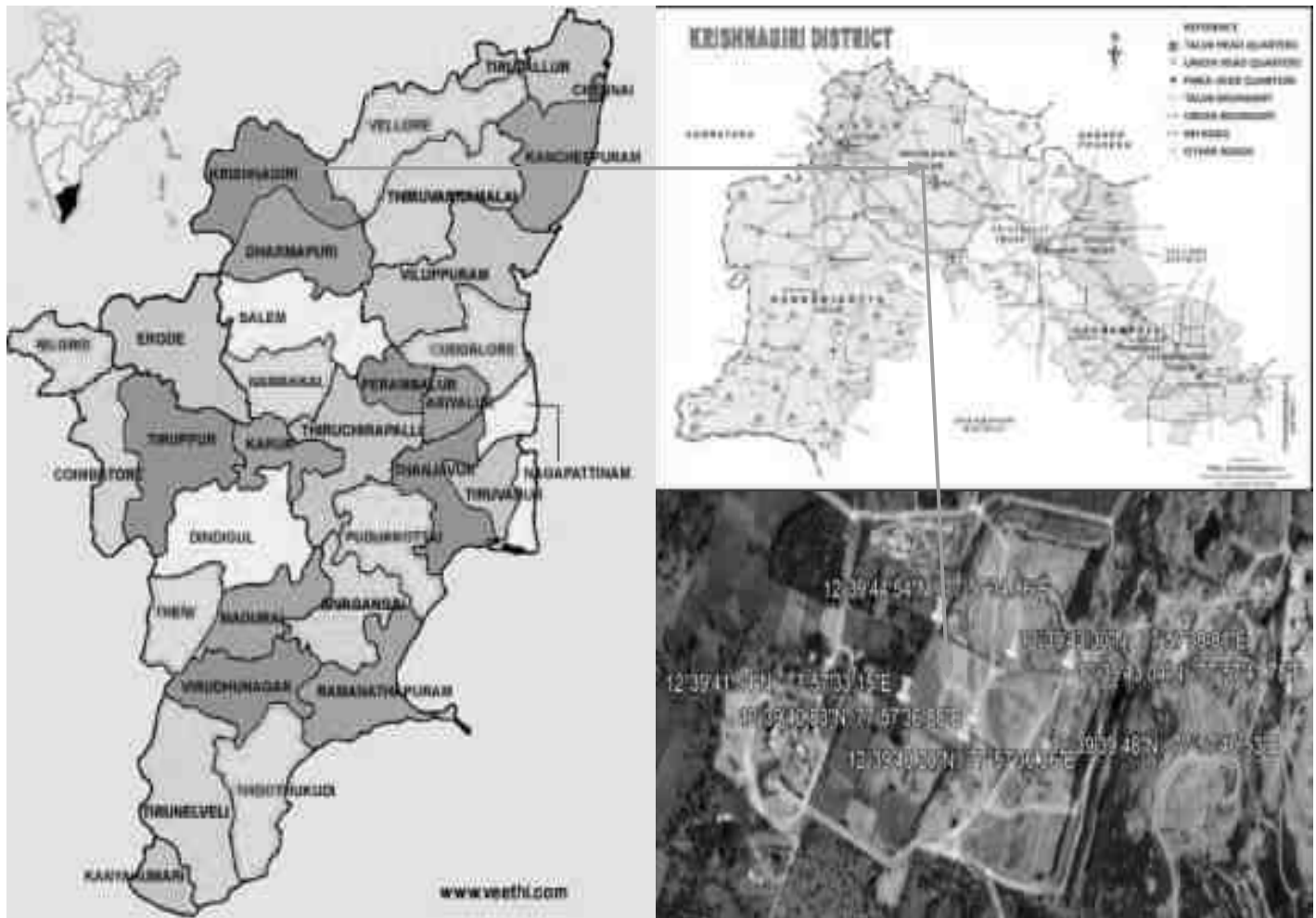


Figure 1-1: Location Map of the Project site

<i>Project</i>	<i>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</i>	<i>EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Venkatareddy</i>	
<i>Project Location</i>	<i>Kammandoddi Village, Shoologiri Taluk, Krishnagiri District</i>	

## 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

The Scheme of Mining along with Progressive Mine Closure Plan has been proposed for Rough Stone Quarry in Patta Land S.F.Nos.1267/2, 1268/2 & 1268/3 over an extent of 2.38.5 Ha. in Kammandoddi Village, Shoologiri Taluk, Krishnagiri District. It is a undulated terrain. This Scheme of Mining for the period 2022-2023 to 2026-2027 is prepared and submitted under Rule 12 of MMCDR,2010 and 41 & 42 of TNMMCR, 1959 for approval.

The Scheme of Mining was approved by Assistant Director, Geology and Mining, Krishnagiri vide letter Roc No.1123/2021/Mines dated:23.04.2021 for a period of 2022-2023 to 2026-2027 for 2.38.5 Ha land area in the S.F.Nos.1267/2, 1268/2 & 1268/3 for a proposed mining depth of 43 m(1.0m Topsoil + 42.0m Rough Stone) below ground level and five years production of 405339 m<sup>3</sup> of Rough Stone.

#### **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 final 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 Krishnagiri District. The proceedings of the same has been incorporated in the Final EIA Report.

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

<b>Project</b>	<b>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</b>	<b>EIA Report</b>
<b>Project Proponent</b>	<b>Thiru.P.Venkatareddy</b>	
<b>Project Location</b>	<b>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</b>	

**Table 2-1: Quarry within 500m Radius**

**1) Existing other quarries:**

<b>S. No.</b>	<b>Name of the lessee / Permit Holder</b>	<b>Village &amp; Taluk</b>	<b>S. F. No.</b>	<b>Extent</b>	<b>Lease Period</b>
1.	Thiru.P.Venkata Reddy	Kammandoddi Village & Shoolagiri Taluk	1267/2, 1268/2, 1268/3	2.38.5 Ha	10.11.2017 to 09.11.2022
2.	Thiru.Rajappa	Kammandoddi Village & Shoolagiri Taluk	1266	4.04.5 Ha	13.10.2017 to 12.10.2027
3.	Thiru.Surendiran	Kammandoddi Village & Shoolagiri Taluk	1269/2A	1.66.5 Ha	13.10.2017 to 12.10.2022
4.	Tmt.V.Renuka	Kammandoddi Village & Shoolagiri Taluk	1269/2B	1.27.0 Ha	13.10.2017 to 12.10.2022
5.	Thiru.S.Madhu	Kammandoddi Village & Shoolagiri Taluk	1151 etc.,	1.27.0 Ha	06.12.2019 to 05.12.2029
6.	Thiru.G.Ashoka	Kammandoddi Village & Shoolagiri Taluk	754 & 760 (Part 3)	3.66.0 Ha	17.02.2022 to 16.02.2032

**2) Proposed Area:**

<b>S. No.</b>	<b>Name of the applicant</b>	<b>Village &amp; Taluk</b>	<b>S. F. No.</b>	<b>Extent</b>
1.	Thiru. P.Narayanappa	Kammandoddi Village & Shoolagiri Taluk	754 & 760 (part-1)	1.80.0 Ha

<b>Project</b>	<b>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</b>	<b>EIA Report</b>
<b>Project Proponent</b>	<b>Thiru.P.Venkatareddy</b>	
<b>Project Location</b>	<b>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</b>	

2.	Thiru.K.Govindhappa	Kammandoddi Village & Shoolagiri Taluk	754 & 760 (part-2)	2.10.0 Ha
3.	Thiru.Mallikarjun	Kammandoddi Village & Shoolagiri Taluk	754 & 760 (part-4)	3.50.0 Ha
4.	Thiru.V.Karunanithi	Kammandoddi Village & Shoolagiri Taluk	754 & 760 (part-5)	4.30.0 Ha
5.	M/s Royal Blue Metals	Kammandoddi Village & Shoolagiri Taluk	1151, 1155, 1212 to 1219, 1222, 1225 & 1226/A (part-1)	2.70.0 Ha
6.	M/s Royal Blue Metals	Kammandoddi Village & Shoolagiri Taluk	1151, 1155, 1212 to 1219, 1222, 1225 & 1226/A (part-2)	2.87.0 Ha
7.	Thiru.K.Murugesh	Kammandoddi Village & Shoolagiri Taluk	1151, 1155, 1212 to 1219, 1222, 1225 & 1226/A (part-3)	2.82.0 Ha
8.	Thiru.S.R.Sambang	Kammandoddi Village & Shoolagiri Taluk	1151, 1155, 1212 to 1219, 1222, 1225 & 1226/A (part-4)	2.23.0 Ha

### 3) Lease Expired/Old quarries:

S. No.	Name of the applicant	Village & Taluk	S. F. No.	Extent	Lease Status
1.	Thiru.Subramani	Kammandoddi Village & Shoolagiri Taluk	1278/2, 1278/3,4	0.82.0	02.06.2003 to 01.06.2008 (Lease expired)

<i>Project</i>	<i>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</i>	<i>EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Venkatareddy</i>	
<i>Project Location</i>	<i>Kammandoddi Village, Shoologiri Taluk, Krishnagiri District</i>	

The Total extent of the Existing / Lease expired / Proposed quarries are 37.39.5 Ha

### **2.1.1 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 Krishnagiri, 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 project area is dry lands showing only less chance for crop growth and development of vegetation. Rocks and minerals of economic importance found to occur in Krishnagiri District are Multicolour Granite, Rough Stone, Red soil, Gravel, Savudu, Pebbles with traces of occurrence of Quartz and Feldspar. 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 project 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**

<b>S. No.</b>	<b>Description</b>	<b>Details</b>
1	Project Name	Rough Stone Quarry-2.38.5 ha
2	Proponent	Thiru.P.Venkatareddy
3	Mining Lease Area Extent	2.38.5Ha

<b>Project</b>	<b>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</b>	<b>EIA Report</b>
<b>Project Proponent</b>	<b>Thiru.P.Venkatareddy</b>	
<b>Project Location</b>	<b>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</b>	

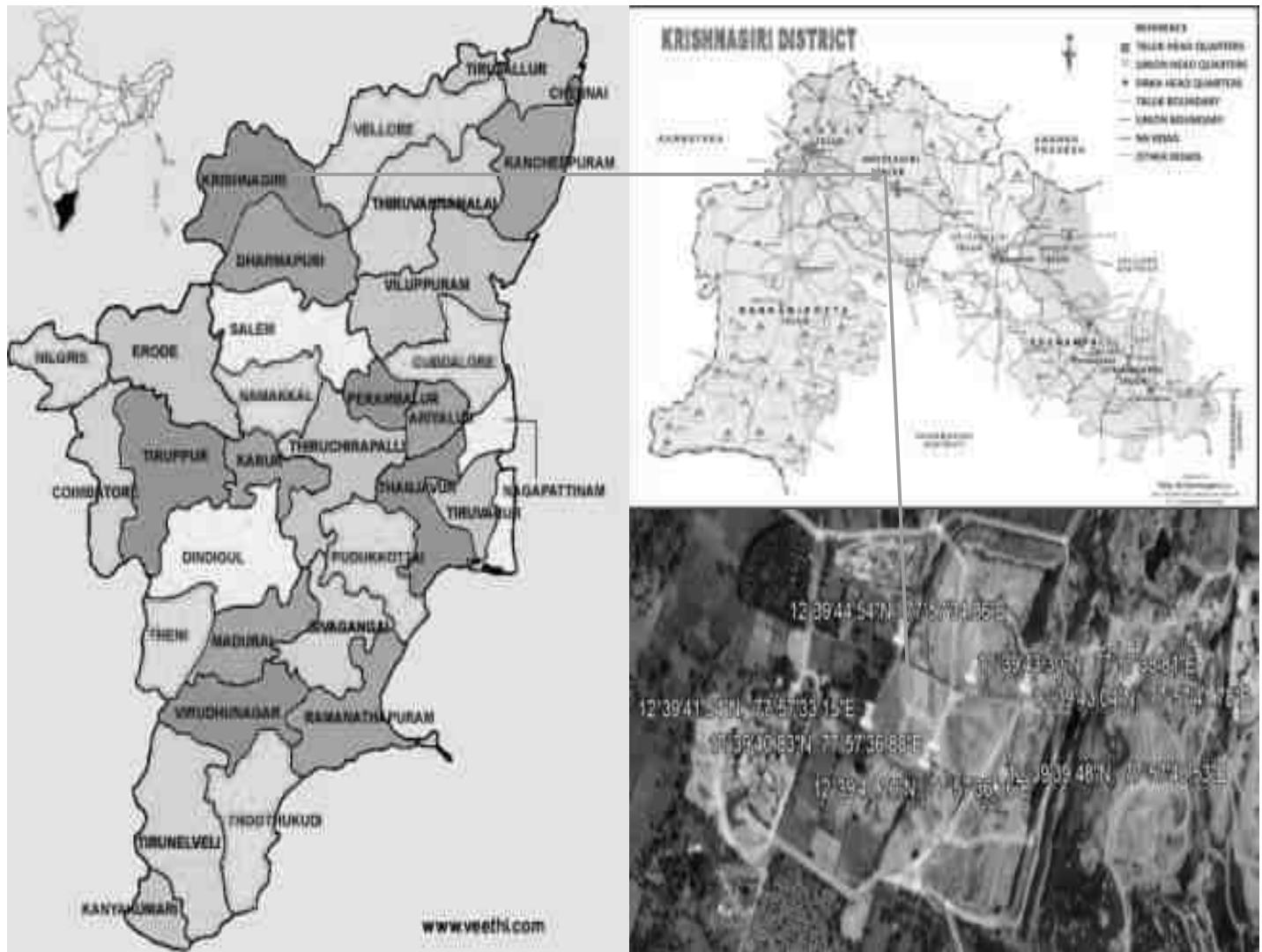
4	Location	S.F.Nos.1267/2, 1268/2 & 1268/3 Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District.
5	Latitude	12°39'42.99"N to 12°39'41.44"N
6	Longitude	77°57'41.79" E to 77°57'33.09"E
7	Topography	Undulated terrain
8	Site Elevation above MSL	739 m from MSL
9	Topo sheet No.	57H/ 14
10	Minerals of Mine	Rough Stone
11	Proposed production of Mine	Proposed capacity of Rough stone: 405339m <sup>3</sup>
12	Ultimate depth of Mining	43 m below ground level
13	Method of Mining	Open cast mechanized mining
14	Water demand	2 KLD
15	Source of water	Water will be supplied through tankers supply
16	Man power	Direct :7 , Indirect :7 nos
17	Mining Lease	Proceedings letter received from the The District collector, Krishnagiri vide letter Rc.No. 721/2015/Mines-2 dated 30.10.2017.
18	Mining Plan Approval	The Scheme of Mining was approved by Assistant Director, Geology and Mining, Krishnagiri vide letter Roc No.1123/2021/Mines dated:23.04.2021 for a period of 2022-2023 to 2026-2027
19	Production details	Geological reserves of Rough Stone : 9,44,148 m <sup>3</sup> Proposed year wise recoverable reserves of Rough Stone : 4,05,339 m <sup>3</sup>
20	Boundary Fencing	7.5m barrier all along the boundary Fencing will be provided.

<i>Project</i>	<i>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</i>	<i>EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Venkatareddy</i>	
<i>Project Location</i>	<i>Kammandoddi Village, Shoologiri Taluk, Krishnagiri District</i>	

21	Disposal of overburden	The top soil of the lease area is 9603 m <sup>3</sup> . Top Soil formation will be removed and dumped in the North, South and West side 7.5m boundary barrier of the lease area and will be utilized for Afforestation purposes.
22	Ground water	The quarry operation is proposed up to a depth of <b>43 m</b> (1.0m Topsoil + 42.0m Rough Stone) below ground level. The water table is below <b>70 m</b> from ground level which is observed from the nearby open wells and 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 of the project site.
24	Drinking water	Water will be supplied through tankers from Nearby Village.



<b>Project</b>	<b>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</b>	<b>EIA Report</b>
<b>Project Proponent</b>	<b>Thiru.P.Venkatareddy</b>	
<b>Project Location</b>	<b>Kammandoddi Village, Shoologiri Taluk, Krishnagiri District</b>	



**Figure 2.1 Location of the Project Site**

<b>Project</b>	<b>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</b>	<b>EIA Report</b>
<b>Project Proponent</b>	<b>Thiru.P.Venkatareddy</b>	
<b>Project Location</b>	<b>Kammandoddi Village, Shoologiri Taluk, Krishnagiri District</b>	



**Figure 2.2 Google Earth Image of the Project Site**

**2.2.1 Site Connectivity:**

The site is connected to NH 44 – Dharmapuri-Bengaluru Road, 1.8 km towards North side.



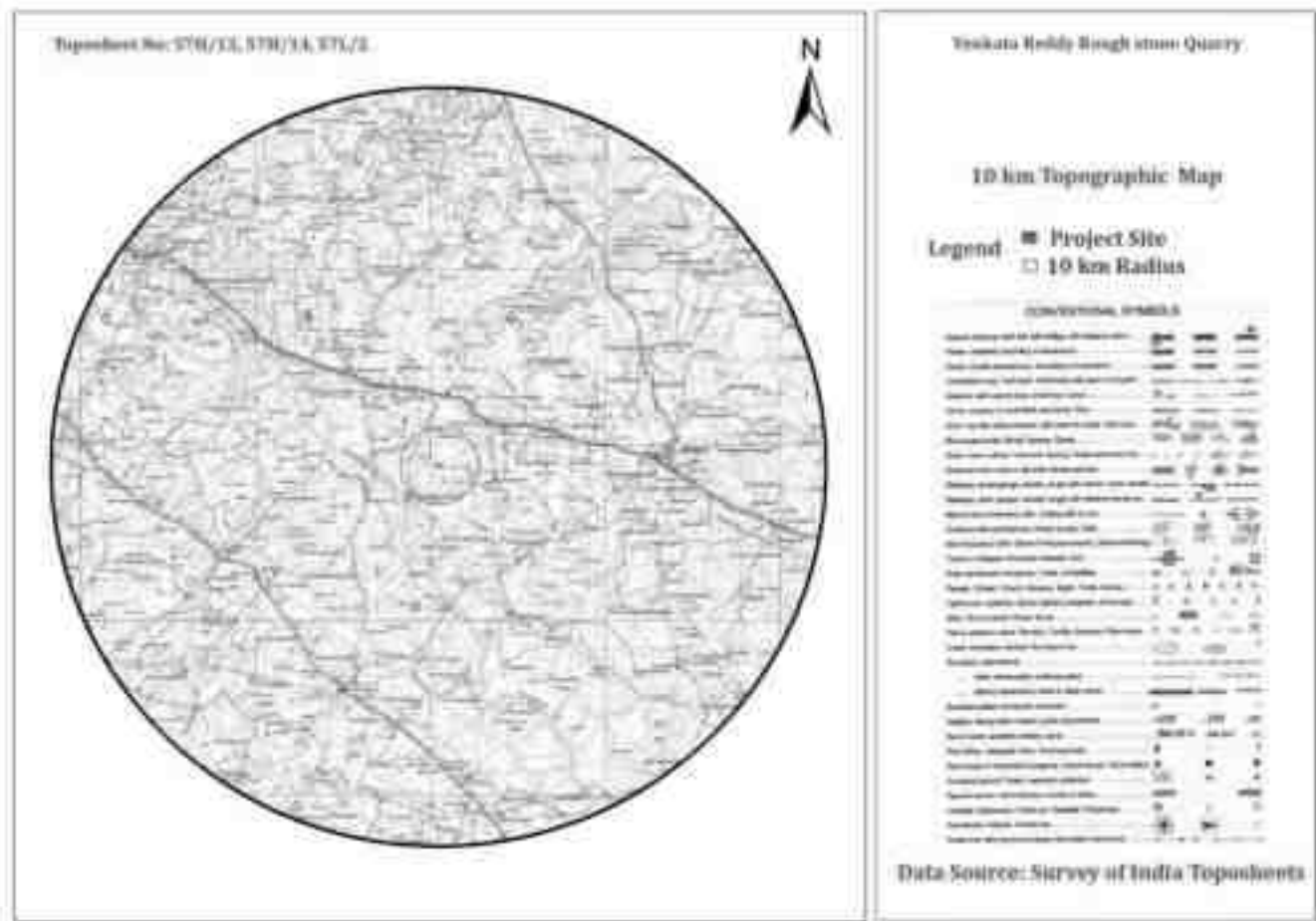
**Figure 2.3 Site Connectivity**

<b>Project</b>	<b>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</b>	<b>EIA Report</b>
<b>Project Proponent</b>	<b>Thiru.P.Venkatareddy</b>	
<b>Project Location</b>	<b>Kammandoddi Village, Shoologiri Taluk, Krishnagiri District</b>	

**2.3 Location Details:**

**Table 2-3: Location Details**

S. No	Particulars	Details
1.	Latitude	12°39'42.99"N to 12°39'41.44"N
2.	Longitude	77°57'41.79" E to 77°57'33.09"E
3.	Site Elevation above MSL	739 m from MSL
4.	Topography	Undulated terrain
5.	Land use of the site	Own Patta land
6.	Extent of lease area	2.38.5 Ha



**Figure 2.4: Topo Map of Project Site**

<b>Project</b>	<b><i>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</i></b>	<b><i>EIA Report</i></b>
<b>Project Proponent</b>	<b><i>Thiru.P.Venkatareddy</i></b>	
<b>Project Location</b>	<b><i>Kammandoddi Village, Shoologiri Taluk, Krishnagiri District</i></b>	



**Figure 2.5: Environmental Sensitivity within 10 km radius**

### ***2.3.1 Site Photographs***

The site photographs of the project site are as follows

<i>Project</i>	<i>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</i>	<i>EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Venkatareddy</i>	
<i>Project Location</i>	<i>Kammandoddi Village, Shoologiri Taluk, Krishnagiri District</i>	



**Figure 2.6: Site Photographs**

### ***2.3.2 Land Use Breakup of the Mine Lease Area***

The Mine Lease area is undulated terrain. The land use pattern of the mine lease area as follows.

<i>Project</i>	<i>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</i>	<i>EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Venkatareddy</i>	
<i>Project Location</i>	<i>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</i>	

**Table 2-4: Land use pattern**

<b>S.No</b>	<b>Land Use</b>	<b>Present Area (Ha)</b>	<b>Area in use during the quarrying period (Ha)</b>
1	Area under Quarrying	0.76.5	1.76.5
2	Infrastructure	Nil	0.01.0
3	Roads	0.01.0	0.01.0
4	Green Belt & Dump	Nil	0.60.0
5	Unutilized Area	1.61.0	Nil
	<b>TOTAL</b>	<b>2.38.5</b>	<b>2.38.5</b>

### **2.3.3 Human Settlement**

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

**Table 2-5: Habitation**

<b>S.No</b>	<b>Direction</b>	<b>Village</b>	<b>Population</b>	<b>Distance in Kms</b>
1	North	Koneripalli	200	1.8 Km
2	South	Thirumalaigowni Kotta	400	1.2 Km
3	West	Kukkala Palli	250	2.0 km
4	East	Chappadi Village	250	1.4 km

### **2.4 Leasehold Area**

The Rough Stone Quarry mine of 2.38.5 Ha is an own Patta land of P.Venkatareddy. The lease area falls in S.F.Nos.1267/2, 1268/2 & 1268/3 of Kammandoddi Village, Shoolagiri Taluk, Krishnagiri 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.

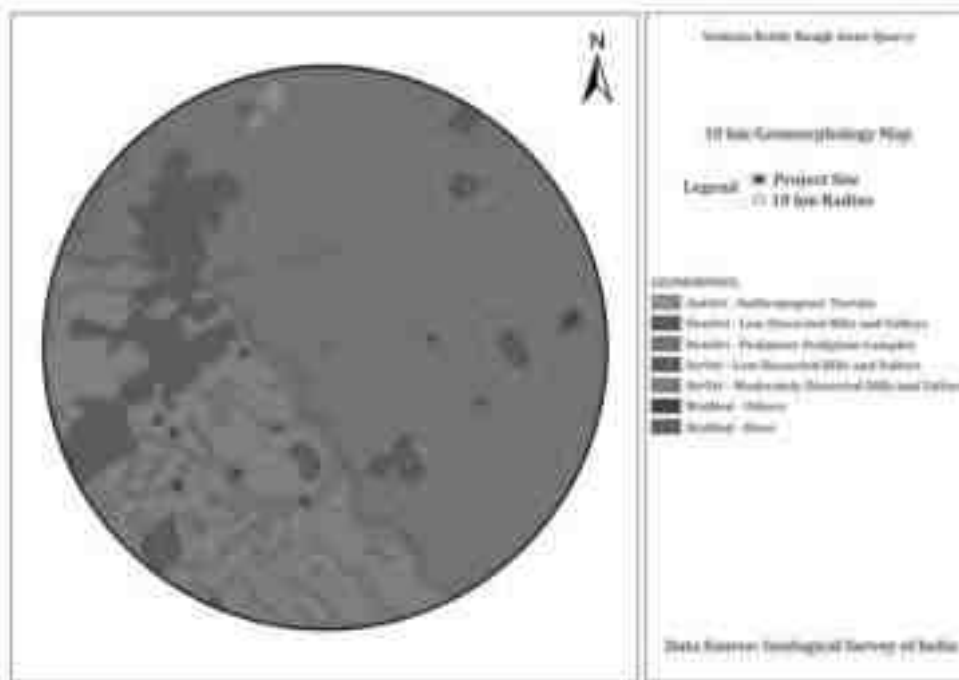
### **2.5 Geology**

Krishnagiri District is underlain by crystalline metamorphic complex in the western parts of district and sedimentary tract in eastern side. An area of 4551 Sq.km is covered by crystalline rocks (63%) and 2671 Sq.km is covered by sediments (37%).

The general geological sequence of formation is given below:

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<b>Project Proponent</b>	<b>Thiru.P.Venkatareddy</b>	
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- Quaternary - Laterites, Sands and Clays
- Tertiary - Sandstone, Gravels and Clays
- Cretaceous - Limestone,
- Calcareous Sandstone and Clay unconformity.
- Archaean - Charnockites, Gneisses, Granites, Dolerites and Pegmatite



**Figure 2.7: Geomorphology**

The area applied for quarry lease is undulated terrain sloping towards Western side covered with Rough stone which does not sustain any type of vegetation.

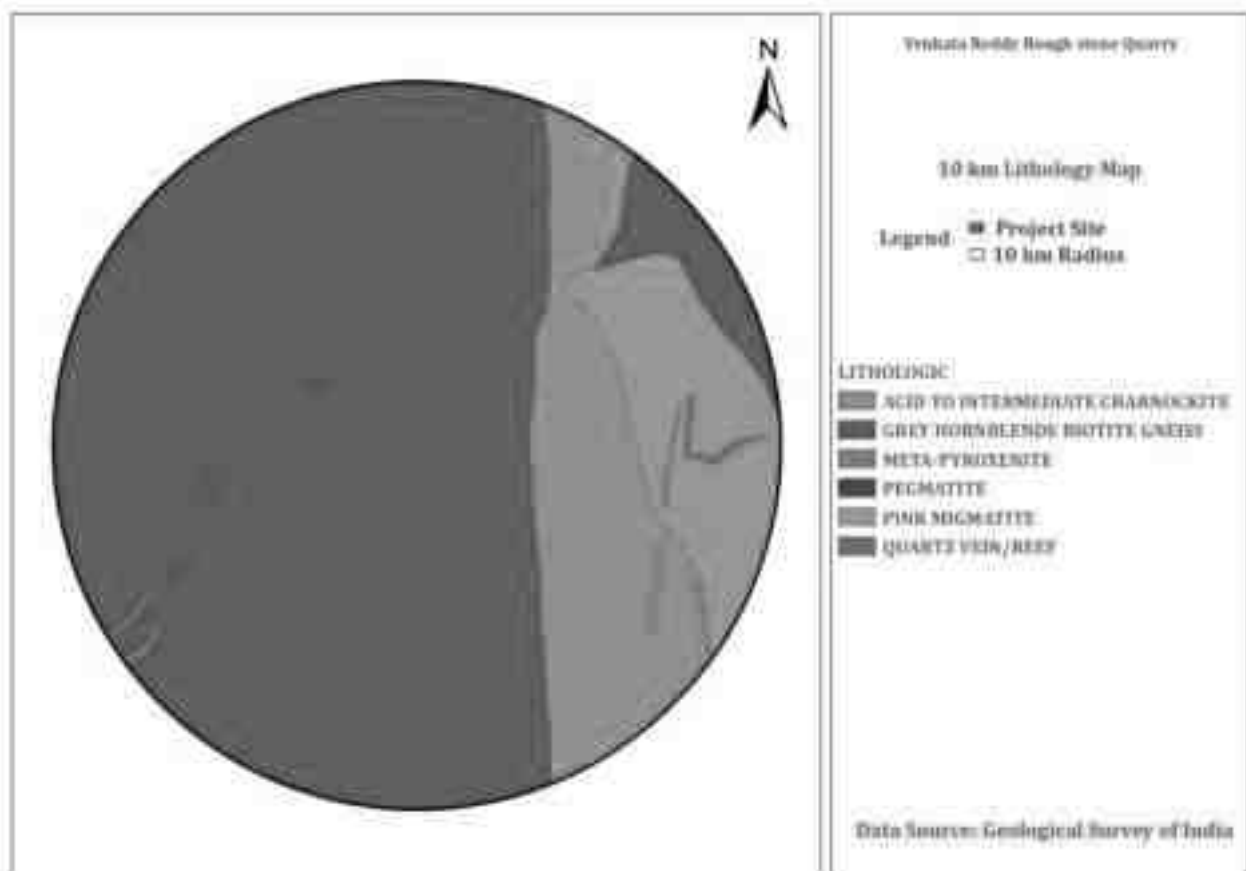
The major part of the area is covered by metamorphic crystalline rocks of charnockite, granitic gneiss of Archaean age intruded by dolerite dykes and pegmatite veins. These rocks are highly metamorphosed and have been subjected to very severe folding, crushing and faulting. Ground Water occurs under the phreatic condition and wherever there are deep seated fractures, it occurs under semi-confined to confined conditions.

Occurrence of Ground Water in hard rock depends upon the intensity and depth of weathering, fractures and fissures present in the rocks. Granites and gneisses yield moderately compared to the

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<b>Project Location</b>	<b>Kammandoddi Village, Shoologiri Taluk, Krishnagiri District</b>	

yield in Charnockites. Depth of well in hard rock generally ranges between 8 and 15m below ground level. Generally yield in open wells ranges from 30 to 250m<sup>3</sup> /day and in bore well between 260 and 430 m<sup>3</sup> /day. The weathered thickness varies from 2.5 m to 42m in general. there are 3 to 5 fracture zones within 100 m and 1 to 4 fracture zones between 100 and 200 m.

The Cretaceous formation is represented by Arenaceous Lime stone, Calcareous sand - stone and marl. The Tertiary formation is argillaceous comprising of Silty clay stones, argillaceous Lime stone. The alluvium consists of unconsolidated sands, gravelly sands, clays and clayey sands. The thickness of the sands ranges between 15 and 25 m in the alluvial formation which also form potential aquifers. In some areas, sand stone of tertiary formation are the potential groundwater reservoirs.



**Figure 2.8 Lithology**



<b>Project</b>	<b>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</b>	<b>EIA Report</b>
<b>Project Proponent</b>	<b>Thiru.P.Venkatareddy</b>	
<b>Project Location</b>	<b>Kammandoddi Village, Shoologiri Taluk, Krishnagiri District</b>	

## **2.6 Quality of Reserves:**

The mining lease area is of 2.38.5 Ha, with production capacity of **405339 m<sup>3</sup>** 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**

<b>S. No</b>	<b>Particulars</b>	<b>Details</b>
1	Method of Mining	Open Cast mechanized
2	Geological Reserves	Rough stone – 9,44,148 m <sup>3</sup>
3	Recoverable Reserves	Rough stone – 4,05,339 m <sup>3</sup>
4	Proposed Production	Rough stone – 4,05,339 m <sup>3</sup>
5	Elevation Range of the Mine Site	739 m 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. 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 9,44,148 Cum of Rough Stone.

### **2.6.2 Geological Reserves**

#### **Top Soil:**

The Thickness of Top Soil in this area is 1m and the total volume of Top Soil will be 12398m<sup>3</sup>.

#### **Rough Stone:**

The Available Geological Reserve is estimated as 944148 m<sup>3</sup> respectively, at the rate of 95% Recovery upto the permissible depth. Top Soil is calculated upto a depth of 1m and Rough Stone at a depth of 42m. Total Depth-43m.

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<i>Project Proponent</i>	<i>Thiru.P.Venkatareddy</i>	
<i>Project Location</i>	<i>Kammandoddi Village, Shoologiri Taluk, Krishnagiri District</i>	

**Table 2-7: Geological Reserves**

<b>GEOLOGICAL RESERVES</b>								
<b>Section</b>	<b>Bench</b>	<b>Length in (m)</b>	<b>Width in (m)</b>	<b>Depth in (m)</b>	<b>Volume In M<sup>3</sup></b>	<b>Geological Reserves in m3 @ 95%</b>	<b>Mine waste in m3 @ 5%</b>	<b>Top Soil in m<sup>3</sup></b>
XY-AB	I	109	111	1				12099
	II	109	111	7	84693	80458	4235	
	III	109	111	7	84693	80458	4235	
	IV	109	111	7	84693	80458	4235	
	V	109	111	7	84693	80458	4235	
	VI	109	111	7	84693	80458	4235	
	VII	109	111	7	84693	80458	4235	
<b>Total=</b>					<b>508158</b>	<b>482748</b>	<b>25410</b>	<b>12099</b>
XY- CD	I	13	23	1				299
	II	43	41	7	12341	11724	617	
	III	115	98	7	78890	74946	3944	
	IV	115	98	7	78890	74946	3944	
	V	115	98	7	78890	74946	3944	
	VI	115	98	7	78890	74946	3944	
	VII	115	98	7	78890	74946	3944	
	VIII	115	98	7	78890	74946	3944	
<b>Total=</b>					<b>485681</b>	<b>461400</b>	<b>24281</b>	<b>299</b>
<b>Grand Total=</b>					<b>993839</b>	<b>944148</b>	<b>49691</b>	<b>12398</b>

<b>Project</b>	<b>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</b>	<b>EIA Report</b>
<b>Project Proponent</b>	<b>Thiru.P.Venkatareddy</b>	
<b>Project Location</b>	<b>Kammandoddi Village, Shoologiri Taluk, Krishnagiri District</b>	

### 2.6.3 Mineable Reserves

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

**Table 2-8: Mineable Reserves**

<b>MINEABLE RESERVES</b>								
<b>Section</b>	<b>Bench</b>	<b>Length in (m)</b>	<b>Width in (m)</b>	<b>Depth in (m)</b>	<b>Volume In M<sup>3</sup></b>	<b>Mineable Reserves in m3 @ 95%</b>	<b>Mine waste in m3 @ 5%</b>	<b>Top Soil in m<sup>3</sup></b>
XY-AB	I	102	94	1				9588
	II	101	92	7	65044	61792	3252	
	III	96	82	7	55104	52349	2755	
	IV	91	72	7	45864	43571	2293	
	V	86	62	7	37324	35458	1866	
	VI	81	52	7	29484	28010	1474	
	VII	76	42	7	22344	21227	1117	
<b>Total=</b>					<b>255164</b>	<b>242407</b>	<b>12757</b>	<b>9588</b>
XY-CD	I	3	5	1				15
	II	33	22	7	5082	4828	254	
	III	105	69	7	50715	48179	2536	
	IV	100	59	7	41300	39235	2065	
	V	95	49	7	32585	30956	1629	
	VI	90	39	7	24570	23342	1228	
	VII	85	29	7	17255	16392	863	
<b>Total=</b>					<b>171507</b>	<b>162932</b>	<b>8575</b>	<b>15</b>
<b>Grand Total=</b>					<b>426671</b>	<b>405339</b>	<b>21332</b>	<b>9603</b>

### 2.6.4 Year wise Production Plan

The year wise production to be carry out 405339 m<sup>3</sup> of Rough Stone for the period of five years.

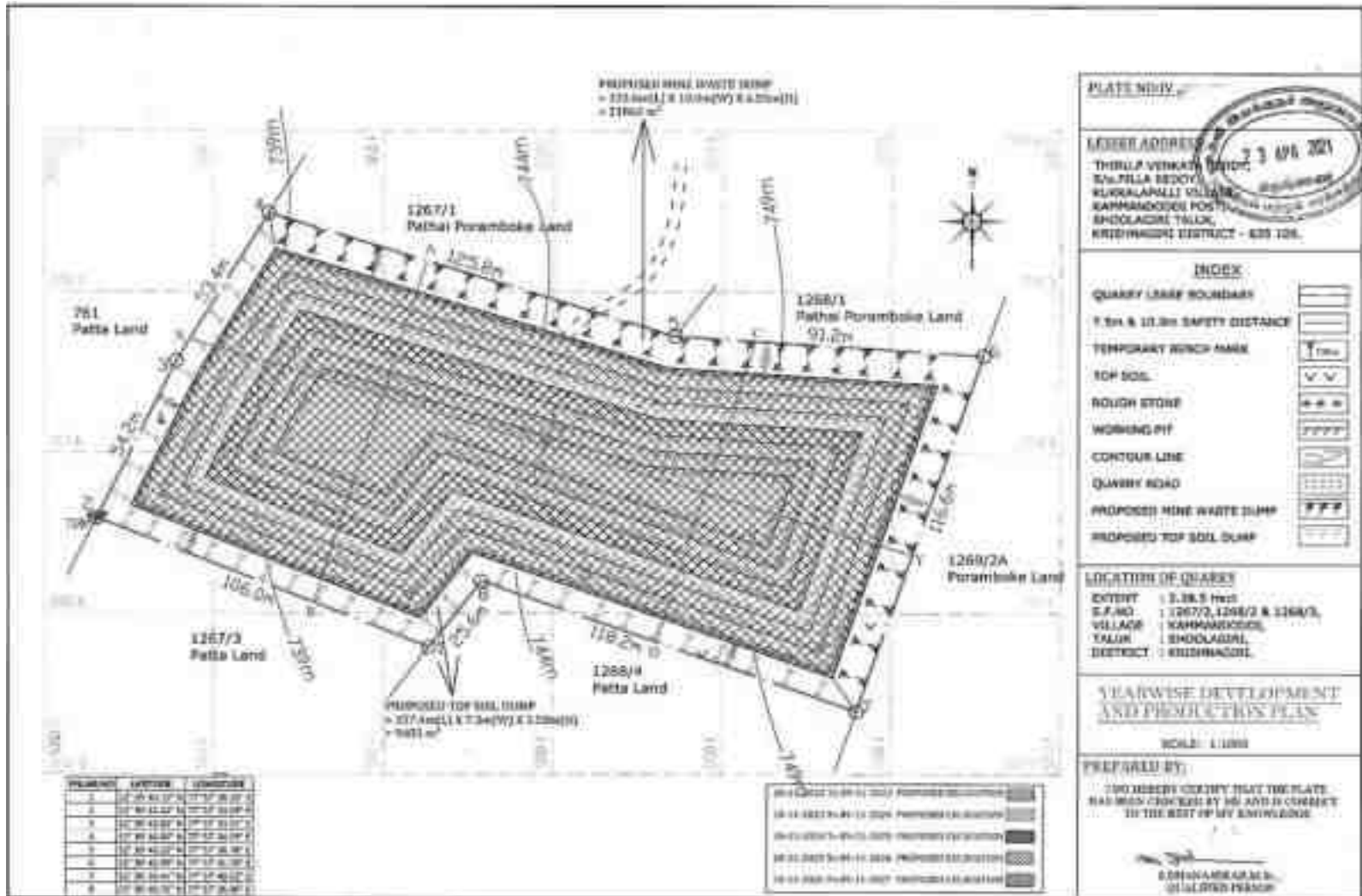
**Table 2-9: Year wise Production Plan**

<b>YEARWISE DEVELOPMENT &amp; PRODUCTION RESERVES</b>									
<b>YEAR</b>	<b>Section</b>	<b>Bench</b>	<b>L (m)</b>	<b>W (m)</b>	<b>D(m)</b>	<b>Volume In M<sup>3</sup></b>	<b>Recoverable Reserves in m3 @ 95%</b>	<b>Mine waste in m3 @ 5%</b>	<b>Top Soil in m<sup>3</sup></b>
10.11.2022-09.11.2023	XY-AB	I	102	94	1				9588
		II	101	92	7	65044	61792	3252	
		I	3	5	1				15

<b>Project</b>	<b>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</b>	<b>EIA Report</b>
<b>Project Proponent</b>	<b>Thiru.P.Venkatareddy</b>	
<b>Project Location</b>	<b>Kammandoddi Village, Shoologiri Taluk, Krishnagiri District</b>	

	XY-CD	II	33	22	7	5082	4828	254	
		III	105	69	7	50715	48179	2536	
	<b>Total=</b>					<b>120841</b>	<b>114799</b>	<b>6042</b>	<b>9603</b>
10.11.2023-09.11.2024	XY-AB								
		III	96	82	7	55104	52349	2755	
	XY-CD	IV	100	59	7	41300	39235	2065	
	<b>Total=</b>					<b>96404</b>	<b>91584</b>	<b>4820</b>	
10.11.2024-09.11.2025	XY-AB								
		IV	91	72	7	45864	43571	2293	
	XY-CD	V	95	49	7	32585	30956	1629	
	<b>Total=</b>					<b>78449</b>	<b>74527</b>	<b>3922</b>	
10.11.2025-09.11.2026	XY-AB								
		V	86	62	7	37324	35458	1866	
	XY-CD	VI	90	39	7	24570	23342	1228	
	<b>Total=</b>					<b>61894</b>	<b>58800</b>	<b>3094</b>	
10.11.2026-09.11.2027	XY-AB								
		VI	81	52	7	29484	28010	1474	
		VII	76	42	7	22344	21227	1117	
	XY-CD	VII	85	29	7	17255	16392	863	
	<b>Total=</b>					<b>69083</b>	<b>65629</b>	<b>3454</b>	
<b>Grand Total=</b>						<b>426671</b>	<b>405339</b>	<b>21332</b>	<b>9603</b>

<b>Project</b>	<b>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</b>	<b>Chapter 2</b> <b>Project Description</b>
<b>Project Proponent</b>	<b>Thiru.P.Venkatareddy</b>	
<b>Project Location</b>	<b>Kammandoddi Village, Shoalagiri Taluk, Krishnagiri District</b>	



**Figure 2.9 Year wise Production Plan**

<i>Project</i>	<i>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</i>	<i>EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Venkatareddy</i>	
<i>Project Location</i>	<i>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</i>	

## **2.7 Type of Mining**

The proposed project is an open cast mechanized mining with one 5.0 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 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; 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 1.2cbm bucket capacity Jack Hammer (25.5mm dia) Tractor mounted compressor
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<i>Project Proponent</i>	<i>Thiru.P.Venkatareddy</i>	
<i>Project Location</i>	<i>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</i>	

Loading Equipment	Excavator of 1.20cbm bucket capacity
Transportation	Tipper 2 No of 10/20 tons capacity (from quarry to needy people and local crushers)

#### 2.7.4 *Blasting:*

##### 2.7.4.1 **Blasting Pattern:**

The quarrying operation will be carried out by 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**

<b>Parameters</b>	<b>Details</b>
Depth of each hole	1.0m to 1.5m
Diameter of hole	32-36mm
Spacing between holes	0.6 m
Pattern of hole	Zigzag
Charge/Hole	D.Cord with water or 70 gms of gun powder or Gelatine.
Inclination of holes	70° from horizontal
Use of delay detonators	25 milli seconds delays
Detonating fuse	“Detonating” Cord

##### 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.

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<i>Project Proponent</i>	<i>Thiru.P.Venkatareddy</i>	
<i>Project Location</i>	<i>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</i>	

#### 2.7.4.4 Measures to minimize ground vibration due to blasting:

The quarry is situated more than 1.2 km 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**

<b>Parameters</b>	<b>Details</b>
Diameter of holes	32-36 mm
Spacing	60 Cms
Powder factor	6 to 7 tons/kg of explosives
Pattern of hole	Zig Zag
Charge/hole	140 gms of 25 mm dia cartridge
Blasted at day time	5 to 6 PM (or whenever required)

#### 2.7.4.5 Storage & Safety measures taken during blasting:

The project proponent “Thiru.P.Venkatareddy” 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**

1.	Skilled	Operator	8 No.
		Foreman/ Part time	1 No.
		Mining Engineer	
		Blaster /Mate	1 No.
2.	Semi-skilled		3 No.
3.	Unskilled		1 Nos
		Total =	14 Nos



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<i>Project Proponent</i>	<i>Thiru.P.Venkatareddy</i>	
<i>Project Location</i>	<i>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</i>	

No child less than 18 years will be entertained during quarrying operations.

### 2.8.1 Water Requirement

Total water requirement for the mining project is 2 KLD. Domestic water will be sourced from nearby Kammandoddi Village and other water will be source from nearby road tankers supply.

**Table 2-14: Water Requirement**

<b>Purpose</b>	<b>Quantity</b>	<b>Sources</b>
Drinking Water	1.0 KLD	Drinking water will be brought from the approved water vendors in the nearby villages.
Green belt	0.5KLD	Other domestic activities through road tankers supply
Dust suppression	0.5KLD	From road tankers supply
<b>Total</b>	<b>2.0 KLD</b>	

### 2.9 Project Implementation Schedule

The implementation schedule of the proposed Mine Lease of Thiru.P.Venkatareddy (2.38.5 ha) is as follows.

**Table 2-15: Mining Schedule**

<b>MINING SCHEDULE</b>					
Activity	Dec-22	Dec-23	Dec-24	Dec-25	Dec-26
Site Clearance					
Excavation - Top Soil Removal/Overburden					
I Year Production – 114799 Cum - Rough Stone					
II Year Production – 91584 Cum - Rough Stone					
III Year Production – 74527 Cum - Rough Stone					
IV Year Production - 58800 Cum - Rough Stone					
V Year Production - 65629 Cum - Rough Stone					

<i>Project</i>	<i>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</i>	<i>EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Venkatareddy</i>	
<i>Project Location</i>	<i>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</i>	

## 2.10 Solid Waste Management

**Table 2-16: Solid Waste Management**

<b>S.No</b>	<b>Type</b>	<b>Quantity</b>	<b>Disposal Method</b>
1	Organic	2.7 kg/day	Municipal bin including food waste
2	Inorganic	4.05 kg/day	TNPCB authorized recyclers

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

## 2.11 Mine Drainage

The quarry operation is proposed up to a depth of 43 m below ground level. The water table is below 70m from the ground level which is observed from the nearby bore wells and bore wells of this area. Hence the ground water will not be affected in any manner due to the quarrying operation during the entire lease period.

## 2.12 Power Requirement

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

**16 Liter** diesel per hour for excavator for mining and loading for Rough Stone needed.

## 2.13 Project Cost

1	<b><u>A. Fixed Asset Cost:</u></b>	
	1. Land Cost	: Rs. 22,00,000
	2. Labour Shed	: Rs.2,00,000
	3. Sanitary Facility	: Rs.90,000
	4. Fencing Cost	: Rs.1,00,000
	<b>Total=</b>	<b>Rs. 25,90,000/-</b>
2	<b><u>B. Operational Cost:</u></b>	
	1. Machinery cost	: <b>Rs.40,00,000/-</b>

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<i>Project Proponent</i>	<i>Thiru.P.Venkatareddy</i>	
<i>Project Location</i>	<i>Kammandoddi Village, Shoologiri Taluk, Krishnagiri District</i>	

3	<b>C. EMP Cost:</b>	
	1. Drinking water facility	: Rs.1,20,000/-
	2. Safety kits	: Rs. 1,00,000/-
	3. Water sprinkling	: Rs. 60,000/-
	4. Afforestation	: Rs. 60,000/-
	5. Water Quality Test	: Rs. 40,000/-
	6. Air Quality Test	: Rs.40,000/-
	7. Noise/Vibration Test	: Rs.40,000/-
	8. Cost towards Charity	: Rs.40,000/-
	Total=	<b>Rs. 5,00,000/-</b>
	<b>Total Project Cost(A+B+C)</b>	<b>: Rs. 70,90,000/-</b>

Investment Cost = Rs. 25,90,000/-

Machinery Cost = Rs. 40,00,000/-

Total EMP Cost = Rs. 5,00,000/-

**Grand Total project Cost = Rs. 70,90,000/-**

#### 2.14 Greenbelt

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, Vilvam, Pungam, Naval etc will be planted along the lease boundary and avenues as well as over Non-active dumps at a rate of 80 trees per annum with interval 5m.
4. The rate of survival expected to be 70% in this area

**Table 2-17 Plantation/ Afforestation Program**

<b>Scientific Name</b>	<b>Local Name</b>
<i>Diospyro sebenum</i>	Karungali
<i>Aegle marmelos</i>	Vilvam

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<i>Lagerstromia speciosa</i>	Poo Marudhu
<i>Toona ciliate</i>	Sandhana Vembu
<i>Morinda citrifolia</i>	Vellai nuna
<i>Pongamia Pinnata</i>	Pungam
<i>Prosopis cinera</i>	Vannimaram
<i>Syzygium cumini</i>	Naval
<i>Premna tomentosa</i>	Purangai Naari
<i>Litsea glutinosa</i>	Pisinpattai
<i>Chloroxylon sweitenia</i>	Purasamaram
<i>Strychnos potatorum</i>	Therthang Kottai

- The development of greenbelt in the periphery of the mine area.
- Trees will be planted along the sides of the lease boundary and avenues as well as Non-active dumps at a rate of 1200 trees with an interval of 5m in 3 rows with tall and long tree species alternative rows.

### 2.15 Corporate Social Responsibility

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

**Table 2-18 CER Cost**

<b>S.No.</b>	<b>CER Activity</b>	<b>CER (Rs in Crores)</b>
1.	Developing the library, sports/Drinking water facilities in nearby school	5,00,000/-
<b>Total</b>		<b>Rs. 5,00,000</b>

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### 3 Description of the 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 10 km 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 Lt.No.SEIAA–TN/F.No.9320/SEAC/ToR-1237/2022 dated 30.08.2022. The baseline monitoring is carried out in June to August 2022 and the analysis is briefed in the EIA report. The proponent has engaged M/s. Ecotech labs Pvt. Ltd for carrying out the existing baseline study.

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### 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 June to August 2022.

### 3.1.4 Frequency of Monitoring

**Table 3-1: Frequency of Sampling and Analysis**

<b>Attributes</b>	<b>Sampling</b>	<b>Frequency</b>
Air environment – Meteorological (wind speed, wind direction, rainfall, humidity, temperature)	Project site	1 hourly continuous
Air environment – Pollutants PM 10 PM 2.5 SO <sub>2</sub> NO <sub>x</sub> Lead in PM	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	5 locations	Once in 5 locations

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Alkalinity, Chloride, Sulphate, Fluoride, Nitrate, Sodium, Potassium, Salinity, Total nitrogen, Total Coliforms, Fecal Coliforms		
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

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### 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	S.F.Nos. 1267/2, 1268/2 & 1268/3 - 2.38.5 Ha , Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu State	Field Study
2.	Latitude & Longitude	Latitude: 12°39'42.99"N to 12°39'41.44"N Longitude: 77°57'41.79" E to 77°57'33.09"E	Topo Sheet
3.	Topo Sheet No.	57H/ 14	Survey of India Toposheet
4.	Mine Lease Area	2.38.5 Ha	--
Demography in the study area (as per Census 2011)			
5.	Total Population	6524	Census Survey of India
6.	Total Number of Households	1450	
7.	Maximum Temperature (°C)	33.7	IMD
8.	Minimum Temperature (°C)	24.2	



<i>Project</i>	<i>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</i>	<i>EIA Report</i>
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9.	Ecological Sensitive Areas - Wetlands, watercourses or other waterbodies, coastal zone, biospheres, mountains, forests	<ul style="list-style-type: none"> <li>❖ Kammandoddi Lake – 2.7 km, NW</li> <li>❖ Konerapalli Lake- 2 km, N</li> <li>❖ Chappadi Lake- 2.2 km, NE</li> <li>❖ Bukkasagaram- 7 km, N</li> <li>❖ Doripalli Lake- 5.3 km, N</li> <li>❖ Gobasandram River- 4.0 km, NW</li> <li>❖ Ponnaiyar River- 1.3 km, S</li> <li>❖ Sanamavu Reserved Forest- 2.7 km, SW</li> <li>❖ Perandapalli Forest- 4.5 km, W</li> <li>❖ Settipalli RF – 2.6 km, N</li> <li>❖ Punnagaram RF – 7.7 km, NW</li> </ul>	Google Earth/Field Study																																							
10.	Densely Populated area	Krishnagiri (5.4 km, NW)																																								
11.	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	<table border="1"> <thead> <tr> <th>S. No.</th> <th>Places</th> <th>Dist. From Project Site</th> </tr> </thead> <tbody> <tr> <td colspan="3" style="text-align: center;"><b>Schools &amp; Colleges</b></td> </tr> <tr> <td>1</td> <td>The Dreams Land Public School</td> <td>3.23 km, NW</td> </tr> <tr> <td>2</td> <td>Government High School, Addakurukki</td> <td>3.3 km, N</td> </tr> <tr> <td>3</td> <td>MSR Paramedical &amp; Technical Institute</td> <td>3.7 km, NW</td> </tr> <tr> <td>4</td> <td>Perumal Manimekalai Polytechnic College, Hosur</td> <td>1.4 km, NE</td> </tr> <tr> <td colspan="3" style="text-align: center;"><b>Hospitals</b></td> </tr> <tr> <td>1</td> <td>Vijay Hospital</td> <td>5.4 Km, E</td> </tr> <tr> <td>2</td> <td>St.Alphonsa Hospital</td> <td>12.3 Km, NW</td> </tr> <tr> <td colspan="3" style="text-align: center;"><b>Worship Places</b></td> </tr> <tr> <td>1</td> <td>Hanuman Temple</td> <td>1.0 Km, SW</td> </tr> <tr> <td>2</td> <td>Our Lady of Velankanni Church, Shoolagiri</td> <td>4.7 Km, E</td> </tr> <tr> <td>3</td> <td>Jama Masjid</td> <td>1.1 km, SW</td> </tr> </tbody> </table>	S. No.	Places	Dist. From Project Site	<b>Schools &amp; Colleges</b>			1	The Dreams Land Public School	3.23 km, NW	2	Government High School, Addakurukki	3.3 km, N	3	MSR Paramedical & Technical Institute	3.7 km, NW	4	Perumal Manimekalai Polytechnic College, Hosur	1.4 km, NE	<b>Hospitals</b>			1	Vijay Hospital	5.4 Km, E	2	St.Alphonsa Hospital	12.3 Km, NW	<b>Worship Places</b>			1	Hanuman Temple	1.0 Km, SW	2	Our Lady of Velankanni Church, Shoolagiri	4.7 Km, E	3	Jama Masjid	1.1 km, SW	Google Earth/Field Study
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### 3.1.7 Site Connectivity:

The site is connected to NH 44 – Dharmapuri-Bengaluru Road, 1.8 km towards North side.

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**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.

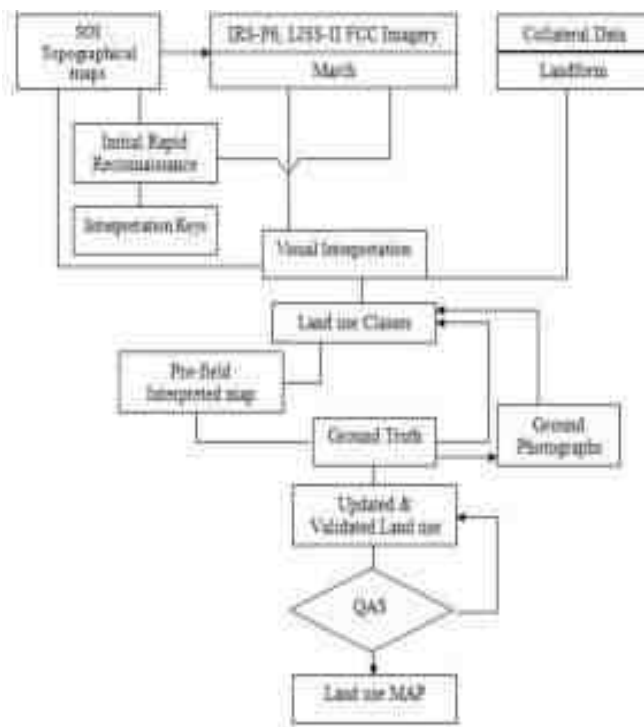
#### ***3.2.2 Methodology***

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

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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

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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. Digitization 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/01,02,03 have been procured and interpreted using the ERDAS imaging and ARC-GIS software adopting the necessary interpretation techniques.
3. Satellite data interpretation and vectorization 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.

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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*

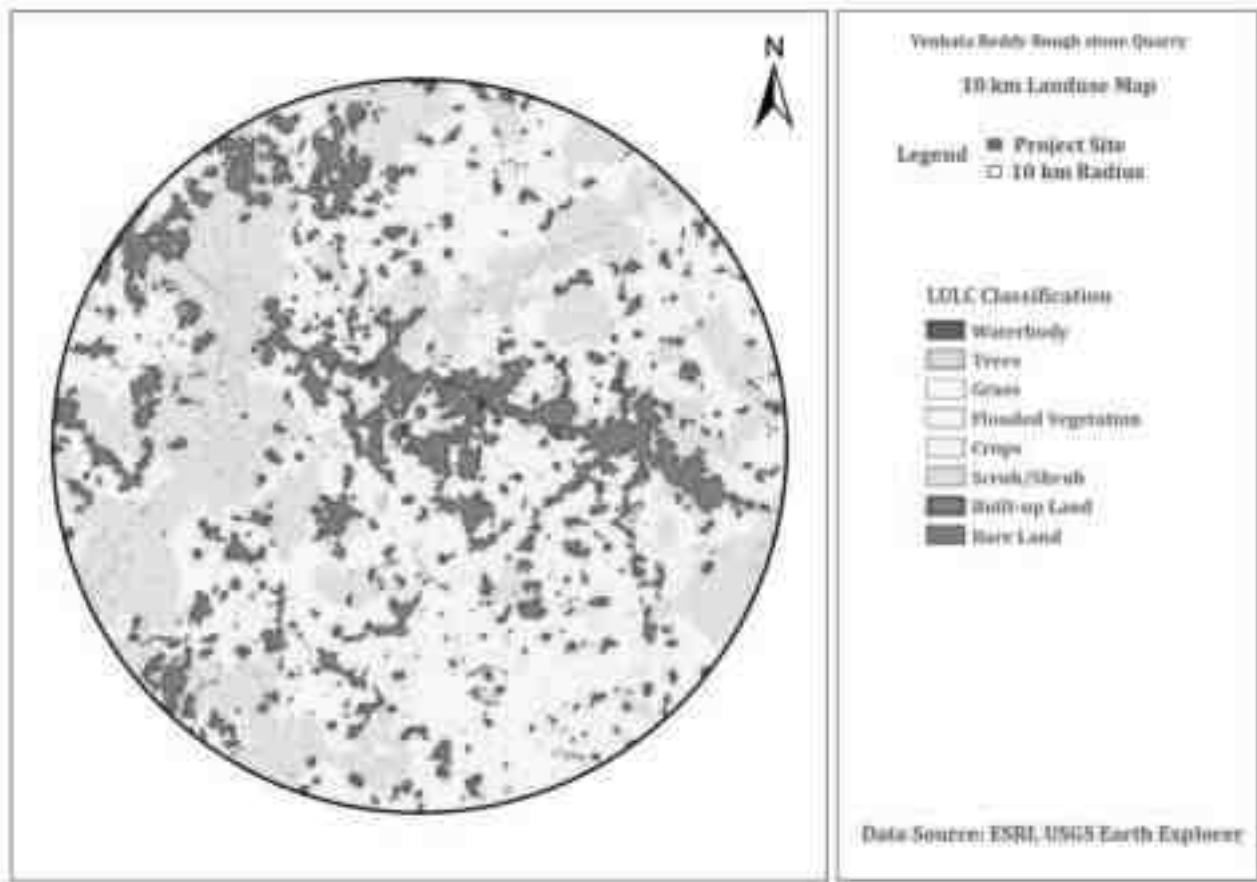
Field verification involved collection, verification and record of the different surface features that create specific spectral signatures / image expressions on FCC. In the study area, doubtful areas identified in course of interpretation of imagery is systematically listed and transferred on to the 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 below

### *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.

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**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 Krishnagiri District**

<b>Sl.No</b>	<b>Categories</b>	<b>Area in Sqkm</b>
1	Total Geographical Area	315.88
2	Water Body	1.71
3	Trees	11.12
4	Grass	0.09
5	Flooded Vegetation	0.01
6	Crops	161.56
7	Scrub/Shrub	85.43
8	Built-up Area	55.42
9	Barren Land	0.54

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### **3.2.8 Agricultural land**

This category includes the land utilized for crops, vegetables, fodder and fruits. Existing cropland and current fallows are included in this category.

It is described as an area under agricultural tree crops, planted adopting certain agricultural management techniques.

### **3.3 Water Environment**

#### **3.3.1 Contour & Drainage**

The project site is 739 m AMSL. The drainage pattern within in the 10 km of the project site is dendritic.

#### **3.3.2 Geomorphology**

The geomorphic evolution of the area is mainly controlled by denudational, structural and fluvial processes. The evolution of various landforms has been governed mainly by the varying resistance of geological formations to these processes. Various landforms are occurring in the area, such as erosional plains, residual hills, pediments, buried pediments and deltaic plain. The shallow pediments possess poor to moderate yields with thin soil cover. The buried pediments and deltaic plain possess good ground water potential.

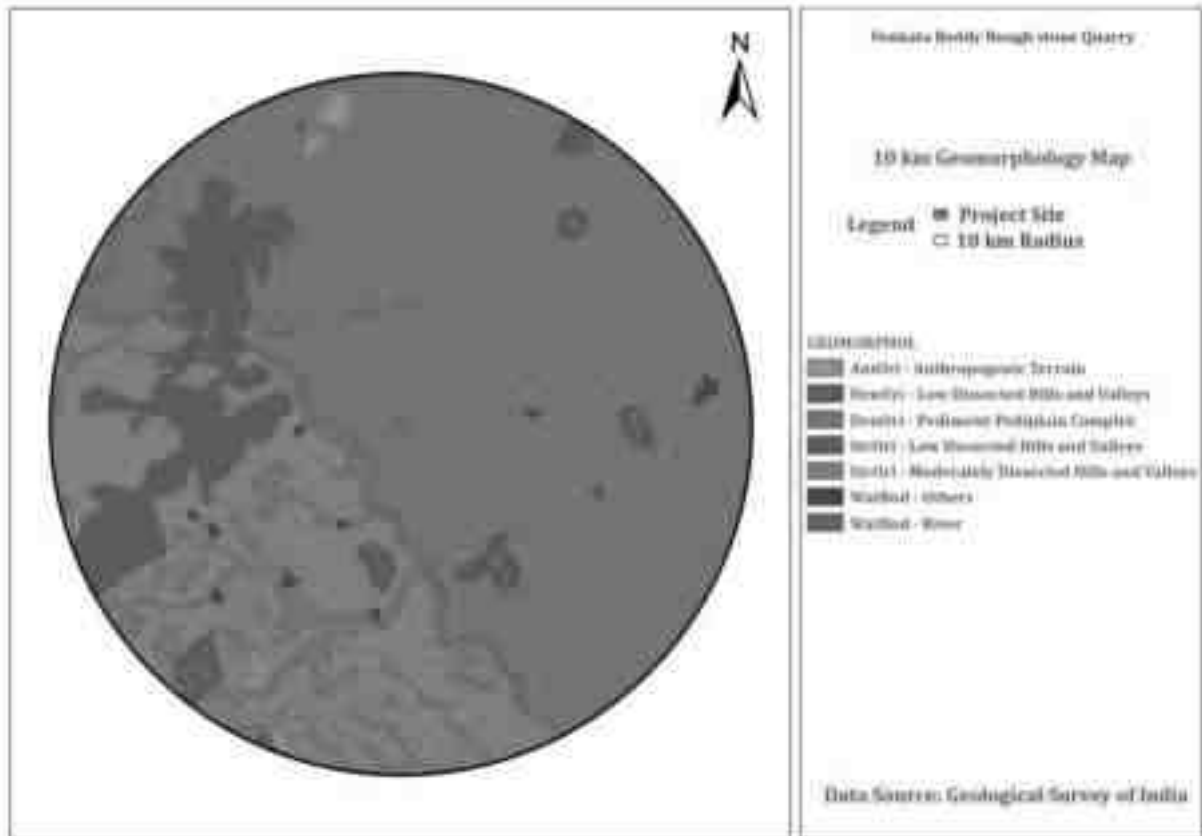
#### **Soils**

Soils have been classified into Black soil, mixed soil, red loamy soil, gravelly and sandy soils. Red loamy and sandy soils are predominant in Hosur taluk. Vast stretches of loam soils and black soils occur in Krishnagiri district.

The prominent geomorphic units identified in the district through interpretation of satellite imagery are structural hills in the southwestern part of the district, denudational land forms like buried pediments in the plains and inselbergs and plateaus represented by conical hills aligned with major lineaments. Krishnagiri district forms part of the upland plateau region with many hill ranges and undulating plains. The western part of the district has hill ranges of Mysore plateau with a chain of undulating hills and deep valleys extending in NNE-SSW direction. The plains of the district have an average elevation of 488 m amsl. The plateau region along the western boundary and the northwestern part of the district

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has an average elevation of 914 m amsl. The Guthrayan Durg with an elevation of 1395 m amsl is the highest peak in the district



**Figure 3-4 Geomorphology within 10km from the project site**

### 3.3.3 Geology:

Krishnagiri District is underlain by crystalline metamorphic complex in the western parts of district and sedimentary tract in eastern side. An area of 4551 Sq.km is covered by crystalline rocks (63%) and 2671 Sq.km is covered by sediments (37%).

The general geological sequence of formation is given below:

Quaternary - Laterites, Sands and Clays

Tertiary - Sandstone, Gravels and Clays

Cretaceous - Limestone,

Calcareous Sandstone and Clay unconformity.

Archaean - Charnockites, Gneisses, Granites, Dolerites and Pegmatite



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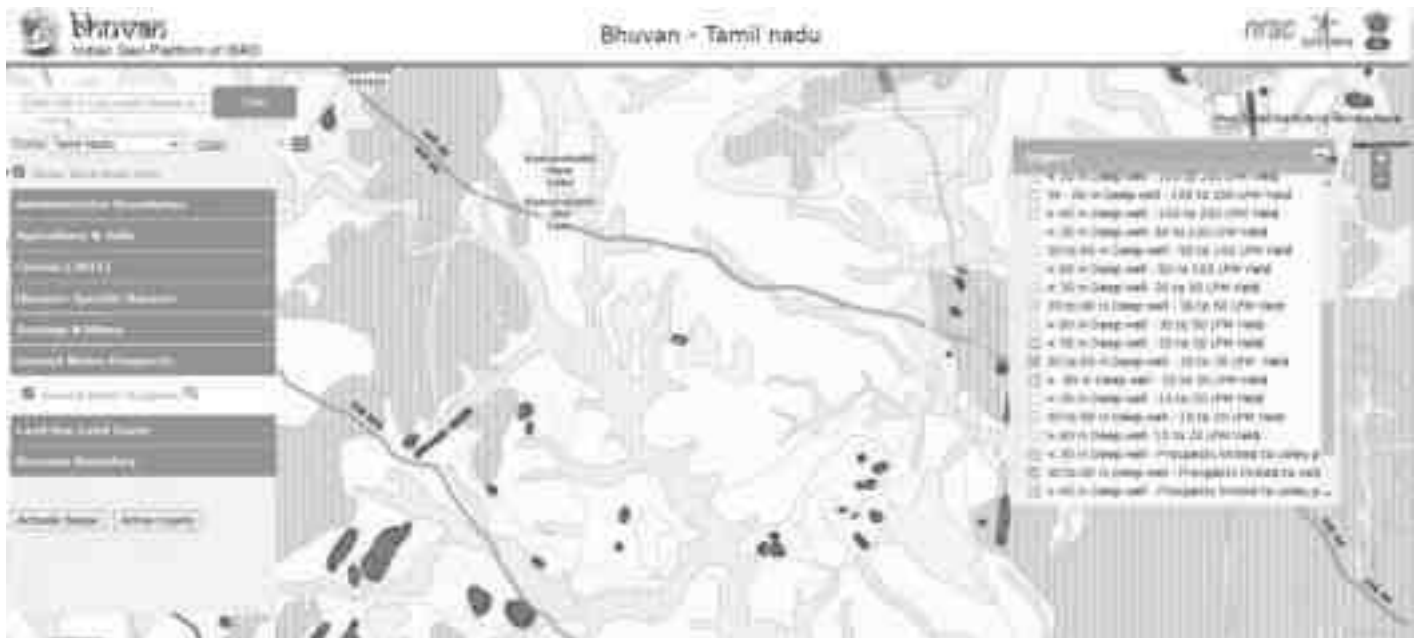
The major part of the area is covered by metamorphic crystalline rocks of charnockite, granitic gneiss of Archaean age intruded by dolerite dykes and pegmatite veins. These rocks are highly metamorphosed and have been subjected to very severe folding, crushing and faulting. Ground Water occurs under the phreatic condition and wherever there are deep seated fractures, it occurs under semi-confined to confined conditions.

### *3.3.4 Hydrogeology*

Occurrence of Ground Water in hard rock depends upon the intensity and depth of weathering, fractures and fissures present in the rocks. Granites and gneisses yield moderately compared to the yield in Charnockites. Depth of well in hard rock generally ranges between 8 and 15m below ground level. Generally yield in open wells ranges from 30 to 250m<sup>3</sup> /day and in bore well between 260 and 430 m<sup>3</sup> /day. The weathered thickness varies from 2.5 m to 42m in general. there are 3 to 5 fracture zones within 100 m and 1 to 4 fracture zones between 100 and 200 m.

The Cretaceous formation is represented by Arenaceous Lime stone, Calcareous sand - stone and marl. The Tertiary formation is argillaceous comprising of Silty clay stones, argillaceous Lime stone. The Quaternary deposits represented by the river deposits of Ponnaiyar and Varahanadhi spread over as patches in Villupuram District. The alluvium consists of unconsolidated sands, gravelly sands, clays and clayey sands. The thickness of the sands ranges between 15 and 25 m in the alluvial formation which also form potential aquifers. In some areas, sand stone of tertiary formation are the potential groundwater reservoirs.

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<b>Project Location</b>	<b>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</b>	



**Figure 3-5 Ground water prospects within 5 km radius of the project site**

### 3.3.5 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 3-4 Ground water Quality Analysis**

Environmental Parameters: Ground water Quality Analysis	
Monitoring Period	June to August 2022
Design Criteria	Based on the Environmental settings in the study area
Monitoring Locations	Project Site – GW 1 Sree Banashankari Papers Limited, Pathakotta – GW 2 (3 km, W) Shoolagiri Police station – GW 3 (4.9 km, E) Government High School, Devasanapalli - GW 4 (5 km, S) Er, Perumal Manimekalai College, Konerapalli – GW 5 (1.8 km, N)
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

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### 3.3.5.1 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 3-5: 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 22 <sup>nd</sup> Edn.2012-2540-C
6	Total Suspended Solids	IS:3025(P-17)-1984 RA:2012
7	Total Hardness as CaCO <sub>3</sub>	APHA 22 <sup>nd</sup> Edn.2012-2340-C
8	Calcium as Ca	APHA 22 <sup>nd</sup> Edn2012.3500 Ca-B
9	Magnesium as Mg	APHA 22 <sup>nd</sup> Edn.2012-3500 Mg-B
10	Chloride as Cl	IS:3025(P -32)-1988 RA: 2014
11	Sulphate as SO <sub>4</sub>	APHA 22 <sup>nd</sup> Edn.2012-4500 SO <sub>4</sub> -E
12	Total Alkalinity as CaCO <sub>3</sub>	APHA 22 <sup>nd</sup> Edn.2012-2320-B
13	Iron as Fe	IS:3025(P -53):2003 RA: 2014
14	Silica as SiO <sub>2</sub>	IS:3025(P -35)1988 RA: 2014
15	Fluoride as F	APHA 22 <sup>nd</sup> Edn.2012-4500-F-D
16	Nitrate as NO <sub>3</sub>	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

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**Table 3-6 Ground water sampling results**

S. No	Parameters	Units	Project Site	GW 2	GW 3	GW 4	GW 5
1	pH (at 25°C)	-	7.32	7.42	7.06	7.73	6.97
2	Electrical Conductivity	µS/cm	1949	1012	1649	2029	2536
3	Colour	Hazen Unit	2	60	1	1	2
4	Turbidity	NTU	BQL(LO Q:1.0)	45.5	BQL(LO Q:1.0)	BQL(LO Q:1.0)	1.4
5	Total Dissolved Solids	mg/L	1072	552	907	1116	1395
6	Total Suspended Solids	mg/L	BQL(LO Q:2.0)	BQL(LO Q:1.0)	BQL(LO Q:1.0)	BQL(LO Q:1.0)	BQL(LO Q:1.0)
7	Total Hardness as CaCO <sub>3</sub>	mg/L	566	360	535	669	859
8	Calcium as Ca	mg/L	152	113	148	211	224
9	Magnesium as Mg	mg/L	45.3	19.3	40.4	34.7	73.2
10	Chloride as Cl	mg/L	317	72.8	209	254	362
11	Sulphate as SO <sub>4</sub>	mg/L	71.3	61.3	52.2	149	157
12	Total Alkalinity as CaCO <sub>3</sub>	mg/L	273	311	246	259	372
13	Iron as Fe	mg/L	BQL(LO Q:0.1)	BQL(LO Q:0.1)	BQL(LO Q:0.1)	BQL(LO Q:0.1)	BQL(LO Q:0.1)
14	Silica as SiO <sub>2</sub>	mg/L	33.3	39.8	49.9	32.6	57.6
15	Calcium Hardness as CaCO <sub>3</sub>	mg/L	380	281	368	527	558
16	Magnesium Hardness as CaCO <sub>3</sub>	mg/L	186	79.2	166	143	301
17	Fluoride as F	mg/L	0.313	BQL(LO Q:0.1)	BQL(LO Q:0.2)	0.253	#DIV/0!
18	Sodium as Na	mg/L	290	45.4	200	222	193
19	Potassium as K	mg/L	21.3	3.56	14.1	32.1	24.3
20	Nitrate as NO <sub>3</sub>	mg/L	10.3	6.89	44.9	44.9	48.5

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### 3.3.6 Interpretation of results:

#### 3.3.6.1 Physical parameters of water:

The basic physical parameters of water include

##### **Colour:**

Value observed in Project Site (True/Apparent Color): 2 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 Project Site: 7.32

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 slightly neutral in nature.

##### **Turbidity:**

Value observed in the Project Site: BQL (LOQ: 1)

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 the Project Site: 1072 mg/L.

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

The TDS is the presence of the inorganic salts and small amounts of organic matter present in the water. This is mainly due to the result of surface runoff as the cations and anions in the top soil is carried away by the water. The value in the project site indicates the water is less turbid.

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### 3.3.6.2 Chemical parameters of water:

The chemical parameters of the drinking water include,

#### **Calcium:**

Value observed in the Project Site: 152 mg/L.

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

Calcium is the essential macronutrient. The value of the calcium is within 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 the Project Site: 45.3 mg/L.

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

The value of Magnesium in the project site is higher than acceptable limit and less than the permissible limit. The increase in the level of magnesium will cause diarrhea and vomiting in children.

#### **Chloride**

Value observed in the project site: 317 mg/L.

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

The chloride level in the project site is within the acceptable and 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 CaCO<sub>3</sub>:**

Value observed in the project site: 273 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.

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### Calcium Hardness:

Value observed in the Project Site: 380 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 acceptable limit but within the 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.

### 3.3.6.3 Biological parameters of water:

The biological parameters of water includes E- Coli & Coliform

Value observed in the project site: <2 mpn/100ml – e-coli and <2 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 faecally contaminated. Without treatment, when consumed, will have water borne diseases like cholera, typhoid and diarrhea.

### 3.3.7 Surface Water Analysis

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

**Table 3-7 Surface Water Sample Results**

S. No	Parameters	Units	Konerapalli Lake	Palliaikuthur Lake
1	pH (at 25°C)	-	7.55	7.9
2	Electrical Conductivity	µS/cm	1002	960
3	Colour	Hazen Unit	5	3
4	Turbidity	NTU	BQL(LOQ:1.0)	BQL(LOQ:1.0)
5	Total Dissolved Solids	mg/L	551	528
6	Total Suspended Solids	mg/L	BQL(LOQ:1.0)	BQL(LOQ:1.0)
7	Total Hardness as CaCO <sub>3</sub>	mg/L	240	220
8	Calcium as Ca	mg/L	57.1	51.6
9	Magnesium as Mg	mg/L	23.6	22.2
10	Chloride as Cl	mg/L	125	143

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11	Sulphate as SO <sub>4</sub>	mg/L	84.3	28.8
12	Total Alkalinity as CaCO <sub>3</sub>	mg/L	194	137
13	Iron as Fe	mg/L	0.088	0.254
14	Silica as SiO <sub>2</sub>	mg/L	26.9	-0.6
15	Calcium Hardness	mg/L	143	129
16	Magnesium Hardness	mg/L	96.7	91.1
17	Fluoride as F	mg/L	0.728	BQL(LOQ:0.2)
18	Sodium as Na	mg/L	111	122
19	Potassium as k	mg/L	8.3	19.61
20	Nitrate as NO <sub>3</sub>	mg/L	7.32	6.74
21	BOD	mg/L	9.31	3.12
22	COD	mg/L	34.1	11.3
23	TKN	mg/L	34.4	15.5
24	DO	mg/L	4.5	5.4

**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.

### 3.3.8 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

Like the rest of the state, Krishnagiri experiences hot weather between April and July and is relatively cooler in December and January. The area exhibits a subtropical climate and the temperature that goes upto 42°C in summer and falls down to 27°C in December – January. The



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wind direction is NE-SW and vice-versa. Average annual rainfall is about 1071.4 mm in monsoon season..

## ii) Temperature

The average daily temperature ranges from a maximum of 33.7 °C to a minimum of 24.2 °C

## iii) Rainfall:

The historical rainfall data of past years is collected. The maximum rainfall is observed in September 2017 with a rainfall of 291.7 mm.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F
2016	0.2	0	1.9	3.8	144.4	87	185.5	49.1	5.2	34.7	8.5	76.9
2017	5.7	0	48.7	37.9	198.6	19.1	24.6	189.7	291.7	219	54.5	56.2
2018	0	1.3	34.9	14.4	114.5	41.1	10.5	18.5	152.1	85.2	33.2	4.8
2019	13.2	1.2	4.5	47.2	96.5	33.6	34.6	94.7	138.6	177.7	48.7	39.5
2020	0.3	0	6.9	61.7	57.9	59	147.2	66.8	142.1	142	77	42.6

**Source:** Customized Rainfall Information System (CRIS), Hydromet Division, GOI

## iv) Relative humidity

The district enjoys a subtropical climate. The period from April to July is generally hot and dry. The weather is pleasant during the period from November to January. Usually mornings are more humid than afternoons. The relative humidity is on an average between 65 and 85% in the mornings. Humidity in the afternoons is generally between 40 and 70.

## v) Wind Speed:

Wind speed was in the range of 2 Km/hr to 20 Km/hr. The wind speed was almost close to each other during the whole study period.

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The site-specific meteorological data for the study period June to August 2022) is presented below. The maximum and minimum values for all the parameters except wind speed and wind direction are presented below.

**vi) Metrological Data**

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

**vii) 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 June to August 2022. The wind rose is plotted using WR Plot.

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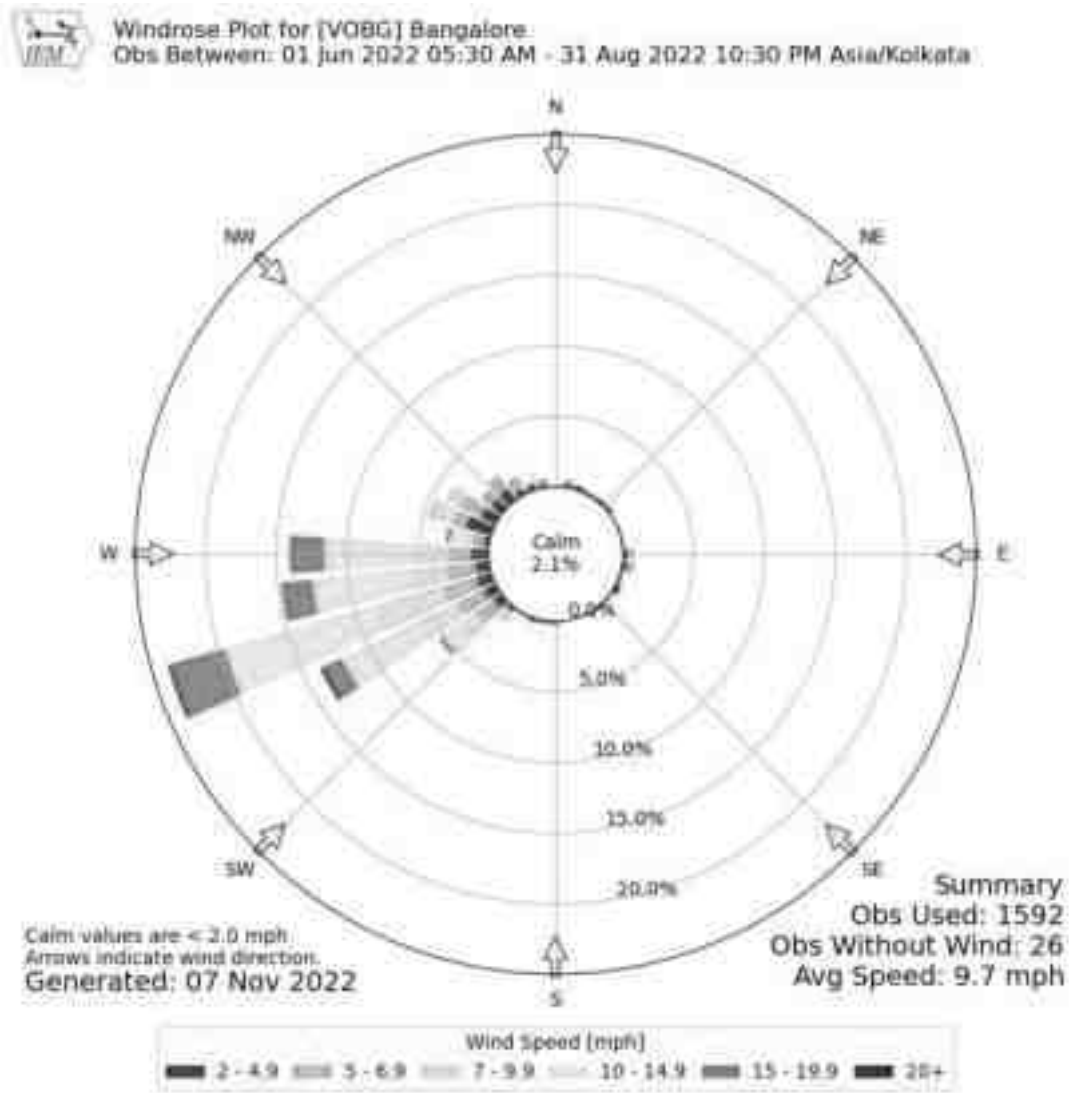


Figure 3-6 Wind rose

### 3.3.9 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 3-8: Selection of Sampling Location**

Environmental Parameters: <i>Ambient Air</i>	
Monitoring Period	June to August 2022

<i>Project</i>	<i>Scheme of Mining-Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</i>	<i>EIA Report</i>
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Design Criteria	The monitoring stations are selected based on factors like topography/terrain, prevailing meteorological conditions like predominant wind direction (June to August 2022 ), etc, play a vital role in the selection of air sampling stations. Based on these criteria, 5 air sampling station were selected in the area as shown below.		
Monitoring Locations	<b>Location &amp; Code</b>	<b>Distance (km)</b>	<b>Direction</b>
	Project Site – AAQ 1	-	-
	Sree Banashankari Papers Limited, Pathakotta – AAQ 2	3	W
	Shoologiri Police station – AAQ 3	4.9	E
	Government High School, Devasanapalli - AAQ 4	5	S
	Er, Perumal Manimekalai College, Konerapalli – AAQ 5	1.8	N
Methodology	Respirable Particulate Matter (PM10) - Gravimetric (IS 5182: Part 23:2006) Particulate Matter PM2.5 - Gravimetric (Fine particulate matter) Sulphur Dioxide - Calorimetric (West & Gaeke Method) (IS 5182: Part 02: 2001) Nitrogen Dioxide - Calorimetric (Modified Jacob & Hocheiser Method) (IS 5182: Part 06:2006)		
Frequency of Monitoring	2 days in a week, 4 weeks in a month for 3 months in a season.		

#### *3.4.1 Ambient Air Quality: Results & Discussion*

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

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**Table 3-9 Ambient Air Quality**

<b>Code</b>	<b>Location</b>	<b>PM 10 (<math>\mu\text{g}/\text{m}^3</math>)</b>			<b>PM 2.5 (<math>\mu\text{g}/\text{m}^3</math>)</b>			<b>SO2 (<math>\mu\text{g}/\text{m}^3</math>)</b>			<b>NOx (<math>\mu\text{g}/\text{m}^3</math>)</b>		
		<b>Min</b>	<b>Max</b>	<b>Avg</b>	<b>Min</b>	<b>Max</b>	<b>Avg</b>	<b>Min</b>	<b>Max</b>	<b>Avg</b>	<b>Min</b>	<b>Max</b>	<b>Avg</b>
AAQ 1	Project Site	35	49	42	16	22	19	5	9	7	10	21	16
AAQ 2	Sree Banashankari Papers Limited, Pathakotta	48	59	54	21	28	24	6	12	9	13	28	20
AAQ 3	Shoolagiri Police station	45	56	50	17	28	22	5	13	8	12	28	18
AAQ 4	Government High School, Devasanapalli	42	53	48	17	25	21	5	11	7	11	24	17
AAQ 5	Er, Perumal Manimekalai College, Konerapalli	39	51	45	16	23	21	5	12	8	13	28	19
NAAQ Standards - Residential Area		100 ( $\mu\text{g}/\text{m}^3$ )			60( $\mu\text{g}/\text{m}^3$ )			80 ( $\mu\text{g}/\text{m}^3$ )			80 ( $\mu\text{g}/\text{m}^3$ )		

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### 3.4.2 Interpretation of ambient air quality:

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

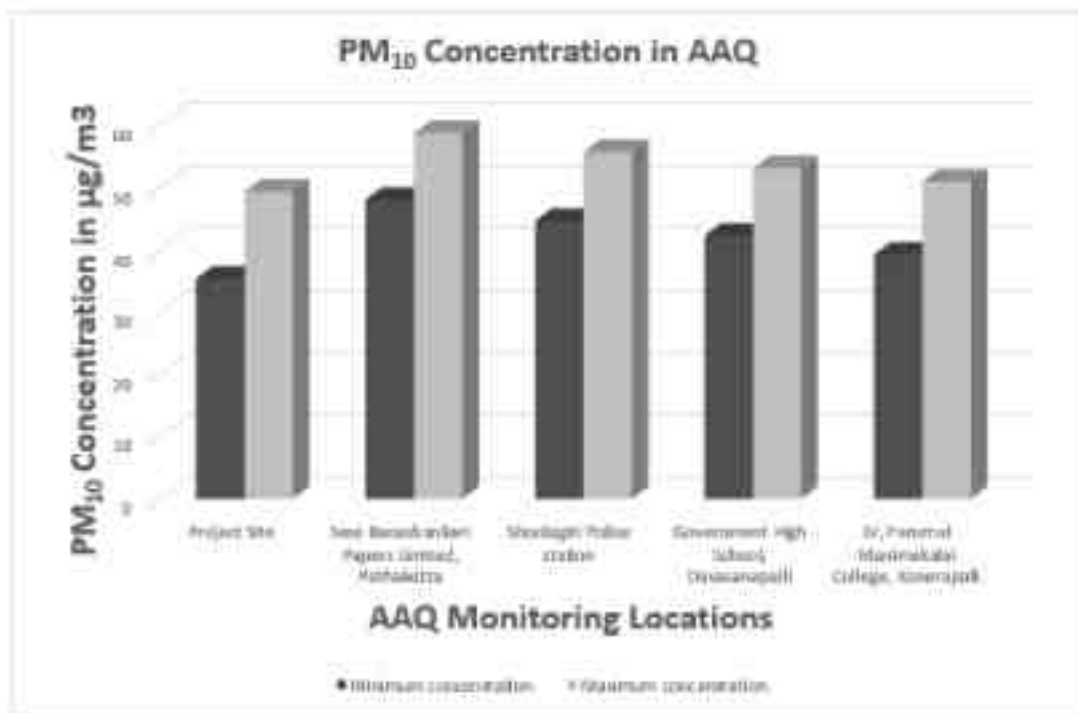
Observation:

The Maximum value of PM<sub>10</sub> (53 (µg/m<sup>3</sup>)), PM<sub>2.5</sub>(28 (µg/m<sup>3</sup>)), SO<sub>x</sub> (13 (µg/m<sup>3</sup>)) ,NO<sub>x</sub> (28 (µg/m<sup>3</sup>)) is observed in different places.

### Inference:

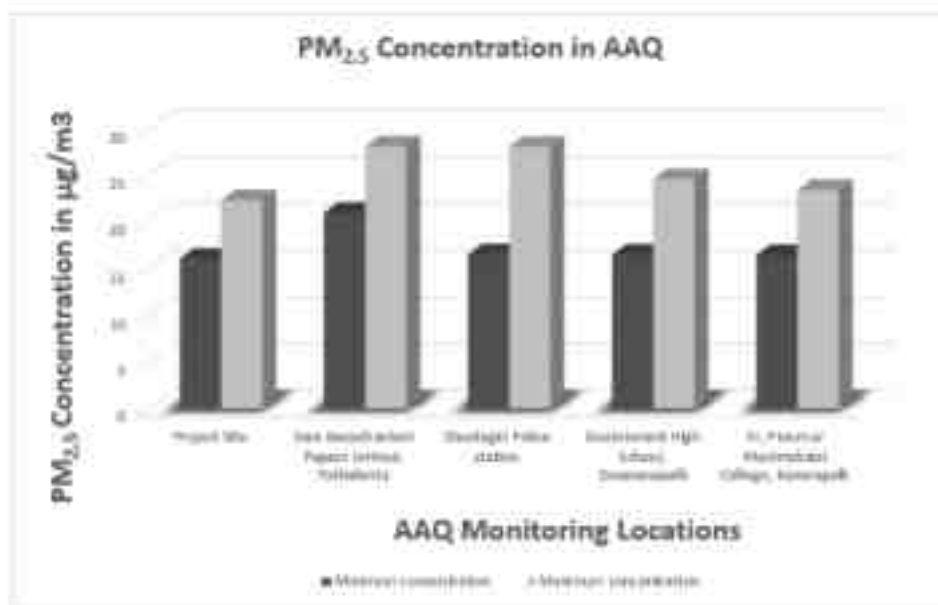
The monitoring results for PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub> was found to be high in Pathakotta Village which densely populated small rural area where there is no commercial development like industry, college, etc. The only contributing factor to the higher values is due to the vehicular movement. In the absence of vehicular movement, the values of PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub> was found to be less.

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

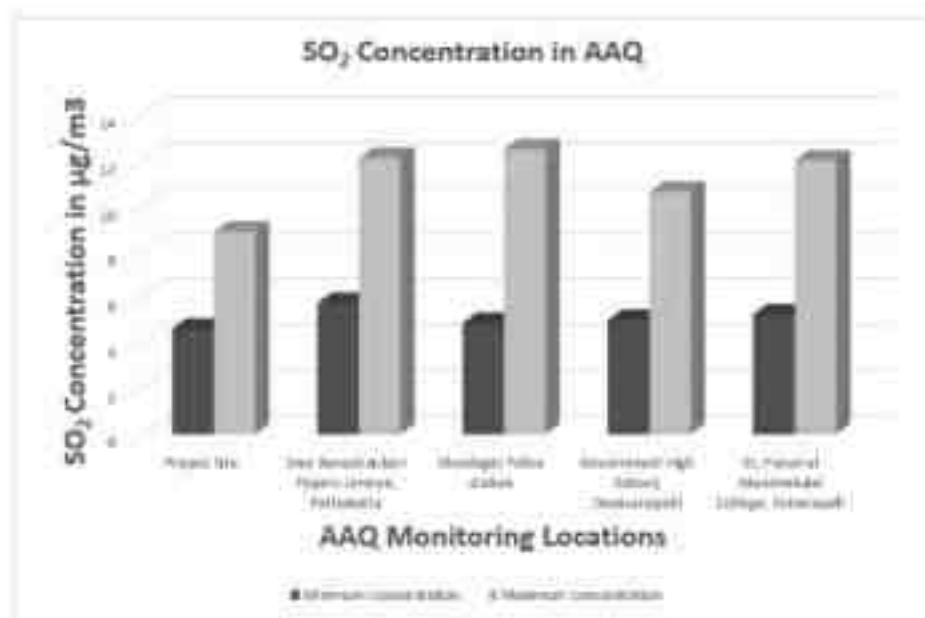


**Figure 3-7 Concentration of PM<sub>10</sub> (µg/m<sup>3</sup>) in Study Area**

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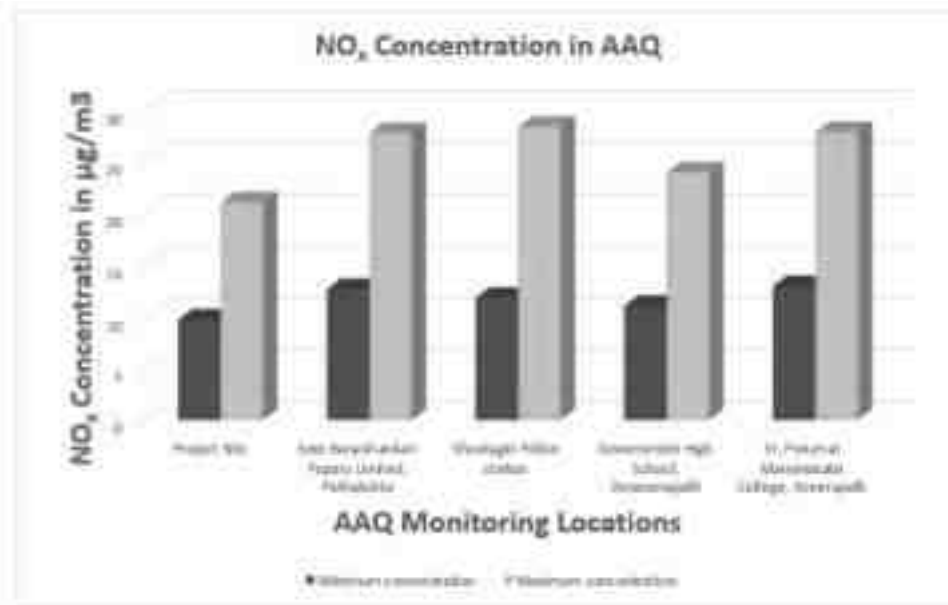


**Figure 3-8 Concentration of PM<sub>2.5</sub> (µg/m<sup>3</sup>) in Study Area**



**Figure 3-9 Concentration of SO<sub>x</sub> (µg/m<sup>3</sup>) in Study Area**

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<b>Project Proponent</b>	<b>Thiru.P.Venkatareddy</b>	
<b>Project Location</b>	<b>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</b>	



**Figure 3-10 Concentration of NO<sub>x</sub> (µg/m<sup>3</sup>) in Study Area**

### 3.5 Noise Environment:

**Table 3-10 Noise Analysis**

<b>Environmental Parameters: Noise Analysis</b>	
Monitoring Period	June to August 2022
Design Criteria	Based on the Sensitivity of the area
Monitoring Locations	<ul style="list-style-type: none"> <li>Project Site – N 1</li> <li>Sree Banashankari Papers Limited, Pathakotta – N 2</li> <li>Shoolagiri Police station – N 3</li> <li>Government High School, Devasanapalli - N 4</li> <li>Er, Perumal Manimekalai College, Konerapalli – N 5</li> </ul>
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 Monitoring	Noise samples were collected from 5 locations - Once in a season



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<b>Project Proponent</b>	<b>Thiru.P.Venkatareddy</b>	
<b>Project Location</b>	<b>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</b>	

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 3-11 Day Noise Level (Leq day)**

<b>Location</b>	<b>Leq day in dB(A)</b>		
	<b>Max</b>	<b>Min</b>	<b>Average</b>
Project Site- N1	56	43	49
Sree Banashankari Papers Limited, Pathakotta – N 2	57	48	53
Shoolagiri Police station – N 3	61	49	55
Government High School, Devasanapalli - N 4	54	44	49
Er, Perumal Manimekalai College, Konerapalli – N 5	56	45	51

### 3.5.2 Night Noise Level (Leq Night)

**Table 3-12 Night Noise Level (Leq Night)**

<b>Location</b>	<b>Leq Night in dB(A)</b>		
	<b>Max</b>	<b>Min</b>	<b>Average</b>
Project Site- N1	41	37	39
Sree Banashankari Papers Limited, Pathakotta – N 2	46	36	41
Shoolagiri Police station – N 3	47	40	44
Government High School, Devasanapalli - N 4	42	39	40
Er, Perumal Manimekalai College, Konerapalli – N 5	43	35	40

### **Observation:**

The maximum Day noise and Night noise were found to be 61 dB(A) and 47 dB(A) respectively in Shoolagiri Police Station. The minimum Day Noise and Night noise were 43 dB(A) and 35 dB(A) respectively which was observed in Project Site & Er, Perumal Manimekalai College, Konerapalli.

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

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<b>Project Location</b>	<b>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</b>	

### 3.6 Soil Environment

Soil environment is studied for 10 km radius from the project site. The 10 km radius image shows that the soil is not affected by any kind of erosion.



**Figure 3-11 Soil Erosion pattern within 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 3-13 Soil Quality Analysis**

Environmental Parameters: <i>Soil Quality Analysis</i>	
Monitoring Period	June to August 2022
Design Criteria	Based on the environmental settings of the study area

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Monitoring Locations	Project Site – SQ1
	Sree Banashankari Papers Limited, Pathakotta – SQ2
	Shoolagiri Police station – SQ3
	Government High School, Devasanapalli – SQ4
	Er, Perumal Manimekalai College, Konerapalli – SQ5
Methodology	Composite soil samples using sampling augers and field capacity apparatus
Frequency of Monito	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 3-14 Soil Quality Analysis**

Parameters	Project Site SQ 1	Sree Banashankari Papers Limited, Pathakotta SQ2	Shoolagiri Police station SQ 3	Government High School, Devasanapalli SQ 4	Er, Perumal Manimekalai College, Konerapalli SQ 5
1. pH (at 25°C)	8.22	8.02	8.51	7.10	7.80
2. Electrical Conductivity	0.33	0.22	0.31	0.10	0.20
3. Water holding Capacity	6.80	6.80	7.59	7.40	7.65
4. Chloride mg/kg	57	161	242	87	94
5. Calcium mg/kg	19	57	42	59	42
6. sodium mg/kg	68	76	80	80	80
7. Potassium mg/kg	20	23	24	24	24
8. Organic matter %	2.6	3.4	1.4	1.4	1.5
9. Magnesium mg/kg	31	57	50	82	79
10. sulphate	20	172	39	39	39

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11. CEC	12.5	15.2	15.8	11.1	12.9
12. Carbonate mg/kg	NIL	NIL	NIL	NIL	NIL
13. Bicarbonate mg/kg	135	384	289	141	152
14. TKN (%)	0.020	0.024	0.030	0.011	0.021
15. bulk density (g/cm <sup>3</sup> )	1.1	1.1	1.4	1.2	1.2
16. Phosphorous	13	8	7	11	16
17. sand	56	53	57	52	51
18. clay	8	7	5	4	8
19. silt	36	40	38	44	41
20. SAR	3.1	2.4	2.8	2.2	22.1 2.4
21. silicon	0.74	0.821	0.761	0.761	22.2 0.761

### 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 1.1 to 1.4 g/cc which indicates favorable physical condition for plant growth. The water holding capacity was found in the range of 6.80ml/1 to 7.65 ml/1.

### 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 ranges from 7.1 to 8.51, which it indicates majority of pH of the soil is slightly alkaline. 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 1.4 to 3.4 mg/kg, which indicates the soil is slightly unfertile.

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<i>Project Location</i>	<i>Kammandoddi Village, Shoologiri Taluk, Krishnagiri District</i>	

### **3.7 Ecology and Biodiversity**

Ecology and Biodiversity is studied for 10 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 10 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.

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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.

S. No	Location	Latitude	Longitude	No of Quadrates		
				Trees (10m x 10m)	Shrubs (5m x 5m)	Herbs & grasses (1m x 1m)
1.	Project Site – SQ1	12°39'42.99"N	77°57'41.79"E	1	4	5
2.	Sree Banashankari Papers Limited, Pathakotta – SQ2	12°39'33.92"N	77°55'49.20"E	1	4	5
3.	Shoolagiri Police station – SQ3	12°39'44.23"N	78° 0'35.04"E	1	4	5
4.	Government High School, Devasanapalli – SQ4	12°36'56.07"N	77°57'7.70"E	1	4	5
5.	Er, Perumal Manimekalai College, Konerapalli – SQ5	12°40'29.75"N	77°58'5.47"E	1	4	5

### 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 quadrates 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.

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**Table 3-15 Calculation of Density, Frequency (%), Dominance, Relative Density, Relative Frequency, Relative Dominance & Important Value Index**

<b>Parameters</b>	<b>Formula</b>
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

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**Table 3-16 Tree Species in the core Zone**

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Dominance	Relative Density	Relative Frequency	Relative Dominance	IVI	IUCN Conservation Status	
1	Ficus Carica	Athi Maram	2	2	6	0.33	33.33	1	0.28	1.68	2.17	4.45	8.31	Least Concern	
2	Cassia siamea	ManjalKonrai	3	2	6	0.50	33.33	1.5	0.07	2.52	2.17	1.11	5.81	Least Concern	
3	Acacia nilotica	Karuvelai	4	4	6	0.67	66.67	1	0.28	3.36	4.35	4.45	12.16	Least Concern	
4	Bambusa vulgaris	Moongil	4	4	6	0.67	66.67	1	0.50	3.36	4.35	7.92	15.63	Not assessed	
5	Anacardium occidentale	Cashew	1	1	6	0.17	16.67	1	0.44	0.84	1.09	6.96	8.88	Not assessed	
6	Alstonia scholaris	Elilaipalai	2	2	6	0.33	33.33	1	0.27	1.68	2.17	4.31	8.16	Least Concern	
7	Psidium guajava	Guava	3	3	6	0.50	50.00	1	0.23	2.52	3.26	3.61	9.39	Not assessed	
8	Aegle marmelos	Vilvam	1	1	6	0.17	16.67	1	0.16	0.84	1.09	2.50	4.43	Not assessed	
9	Causuarina equisetifolia	Savukku	2	2	6	0.33	33.33	1	0.21	1.68	2.17	3.34	7.20	Not assessed	
10	Albizia amara	Wunja	1	1	6	0.17	16.67	1	0.20	0.84	1.09	3.22	5.14	Not assessed	
11	Cocos nucifera	Thennai	10	6	6	1.67	100.0	1.67	0.15	8.40	6.52	2.39	17.32	Not assessed	
12	Artocarpus heterophyllus	Palaa	2	2	6	0.33	33.33	1	0.18	1.68	2.17	2.85	6.70	Not assessed	
13	Bombax ceiba	Sittan	4	4	6	0.67	66.67	1	0.08	3.36	4.35	1.27	8.98	Not assessed	
14	Azadirachta indica	Veppam	17	6	6	2.83	100.0	2.83	0.13	14.2	9	6.52	1.98	22.79	Not assessed
15	Delonix regia	Cemmayir-Konrai	1	1	6	0.17	16.67	1	0.21	0.84	1.09	3.34	5.27	Least Concern	
16	Delonix elata	Perungondrai	1	1	6	0.17	16.67	1	0.17	0.84	1.09	2.62	4.54	Least Concern	
17	Dalbergia sissoo	Shisham	1	1	6	0.17	16.67	1	0.15	0.84	1.09	2.29	4.21	Not assessed	
18	Ficus benghalensis	Alai	2	2	6	0.33	33.33	1	0.08	1.68	2.17	1.19	5.04	Not assessed	



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19	Annona squamosa	Sitapalam	1	1	6	0.17	16.67	1	0.23	0.84	1.09	3.61	5.53	Not assessed
20	Pithecellobium dulce	Kodukapuli	1	1	6	0.17	16.67	1	0.14	0.84	1.09	2.18	4.11	Not assessed
21	Ficus religiosa	Arasa maram	3	3	6	0.50	50.00	1	0.09	2.52	3.26	1.35	7.13	Not assessed
22	Couroupita guianensis	Nagalingam	5	3	6	0.83	50.00	1.67	0.14	4.20	3.26	2.18	9.64	Not assessed
23	Musa paradise	Vaazhai	3	3	6	0.50	50.00	1	0.08	2.52	3.26	1.19	6.97	Not assessed
24	Prosopis juliflora	Vaelikaruvai	3	3	6	0.50	50.00	1	0.21	2.52	3.26	3.34	9.13	Not assessed
25	Mangifera indica	Mamaram	7	6	6	1.17	100.0	1.16	0.07	5.88	6.52	1.11	13.52	Data insufficient
26	Mimusops elengi	Magizham	2	2	6	0.33	33.33	1	0.18	1.68	2.17	2.85	6.70	Not assessed
27	Morinda pubescens	Nuna	6	6	6	1.00	100.0	1	0.24	5.04	6.52	3.74	5.31	Not assessed
28	Thespesia populnea	Poovarasam	3	3	6	0.50	50.00	1	0.15	2.52	3.26	2.39	8.18	Not assessed
29	Tectona grandis	Thekku	3	3	6	0.50	50.00	1	0.12	2.52	3.26	1.88	7.66	Not assessed
30	Tamarindus indica	Puli	10	6	6	1.67	100.0	1.66	0.20	8.40	6.52	3.09	8.02	Not assessed
31	Syzygium cumini	naval	5	1	6	0.83	16.67	5	0.11	4.20	1.09	1.79	7.07	Not assessed
32	Carica papaya	Papaya	3	3	6	0.50	50.00	1	0.09	2.52	3.26	1.43	7.21	Not assessed
33	Ziziphus mauritiana	Elandai	1	1	6	0.17	16.67	1	0.28	0.84	1.09	4.45	6.38	Not assessed
34	Citrus medica	Elumichai	2	2	6	0.33	33.33	1	0.23	1.68	2.17	3.61	7.46	Not assessed
Total			119	92					6.35					

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**Table 3-17 Shrubs in the Core Zone**

<b>S. No.</b>	<b>Scientific Name</b>	<b>Local Name</b>	<b>Total No. of species</b>	<b>Total of Quadrants with species</b>	<b>Total No. of Quadrants</b>	<b>Density</b>	<b>Frequency (%)</b>	<b>Abundance</b>	<b>Relative Density</b>	<b>Relative Frequency</b>	<b>IUCN Conservation Status</b>
1	Jatropagossypifolia	Kaatamanaku	28	17	24	1.17	0.71	1.65	14.43	17.17	Not Assessed
2	Lantana trifolia	Shrub verbana	10	3	24	0.42	0.13	3.33	5.15	3.03	Not Assessed
3	Robiniapseudoacacia	Black locust	17	5	24	0.71	0.21	3.4	8.76	5.05	Least Concern
4	Lantana camara	Unnichedi	9	6	24	0.38	0.25	1.5	4.64	6.06	Not Assessed
5	Calotropis gigantea	Erukam	14	12	24	0.58	0.50	1.17	7.22	12.12	Not Assessed
6	Stachytarpeaurticifolia	Rat tail	15	9	24	0.63	0.38	1.67	7.73	9.09	Not Assessed
7	Datura metal	Ummattangani	5	4	24	0.21	0.17	1.25	2.58	4.04	Not Assessed
8	Hibiscus rosa sinensis	Sembaruthi	3	2	24	0.13	0.08	1.5	1.55	2.02	Not Assessed
9	Tabernaemontanadivaricata	Crepe Jasmine	3	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
10	Chloromolaena odorata	Venapacha	9	6	24	0.38	0.25	1.5	4.64	6.06	Least Concern
11	Euphorbia geniculata	Amman Pacharisi	3	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
12	Catharanthus roseus	Nithyakalyani	3	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
13	Woodfordiafruticosa	Velakkai	3	3	24	0.13	0.13	1	1.55	3.03	Least Concern
14	Morindapubescens	Mannanunai	2	2	24	0.08	0.08	1	1.03	2.02	Not Assessed
15	Acalypha indica	Kuppaimeni	20	8	24	0.83	0.33	2.5	10.31	8.08	Not Assessed
16	Parthenium hysterophorous	Vishapoondur	50	13	24	2.08	0.54	3.85	25.77	13.13	Not Assessed

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**Table 3-18 Herbs & Grasses in the core zone**

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IUCN Conservation status
1	Plumbago zeylanica	Chittiramoolam	3	3	30	0.10	0.10	1	1.19	3.23	Not assessed
2	Mimosa pudica	Thottacherungi	6	5	30	0.20	0.17	1.2	2.38	5.38	Least concern
3	Sida acuta	Malaidangi	10	3	30	0.33	0.10	3.33	3.97	3.23	Not assessed
4	Scrophularia nodosa	Sarakkothini	15	7	30	0.50	0.23	2.14	5.95	7.53	Not assessed
5	Helicteresisora	Valampuri	2	2	30	0.07	0.07	1	0.79	2.15	Not assessed
6	Cynodondactylon	Arugu	12	6	30	0.40	0.20	2	4.76	6.45	Not assessed
7	Sporobolus fertilis	Giant Parramatta Grass	9	4	30	0.30	0.13	2.25	3.57	4.30	Not assessed
8	Viburnum dentatum	Viburnum	5	5	30	0.17	0.17	1	1.98	5.38	Least concern
9	Heraculem spondylium	Hog Weed	20	10	30	0.67	0.33	2	7.94	10.75	Not assessed
10	Laportea canadensis	Peruganchori	30	20	30	1.00	0.67	1.5	11.90	21.51	Not assessed
11	Euphorbia hirta	Amman Pacharisi	5	4	30	0.17	0.13	1.25	1.98	4.30	Not assessed
12	Tridax procumbens	Vettukaayathalai	5	4	30	0.17	0.13	1.25	1.98	4.30	Not assessed
13	Tephrosia purpurea	Kavali	20	4	30	0.67	0.13	5	7.94	4.30	Not assessed
14	Sida cordifolia	Maanikham	45	4	30	1.50	0.13	11.25	17.86	4.30	Not assessed
15	Tridax procumbens	Cuminipachai	15	4	30	0.50	0.13	3.75	5.95	4.30	Not assessed
16	Ruellia strepens	Grandinayagam	25	4	30	0.83	0.13	6.25	9.92	4.30	Not assessed
17	Senna occidentalis	Nattamsakarai	25	4	30	0.83	0.13	6.25	9.92	4.30	Not assessed

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### 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 3-19 Calculation of species diversity**

<b>Description</b>	<b>Formula</b>
Species diversity – Shannon – Wiener Index	$H = \sum [(p_i) * \ln(p_i)]$ 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 community

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

#### i. Species Diversity

<b>Scientific Name</b>	<b>Common Name</b>	<b>No. of Species</b>	<b>Pi</b>	<b>ln (Pi)</b>	<b>Pi x ln (Pi)</b>
Ficus Carica	Athi Maram	2	0.017857	-4.02535	-0.07188
Cassia siamea	ManjalKonrai	2	0.017857	-4.02535	-0.07188
Acacia nilotica	Karuvelai	4	0.035714	-3.3322	-0.11901
Bambusa vulgaris	Moongil	4	0.035714	-3.3322	-0.11901
Anacardium occidentale	Cashew	2	0.017857	-4.02535	-0.07188
Alstonia scholaris	Elilaipalai	2	0.017857	-4.02535	-0.07188
Psidium guajava	Guava	3	0.026786	-3.61989	-0.09696

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Aegle marmelos	Vilvam	1	0.008929	-4.7185	-0.04213
Causuarina equisetifolia	Savukku	2	0.017857	-4.02535	-0.07188
Albizia amara	Wunja	1	0.008929	-4.7185	-0.04213
Cocos nucifera	Thennai	15	0.133929	-2.01045	-0.26926
Artocarpus heterophyllus	Palaa	2	0.017857	-4.02535	-0.07188
Bombax ceiba	Sittan	4	0.035714	-3.3322	-0.11901
Azadirachta indica	Veppam	10	0.089286	-2.41591	-0.21571
Delonix regia	Cemmayir-Konrai	1	0.008929	-4.7185	-0.04213
Delonix elata	Perungondrai	1	0.008929	-4.7185	-0.04213
Dalbergia sissoo	Shisham	1	0.008929	-4.7185	-0.04213
Ficus benghalensis	Alai	2	0.017857	-4.02535	-0.07188
Annona squamosa	Sitapalam	1	0.008929	-4.7185	-0.04213
Pithecellobium dulce	Kodukapuli	1	0.008929	-4.7185	-0.04213
Ficus religiosa	Arasa maram	3	0.026786	-3.61989	-0.09696
Couroupita guianensis	Nagalingam	5	0.044643	-3.10906	-0.1388
Musa paradise	Vaazhai	3	0.026786	-3.61989	-0.09696
Prosopis juliflora	Vaelikaruvai	3	0.026786	-3.61989	-0.09696
Mangifera indica	Mamaram	8	0.071429	-2.63906	-0.1885
Mimusops elengi	Magizham	2	0.017857	-4.02535	-0.07188
Morinda pubescens	Nuna	6	0.053571	-2.92674	-0.15679
Thespesia populnea	Poovarasam	3	0.026786	-3.61989	-0.09696
Tectona grandis	Thekku	3	0.026786	-3.61989	-0.09696
Tamarindus indica	Puli	8	0.071429	-2.63906	-0.1885
Syzygium cumini	naval	1	0.008929	-4.7185	-0.04213
Carica papaya	Papaya	3	0.026786	-3.61989	-0.09696
Ziziphus mauritiana	Elandai	1	0.008929	-4.7185	-0.04213
Citrus medica	Elumichai	2	0.017857	-4.02535	-0.07188
Total		112			-3.22

H (Shannon Diversity Index) = 1.76

### Shrubs

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Jatropagossypifolia	Kaatamanaku	28	0.14433	-1.93565	-0.27937
Lantana trifolia	Shrub verbana	10	0.051546	-2.96527	-0.15285
Robiniapseudoacacia	Black locust	17	0.087629	-2.43464	-0.21335
Lantana camara	Unnichi	9	0.046392	-3.07063	-0.14245
Calotropis gigantea	Erukam	14	0.072165	-2.6288	-0.18971
Stachytarphaurticifolia	Rat tail	15	0.07732	-2.55981	-0.19792
Datura metal	Ummattangani	5	0.025773	-3.65842	-0.09429

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Hibiscus rosa sinensis	Sembaruthi	3	0.015464	-4.16925	-0.06447
Tabernaemontanadivaricata	Crepe Jasmine	3	0.015464	-4.16925	-0.06447
Chloromolaena odorata	Venapacha	9	0.046392	-3.07063	-0.14245
Euphorbia geniculata	Amman Pacharisi	3	0.015464	-4.16925	-0.06447
Catharanthus roseus	Nithyakalyani	3	0.015464	-4.16925	-0.06447
Woodfordiafruiticosa	Velakkai	3	0.015464	-4.16925	-0.06447
Morindapubescens	Mannanunai	2	0.010309	-4.57471	-0.04716
Acalypha indica	Kuppaimeni	20	0.103093	-2.27213	-0.23424
Parthenium hysterophorous	Vishapoondu	50	0.257732	-1.35584	-0.34944
Total		194			-2.3656

H (Shannon Diversity Index) =1.97

#### Herbs

<b>Scientific Name</b>	<b>Common Name</b>	<b>No. of Species</b>	<b>Pi</b>	<b>ln (Pi)</b>	<b>Pi x ln (Pi)</b>
Plumbago zeylanica	Chittiramoolam	3	0.011905	-4.43082	-0.05275
Mimosa pudica	Thottacherungi	6	0.02381	-3.73767	-0.08899
Sida acuta	Malaidangi	10	0.039683	-3.22684	-0.12805
Scrophularia nodosa	Sarakkothini	15	0.059524	-2.82138	-0.16794
Helicteresisora	Valampuri	2	0.007937	-4.83628	-0.03838
Cynodondactylon	Arugu	12	0.047619	-3.04452	-0.14498
Sporobolus fertilis	Giant Parramatta Grass	9	0.035714	-3.3322	-0.11901
Viburnum dentatum	Viburnum	5	0.019841	-3.91999	-0.07778
Heraculem spondylium	Hog Weed	20	0.079365	-2.5337	-0.20109
Laportea canadensis	Peruganchori	30	0.119048	-2.12823	-0.25336
Euphorbia hirta	Amman Pacharisi	5	0.019841	-3.91999	-0.07778
Tridax procumbens	Vettukaayathalai	5	0.019841	-3.91999	-0.07778
Tephrosia purpurea	Kavali	20	0.079365	-2.5337	-0.20109
Sida cordifolia	Maanikham	45	0.178571	-1.72277	-0.30764
Tridax procumbens	Cuminipachai	15	0.059524	-2.82138	-0.16794

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Ruellia strepens	Grandinayagam	25	0.099206	-2.31055	-0.22922
Senna occidentalis	Nattamsakarai	25	0.099206	-2.31055	-0.22922
Total		252			-2.56298

H (Shannon Diversity Index) = 2.39

i. Evenness

Details	H	Hmax	Evenness	Species Richness (Margalef)
Trees	3.22	3.5	0.9	7
Shrubs	2.36	2.77	0.85	2.84
Herbs	2.56	2.83	0.9	2.89

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 3-20 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  $A > B > C \geq D < E$

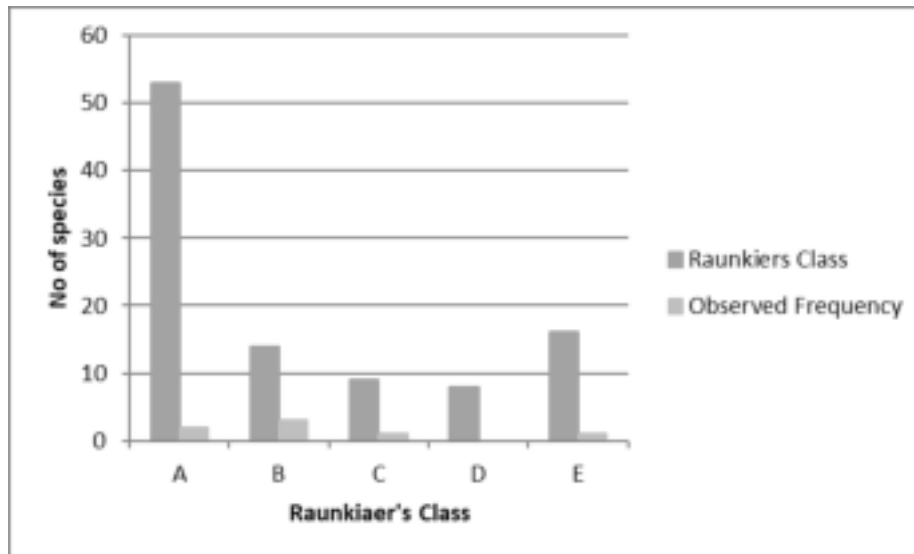
Raunkiaer's class for the observed species

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<b>S. No.</b>	<b>Scientific Name</b>	<b>Local Name</b>	<b>Frequency (%)</b>	<b>Class as per Raunkiaer's Law</b>
1.	Ficus Carica	Atthi Maram	33.33	B
2.	Cassia siamea	ManjalKonrai	33.33	B
3.	Acacia nilotica	Karuvelai	66.67	D
4.	Bambusa vulgaris	Moongil	66.67	D
5.	Anacardium occidentale	Cashew	33.33	B
6.	Alstonia scholaris	Elilaipalai	33.33	B
7.	Psidium guajava	Guava	50.00	C
8.	Aegle marmelos	Vilvam	16.67	A
9.	Causuarina equisetifolia	Savukku	33.33	B
10.	Albizia amara	Wunja	16.67	A
11.	Cocos nucifera	Thennai	100	E
12.	Artocarpus heterophyllus	Palaa	33.33	B
13.	Bombax ceiba	Sittan	66.67	D
14.	Azadirachta indica	Veppam	100	E
15.	Delonix regia	Cemmayir-Konrai	16.67	A
16.	Delonix elata	Perungondrai	16.67	A
17.	Dalbergia sissoo	Shisham	16.67	A
18.	Ficus benghalensis	Alai	33.33	B
19.	Annona squamosa	Sitapalam	16.67	A
20.	Pithecellobium dulce	Kodukapuli	16.67	A
21.	Ficus religiosa	Arasa maram	50.00	C
22.	Couroupita guianensis	Nagalingam	50.00	C
23.	Musa paradise	Vaazhai	50.00	C
24.	Prosopis juliflora	Vaelikaruvai	50.00	C
25.	Mangifera indica	Mamaram	100	E
26.	Mimusops elengi	Magizham	33.33	B
27.	Morinda pubescens	Nuna	100	E
28.	Thespesia populnea	Poovarasam	50.00	C
29.	Tectona grandis	Thekku	50.00	C
30.	Tamarindus indica	Puli	100	E
31.	Syzygium cumini	naval	16.67	A
32.	Carica papaya	Papaya	50.00	C
33.	Ziziphus mauritiana	Elandai	16.67	A
34.	Citrus medica	Elumichai	33.33	B



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**Figure 3-12 Raunkiaer's class for the observed species**

**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.

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### 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.
- Road Side 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.

**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 striped 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.

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**Table 3-21 List of fauna species**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Schedule of wild life protection act</b>	<b>IUCN conservation status</b>
<b>Mammals</b>			
Funambulus pennanti	Palm Squirrel	IV	Least Concern
Mus rattus	Indian rat	IV	Not listed
Bandicota bengalensis	Indian mole rat	IV	Least Concern
Funambulus palmarum	Three stripped palm squirrel	IV	Least Concern
Herestes edwardsii	Common Man	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 familiaris	Indian dog	Not listed	Not listed
Bos Indicus	Indian Cow	Not listed	Not listed
Bubalus bubalis	Buffalo	I	Not listed
Sus scrofa domesticus	Domestic pig	Not listed	Not listed
<b>Reptiles &amp; Amphibians</b>			
Chameleon zeylanicum	Chameleon	IV	Not listed
Calotes versicolor	Common garden lizard	II	Not listed
Bungarus caeruleus	Common krait	IV	Not listed
Ophisops leschenaultia	Snake eyed lizard	--	Not listed
Bufo melanostictus	Toad	IV	Least concern
Ptyas mucosa	Rat snakes	IV	Least concern
Hemidactylus sp.	House lizard	--	Not listed
<b>Butterflies</b>			
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

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**Table 3-22 List of fauna species**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Schedule of wild life protection act</b>	<b>IUCN conservation status</b>
<b>Mammals</b>			
Funambulus pennanti	Palm Squirrel	IV	Least Concern
Mus rattus	Indian rat	IV	Not listed
Bandicota bengalensis	Indian mole rat	IV	Least Concern
Funambulus palmarum	Three stripped palm squirrel	IV	Least Concern
Herestes edwardsii	Common Man	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 familiaris	Indian dog	Not listed	Not listed
Bos Indicus	Indian Cow	Not listed	Not listed
Bubalus bubalis	Buffalo	I	Not listed
Sus scrofa domesticus	Domestic pig	Not listed	Not listed
<b>Reptiles &amp; Amphibians</b>			
Chameleon zeylanicum	Chameleon	IV	Not listed
Calotes versicolor	Common garden lizard	II	Not listed
Bungarus caeruleus	Common krait	IV	Not listed
Ophisops leschenaultia	Snake eyed lizard	--	Not listed
Bufo melanostictus	Toad	IV	Least concern

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Ptyas mucosa	Rat snakes	IV	Least concern
Hemidactylus sp.	House lizard	--	Not listed
<b>Butterflies</b>			
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

**Table 3-23 List of Bird Species observed during the survey**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Schedule of wild life protection act</b>	<b>IUCN conservat ion status</b>	<b>Timing</b>	<b>Observed Month</b>
Bubulcus ibis	Cattle Egret	IV	Least Concern	Morning	August
Vanellus indicus	Red- Wattled Lapwing	IV	Least Concern	Morning	June
Columba livia	Blue Rock Pigeon	-		Morning	July
Microfus affinis	House swift	-	Common	Morning	June
Coracias benghalensis	Indian Roller	IV	Least Concern	Evening	July
Merops orinetali	Common bee eater	IV	Least Concern	Evening	July
Psittacula krameri	Rose Ringed Parakeet	IV	Least Concern	Seen in morning & evening multiple times	3 months
Eudynamis scolopaceus	Koel	IV	Common, Resident	Seen in morning & evening multiple times	3 months

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Aredeola grayii	Indian Pond Heron	IV	Least Concern	Evening	August
Acridotheres ginginianus	Bank Myna	IV	Least Concern	Seen in morning & evening multiple times	3 months
Astur badius	Shikra	IV	Resident	Morning	August
Sturnus pagodarum	Brahminy Starling	IV	Least Concern	Evening	August
Pavo cristatus	Peafowl	I	Least Concern	Observed during evening time	3 months
Corvus splendens	Common Crow	V	Least Concern	Seen in morning & evening multiple times	3 months
Passer domesticus	House Sparrow	IV	Common, Resident	Seen in morning & evening multiple times	3 months
Pycnonotus cafer	Red- Vented Bulbul	IV	Common	Evening	August
Egretta garzetta	Little Egret	IV	Common	Evening	June
Corvus corax	Common Raven	V	Least Concern	Seen in morning & evening multiple times	3 months
Acridotheres tristis	Common myna	IV	Common	Seen in the noon and evening	3 months
Alcedo atthis	Common kingfisher	IV	Common	Morning	June
Athene brama	Spotted Owlet	IV	Common, Resident	Spotted during night	June
Bubo bubo	Indian great horned owl	IV	Common	Spotted during night	June
Caprimulgus asiaticus	Common Indian jar	IV	Common	Evening	June

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Cinnyris asiatica	Purple sunbird	IV	Least Concern	Morning	July
Columbus livibus	Pigeon	IV	Common	Seen in morning & evening multiple times	3 months
Copsychus saularis	Magpie robin	IV	Common	Evening	July
Cuculus varius	Common-Hawk Cuckoo	IV	Common, Resident	Evening	July
Cypsiurus parvus	Palm Swift	IV	Common, Resident	Evening	July
Dendrocitta vagabunda	Indian Tree pie	IV	Common, Resident	Morning	July
Dicrurus longicaudatus	Grey drongo	IV	Resident	Morning	July
Dicrurus macrocerus	Black Drongo	IV	Common, Resident	Morning	July
Dissemurus paradiseus	Rackete tailed drongo	IV	Resident	Morning	July
Francolinus pondicerianus	Grey Partridge	IV	Common, Resident	Evening	June
Galerida malabarica	Malabar crested lark	IV	Resident	Evening	June
Gallus gallus	Red jungle fowl	IV	Resident	Evening	July
Haliastur Indus	Brahmny kite	IV	Common	Evening	June
Hierococys varius	Common hawk cuckoo	IV	Common	Evening	July
Lobvanella indicus	Redwattled lapwing	IV	Resident	Morning	July, August
Lonchura malacca	Blackheaded Munia	IV	Common, Resident	Morning	July
Megalaima merulinus	Indian cuckoo	IV	Common	Evening	July, August
Milyus migrans	Common kite	IV	Common	Evening	July
Mirafra erythroptera	Red winged Bushlark	IV	Common, Resident	Morning	August

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Phalacrocorax carbo	Cormorant	IV	Common, Resident	Morning	June
Quills contronix	Grey quail	IV	Common	Seen in morning & evening multiple times	3 months
Saxicoloides fulicata	Indian Robin	IV	Common, Resident	Morning	June
Tchitrea paradisi	Paradise Flycatcher	IV	Common	Morning	July, August
Temenuchus pagodarum	Brahmny myna	IV	Common	Seen in morning & evening multiple times	3 months
Tephrodornis pondiceraianus	Common wood shrike	IV	Common	Evening	July
Uroloncha striata	Spotted munia	IV	Common	Morning	August

### 3.8 Demography and Socio Economics

The demography survey study is done within 10km radius 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 3-24: Demography Survey Study**

Source: Census of India, 2011

Villages	Household	Population	Sex Ratio		Literacy Rate		SC	ST
			Male	Female	Male	Female		
Chaparathi	1271	4944	2454	2490	1721	1427	616	179
Kamandoddi	1450	6524	3394	3130	2093	1508	878	130
Sanamavu	925	4248	2182	2066	1487	1062	659	183
Kondepalli	693	2729	1339	1390	1053	766	64	0
Shoolagiri	2101	9530	4788	4742	3480	2923	1487	0
Chennapalli	905	3889	2005	1884	1195	836	121	0



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Sulakarai	456	1882	935	947	705	585	1403	0
Bukkasagaram	460	2126	1109	1017	742	471	319	0
Doripalli	852	3681	1898	1783	1165	848	596	0
A.Settipalli	605	2764	1428	1336	960	635	509	11
Addakurukki	581	2504	1288	1216	758	540	425	8
Mottampalli	140	706	353	353	170	119	1	0
Halekotta	707	2990	1535	1455	1071	760	209	83
Doddaganama	253	1143	594	549	370	244	162	21
Siranapalli	96	389	193	196	65	66	92	0

Since the data is taken from Census Survey of India, 2011, population projection is found to increase by 8.5% since last survey based on the data released by *World Bank, United States Census Bureau*

### **Krishnagiri District**

Krishnagiri district is bounded by Vellore and Thiruvannamalai districts in the East, Karnataka state in the west, State of Andhra Pradesh in the North Dharmapuri District in the south. Its area is 5143 Sq. Kms. This district is elevated from 300m to 1400m above the mean sea level. It is located between 11° 12'N to 12° 49'N Latitude, 77° 27'E to 78° 38'E Longitude.

Eastern part of the district experiences hot climate and Western part has a contrasting cold climate. The average rainfall is 830 mm per annum. March – June is summer season. July – November is Rainy Season and between December – February winter prevails. Three languages namely Tamil, Telugu and Kannada are predominantly spoken in this district. Major religions are Hindu, Islam and Christianity. This district stands as an ideal exhibit of National integration and religious harmony. The society exhibit the confluence of different languages and religion

### **Occupation:**

Krishnagiri District is more suitable for cultivation of Horticulture crops. Other Plantation crops, medicinal plants, Fruits, Vegetables, Spices, and flowers are grown well by way of its

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moderate climate, high altitude and fertility of the soil. The important crops of Krishnagiri District are Paddy, Maize, Ragi, Banana, Sugarcane, Cotton, Tamarind, Coconut, Mango, Groundnut, Vegetables and Flowers.

***Industrial details in the district is listed below:***

Industries in the District : Premier Spinning Mill, TVS Motor Company Ltd., Exide Ltd., AV. Tech. Ltd., Titan Watches, Ashok Leyland Carborandim, Universal Ltd.,

Name of the industrial Park : Krishnagiri and Hosur

The major occupation during field survey is observed to be mining, Agriculture and in industries.

***Source: District Handbook – 2018-2019***

**Socio-economic survey methodology**

Purposive sampling methods were used for selecting respondents (male and female) for household survey. For official information of village, Gram Panchyat member has been chosen. Structured questionnaire was used for survey. For group discussion, Panchyat bhavan, Aanganwadi bhavan, community halls were used. Out of total 15 villages, 5 villages (25%) were surveyed for which selection criteria is based on proximity to the project site and area with dense and scarce populations were chosen.

The villages chosen for primary study area

- Kamandoddi
- Sanamavu
- Shoolagiri
- Chennapalli
- Kondepalli

10 households were surveyed in each village and the collective response are summarized below

***3.8.1. Salient features in the study area:***

**House pattern:** It is notable that nearly 30% of the houses were kachcha at survey area.

**Employment:** Main occupation of the people in the study area was labour work and

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agriculture and some other business. The labours were getting daily wage in the range of Rs.200-450, depending on type of work involved.

**Fuel:** Most of the villagers use fire woods and LPG for cooking purpose

**Main Crops:** The principal crops grown in agricultural farm were Cashew, Mango, Banana, Tapioca, Tomato, Brinjal, Bhendi, Onion, Turmeric, Chillies

**Migration:** During survey, it was found that local population were migrating for employment purpose. Since due to the presence of various industrial units, migration from other places were also noted.

**Sanitation:** More than 90% of the households were having toilet facilities in their houses. Drainage system was maintained in the study area.

**Drinking Water Facilities:** Ground water is the major source of drinking water in the villages wherein hand pumps, tap water and dug wells are installed.

**Education Facilities:** Most of the villages had education facilities in the form of Anganwadi and Primary Schools. Higher education facilities were available in the range of 5-10 km. Colleges and other diploma courses were available at district place.

**Transportation Facility:** For transportation purpose Auto, Public and Private Bus services were available. Transportation facilities were frequently available in the study area and connecting major cities. Private vehicles like Bicycles & Motor Cycles were mostly used by villagers for transportation purpose.

### *3.8.2. Key Socio economic Indicator*

The consolidated report of the primary study revealing the exact scenario prevailing in the area based on the survey conducted in the 10 houses each in 5 villages (Total of 50 Houses) is listed below

<b>S. No</b>	<b>Indicator</b>	<b>Percentage/Nos.</b>
1	People below age 18	38
2	People age limit above 18	62
3	Literates	52
4	Illiterates	48
5	% of people employed in company	26
6	% of people self employed	37
7	% of people seasonally employed	14

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8	% of people unemployed	23
9	% of houses covered with LPG Cooking gas	80
10	% of houses covered with toilet facility	70
11	% of houses covered with piped water supply	60

### **Awareness and Opinion about the project**

- The respondents all the villages are aware about this project.
- Since most of the respondents were about the project, some of the people welcomed this project for the employment opportunity but they need commitment that, only local people should be hired for the work. Some fear that water level in the region will decrease due to mine and associated activities.
- The skill based employment should be given to the local people.
- Road accident may increase due to Mine transport and associated activities.

### **Expectation from the project**

- Local employment
- Plantation at nearby areas and ensure their survival rate.
- Increase educational facility in Govt. School and promote vocational & higher educational institute.

### **Other Infrastructural Facilities Available in the District**

*(Source: District Handbook – 2018-2019)*

**Drinking Water facility:** The project falls under Krishnagiri Block

Source of water in Krishnagiri Block: Dug well, Filter point & Tube well

**River:** The main rivers that flow across the district are Kaveri and South Pennar Kaveri enters the district from South West in Denkanikottai taluk and exists in South West direction. It forms a waterfalls at Hokenakkal and joins Mettur Dam. South Pennar originates in Nandidurg of Karnataka and flows through Hosur, Krishnagiri and Uthangari Taluks. Vanniyar and Markanda rivers join this South Pennar

**The communication details of the district is furnished below**

**Telephone:**

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- No. of Telephones in use : 31070
- No.of Telephones Exchanges : 64
- No.of Public calls with STD /ISD : 351

**Post Office:** . Head post office : 1

- a. Sub Post Office : 38
- b. Branch Post Offices : 263

**Transport Facility of the District:**

**Railway Stations:** 7

**Banking Sector:** 353 Cooperative Societies & Banks are available in the District.

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## 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

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#### 4.2 LAND ENVIRONMENT:

Aspect	Impact	Mitigation Measures									
<i>Mining of rough stone</i>	<p>The proposed 2.38.5 Ha mine located in Kammandoddi Village, rough stone of 4,05,339 m<sup>3</sup> respectively. The quarry operation is proposed to carry out with conventional open cast mechanized mining with 5.0 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.</p> <table border="1"> <thead> <tr> <th colspan="3">Ultimate Pit dimension (M)</th> </tr> <tr> <th>Length (max) in (m)</th> <th>Width (Avg) in (m)</th> <th>Depth(max) in(m)</th> </tr> </thead> <tbody> <tr> <td>205</td> <td>86</td> <td>43 m (1.0m Topsoil + 42.0m Rough Stone)</td> </tr> </tbody> </table>	Ultimate Pit dimension (M)			Length (max) in (m)	Width (Avg) in (m)	Depth(max) in(m)	205	86	43 m (1.0m Topsoil + 42.0m Rough Stone)	<p>The proposed project site is not prone to any kind of soil erosion (<b>Source: Bhuvan</b>).</p> <p>In addition, garland drainage of 1m x 1m will be provided to avoid storm water run- off.</p> <p>It is proposed to plant 1200 Nos of local tree species (Pungam, Vilvam etc.) along the roads, outer periphery of the mining area which enhances the binding property of the soil.</p> <p>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.</p> <p>The overburden (Topsoil) present upto a depth of 1m BGL will be stocked in the area</p>
Ultimate Pit dimension (M)											
Length (max) in (m)	Width (Avg) in (m)	Depth(max) in(m)									
205	86	43 m (1.0m Topsoil + 42.0m Rough Stone)									

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	<p>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.</p> <p>Impact on soil of the study area will be minimal as there are no wastewater generated, heavy metal infusion, stack emissions.</p> <p>Impact due to transformation of terrain characteristics over the large area results in soil degradation.</p> <p>Solid waste will be generated from the mining activity as there will be refuse also generation of domestic waste. If it is not properly managed, may cause odor and health problem to the workers.</p>	<p>allotted for safety distance and will be used for plantation.</p> <p>The source of dust generation is majorly due to drilling, blasting, loading &amp; unloading of the mined out mineral, the impact will be mitigated by water sprinkling regularly once in 3hrs.</p> <p>The proposed mining activity is carried out in almost plain terrain where the contour level difference is 4m.</p> <p>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.</p> <p>The 100% recovery is achieved by extracting the entire mineable reserve. Hence there will be no refuse generation due to the</p>
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		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.
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#### 4.3 WATER ENVIRONMENT:

<b>Aspect</b>	<b>Impact</b>	<b>Mitigation Measures</b>
<i>Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.</i>	<p>The mining in the area may cause ground water contamination due to intersection of the water table and mine runoff.</p> <p>The ground water depletion may occur due to mining activity</p>	<p>The water table will not be intersected during mining, as the ultimate depth is limited upto 43 meter below the ground level, whereas the ground water table is at 70m 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.</p> <p>The ground water table is at a depth of 70m 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</p>

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	<p>Chemicals consisting of nitrate used for blasting may pollute the surface run off.</p> <p>Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labours.</p>	<p>used for domestic purposes (other than drinking) after proper treatment.</p> <p>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.</p> <p>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</p>
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#### **4.4 AIR ENVIRONMENT:**

<b>Aspect</b>	<b>Impact</b>	<b>Mitigation Measures</b>
<i>Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.</i>	<p><i>Impacts during Operation Phase</i></p> <p>During mining operation, fugitive dust and other air pollutants like particulate matter (PM10 &amp; PM 2.5) will be generated.</p> <p>The main source of pollutants arises due to drilling and blasting. 2 No of Tipper will be used for loading and unloading, 1 No of Excavator</p>	<p><i>Mitigation Measures during Operation Phase</i></p> <p>It is proposed to plant 1200 Nos of local species (with 240 Nos each year) along the haul roads, outer periphery within the lease area to prevent the impact of dust in consultation with Forest department for the plantation of trees (Vilvam, Pungam Etc.,) in two tier to combat air pollution and with herbs (Nerium) in between the tree species.</p>

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	<p>(1.2 m<sup>3</sup> 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.</p> <p><u>Effect on Human</u></p> <ul style="list-style-type: none"> <li>• Adverse effect on human health of working labourers and neighbouring villagers like effect on breathing and respiratory system, damage to lung tissue, influenza or asthma.</li> <li>• Dust generation due to loading and unloading of mineral and due to</li> </ul>	<p>Planning transportation routes of the mined out mineral, so as to reach the nearest paved roads (an approach road) by shortest route connecting to NH44.</p> <p>Alternatively, gravelled 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.</p> <p>The trucks will be covered by tarpaulin.</p> <p>Overloading will be avoided.</p> <p>Personal Protective Equipments (PPEs) like eye goggles, dust mask, leather gloves, safety shoes &amp; boots will be provided to the workers engaged at dust generation points like excavation and loading points.</p>
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	<p>transportation can also affect the workers as well as nearby villagers.</p> <p><u>Effect on Plants</u></p> <ul style="list-style-type: none"> <li>Stomatal index may be minimized due to dust deposit on leaf.</li> </ul>	0.5 KLD of water will be proposed for sprinkling on unpaved roads to avoid dust generation during transportation.
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#### **4.5 NOISE ENVIRONMENT:**

<b>Aspect</b>	<b>Impact</b>	<b>Mitigation Measures</b>
<i>Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.</i>	<p>Usage of Equipments (Excavator, Tipper, Jack Hammer), Machinery and trucks used for transportation will generate noise.</p> <p>Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc due to prolonged exposure.</p>	<ul style="list-style-type: none"> <li>The machinery will be maintained in good running condition so that noise will be reduced to minimum possible level.</li> <li>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.</li> <li>It will be ensured that all transportation vehicles carry a valid PUC Certificates.</li> <li>Speed of trucks entering or leaving the mine will be limited to moderate speed (20km/hr) to prevent undue noise from empty vehicles.</li> </ul> <p>The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipments.</p>

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	<p>Number of vehicles will be increased due to the proposed mining activity hence vehicle may collide 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.</p>	<ul style="list-style-type: none"> <li>• It is proposed to plant 400 Nos. of local species (Vilvam, Therthangkottai, Pungam, Naval Etc.,) 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.</li> <li>• The trucks will be diverted on two roads viz. NH44 and a District road to avoid traffic congestion.</li> <li>• Health check-up camps will be organized once in six month.</li> <li>• Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas.</li> <li>• Provision of quiet areas, where employees can get relief from workplace noise.</li> </ul>
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#### 4.6 BIOLOGICAL ENVIRONMENT:

<b>Aspect</b>	<b>Impacts</b>	<b>Mitigation Measures</b>
Site Clearance	Loss of habitat due to site clearance which may lead to ecological disturbance.	The proposed mining lease is already a dry land hence no site clearance is required. Only few shrubs and herbs like parthenium sp., prosopis juliflora were present.

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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 0.60.0 Ha of land is utilized for greenbelt development (120 Nos – 5 years). This will attract avifauna thus enhancing the existing ecological environment.
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#### 4.7 SOCIO ECONOMIC ENVIRONMENT:

<b>Aspect</b>	<b>Impact</b>	<b>Mitigation Measures</b>
Proposed implementation of Mining activity	Land acquisition for the implementation of the project may result in loss of assets, which in return will make the PAP to shift, losing their normal routine and livelihood	The proposed project is a own patta land of <i>Thiru.P.Venkatareddy</i> and the land is vacant where there 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 Kammandoddi village which is 5.4 km-NW 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	It is proposed to use gravelled 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.

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	movement of the vehicles may affect/injure the animals	
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, 5 Lakhs will be allocated. Developing sports facilities, providing toilet, Water filter facilities to Government Schools in Kammandoddi Village.

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#### 4.8 Other Impacts:

<b>S. No</b>	<b>Aspect</b>	<b>Impact</b>	<b>Mitigation measure</b>
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 labours 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 – 5 P.M to 6 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.



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## **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, Krishnagiri District prior to submission of the Form-1 and PFR.

ToR issued by the Letter No. SEIAA-TN/F.No. 9320/SEAC/ToR-1237/2022 Dated: 30.08.2022. 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.

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**Table 5-1: Alternative for Technology and other Parameters**

<b>S. No.</b>	<b>Particular</b>	<b>Alternative Option 1</b>	<b>Alternative Option 2</b>	<b>Remarks</b>
1.	Technology	Opencast mechanized mining	Opencast mechanized mining	Opencast mechanized Involving drilling and blasting are preferred. Benefits: Material is hard so to make it loose and to bring it to appropriate size.
2.	Employment	Local employment.	Outsource employment	Local employment is preferred Benefits: Provides employment to local people along with financial benefits No residential building/ housing is required.
3.	Labour transportation	Public transport	Private transport	Local labours will be deployed from Kammandoddi village so they will either reach mine site by bicycle or by foot. Benefits: Cost of transportation of labors will be
4.	Material transportation	Public transport	Private transport	Material will be transported through trucks/trolleys on the contract basis Benefits: It will give indirect employment.

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5.	Water	Tanker supplier	Ground water/	Tanker supply will be preferred. Water will be sourced from Kammandoddi Village which is located in 1.50km in North side from the project site.
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## 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 <sub>2</sub>	5 locations	24 hourly twice a week 4 hourly.	Project Site, Sree Banashankari Papers Limited, Pathakotta, Shoolagiri Police station Government High School, Devasanapalli

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NO <sub>x</sub> Lead in PM		Twice a week, One non monsoon season 8 hourly, twice a week 24 hourly, twice a week	Er, Perumal Manimekalai College, Konerapalli
Noise	5 locations	24 hourly Once in 5 locations	Project Site, Sree Banashankari Papers Limited, Pathakotta, Shoolagiri Police station Government High School, Devasanapalli Er, Perumal Manimekalai College, Konerapalli
Water (Ground water) <ul style="list-style-type: none"> <li>• pH</li> <li>• Temperature</li> <li>• Turbidity</li> <li>• Magnesium</li> <li>Hardness</li> <li>• Total Alkalinity</li> <li>• Chloride</li> <li>• Sulphate</li> <li>• Fluoride</li> <li>• Nitrate</li> <li>• Sodium</li> <li>• Potassium</li> <li>• Salinity</li> <li>• Total nitrogen</li> <li>• Total Coliforms</li> <li>• Fecal Coliforms</li> </ul>	5 locations	Once in 5 locations	Project Site, Sree Banashankari Papers Limited, Pathakotta, Shoolagiri Police station Government High School, Devasanapalli Er, Perumal Manimekalai College, Konerapalli

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Water (surface water) <ul style="list-style-type: none"> <li>• pH</li> <li>• Temperature</li> <li>• Turbidity</li> <li>• Magnesium Hardness</li> <li>• Total Alkalinity</li> <li>• Chloride</li> <li>• Sulphate</li> <li>• Fluoride</li> <li>• Nitrate</li> <li>• Sodium</li> <li>• Potassium</li> <li>• Salinity</li> <li>• Total nitrogen</li> <li>• Total Coliforms</li> <li>• Fecal Coliforms</li> </ul>	Sample from nearby lakes/river	One time Sampling	Konerapalli Lake Palliaikuthur Lake
Soil (Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	5 locations	Once in 5 locations	Project Site, Sree Banashankari Papers Limited, Pathakotta, Shoolagiri Police station Government High School, Devasanapalli Er, Perumal Manimekalai College, Konerapalli
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	

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**Table 6-2: Monitoring Schedule during Mining**

<b>S. No.</b>	<b>Attributes</b>	<b>Parameters</b>	<b>Frequency</b>	<b>Location</b>
1.	Ambient Air Quality at Mine Site & Fugitive Dust Sampling	PM 10 PM 2.5 SO <sub>2</sub> NO <sub>x</sub>	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) Quarterly/half yearly	Half yearly	Project Site

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## 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

##### 1) Existing other quarries:

<b>S. No.</b>	<b>Name of the lessee / Permit Holder</b>	<b>Village &amp; Taluk</b>	<b>S. F. No.</b>	<b>Extent</b>	<b>Lease Period</b>
1.	Thiru.P.Venkata Reddy	Kammandoddi Village & Shoolagiri Taluk	1267/2, 1268/2, 1268/3	2.38.5 Ha	10.11.2017 to 09.11.2022
2.	Thiru.Rajappa	Kammandoddi Village & Shoolagiri Taluk	1266	4.04.5 Ha	13.10.2017 to 12.10.2027
3.	Thiru.Surendiran	Kammandoddi Village & Shoolagiri Taluk	1269/2A	1.66.5 Ha	13.10.2017 to 12.10.2022
4.	Tmt.V.Renuka	Kammandoddi Village & Shoolagiri Taluk	1269/2B	1.27.0 Ha	13.10.2017 to 12.10.2022
5.	Thiru.S.Madhu	Kammandoddi Village & Shoolagiri Taluk	1151 etc.,	1.27.0 Ha	06.12.2019 to 05.12.2029
6.	Thiru.G.Ashoka	Kammandoddi Village & Shoolagiri Taluk	754 & 760 (Part 3)	3.66.0 Ha	17.02.2022 to 16.02.2032

##### 2) Proposed Area:

<b>S. No.</b>	<b>Name of the applicant</b>	<b>Village &amp; Taluk</b>	<b>S. F. No.</b>	<b>Extent</b>
1.	Thiru. P.Narayanappa	Kammandoddi Village & Shoolagiri Taluk	754 & 760 (part-1)	1.80.0 Ha



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2.	Thiru.K.Govindhappa	Kammandoddi Village & Shoolagiri Taluk	754 & 760 (part-2)	2.10.0 Ha
3.	Thiru.Mallikarjun	Kammandoddi Village & Shoolagiri Taluk	754 & 760 (part-4)	3.50.0 Ha
4.	Thiru.V.Karunanithi	Kammandoddi Village & Shoolagiri Taluk	754 & 760 (part-5)	4.30.0 Ha
5.	M/s Royal Blue Metals	Kammandoddi Village & Shoolagiri Taluk	1151, 1155, 1212 to 1219, 1222, 1225 & 1226/A (part-1)	2.70.0 Ha
6.	M/s Royal Blue Metals	Kammandoddi Village & Shoolagiri Taluk	1151, 1155, 1212 to 1219, 1222, 1225 & 1226/A (part-2)	2.87.0 Ha
7.	Thiru.K.Muruges	Kammandoddi Village & Shoolagiri Taluk	1151, 1155, 1212 to 1219, 1222, 1225 & 1226/A (part-3)	2.82.0 Ha
8.	Thiru.S.R.Sambang	Kammandoddi Village & Shoolagiri Taluk	1151, 1155, 1212 to 1219, 1222, 1225 & 1226/A (part-4)	2.23.0 Ha

### 3) Lease Expired/Old quarries:

S. No.	Name of the applicant	Village & Taluk	S. F. No.	Extent	Lease Status
1.	Thiru.Subramani	Kammandoddi Village & Shoolagiri Taluk	1278/2, 1278/3,4	0.82.0	02.06.2003 to 01.06.2008 (Lease expired)

The Total extent of the Existing / Lease expired / Proposed quarries are 37.39.5 Ha

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 Krishnagiri District. The proceedings of the same will be incorporated in the Final EIA Report.

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### 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 Opencast Mechanized method in conjunction with conventional method of mining using Jack Hammer drilling and blasting for shattering effect and loosen the Rough Stone.

#### 7.1.3.2 Drilling and Blasting:

Drilling and Blasting parameters are as follows:

Diameter of Hole	30-32 mm
Spacing between holes	60 cms
Depth	1 to 1.5 m
Pattern of hole	Zigzag
Inclination of holes	70° from Horizontal
Use of delay detonators	25 milli-second delays
Detonating fuse	“Detonating” Cord

#### 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.

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

The quarry is situated more than 1.5km 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.

Diameter of Holes	=	32-36 mm
Powder factor	=	6 to 7 Tons/Kg of explosives
Depth	=	1 to 1.5 m
Charge/Hole	=	140 gms of 25mm dia cartridge
Blasted at day time	=	5 to 6 PM (or whenever required)

Storage and safety measures to be taken while blasting: The proponent 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 area:

- For Mining – Excavator of 1.2 Cum Bucket capacity (with Rock Breaker attachment), Jack Hammers (25.5 mm Dia) of 6 Nos.
- Loading Equipment – Excavator of 1.2 Cum Bucket Capacity (with Bucket attachment)
- Transportation (includes within the mine and mine to destination) – Tipper 2 No of 10 M.T 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.

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- 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;

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### ***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.

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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.

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- 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. No surface runoff from the project site will be let into the nearest water bodies.

#### **7.4 Resettlement and Rehabilitation:**

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

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## 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 (0.60.0 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 80 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, 5 Lakhs will be allocated. The detailed agenda, which is to be executed has been framed. The salient features of the programme are as follows:

- Developing Sports facilities and providing Toilet, Water Filter Facilities to Government Schools



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<i>Project Location</i>	<i>Kammandoddi Village, Shoologiri Taluk, Krishnagiri District</i>	

in Kammandoddi Village which is located at 1.50 km, N from the project site.

### 8.3 Project Cost / Investment Details

	<b><u>A. Fixed Asset Cost:</u></b>	
	1. Land Cost	: Rs. 22,00,000/-(Patta Land)
	2. Labour Shed	Rs. 2,00,000/-
	3. Sanitary Facility	: Rs. 90,000/-
	4. Fencing cost	: Rs. 1,00,000/-
	Total=	: <b>Rs. 25,90,000/-</b>
	<b><u>B. Operational Cost:</u></b>	
	<b><u>Machinery cost</u></b>	: Rs.40,00,000/-
	<b><u>C. EMP Cost:</u></b>	
	1. Drinking water facility	: Rs. 1,20,000/-
	2. Safety kits	: Rs. 1,00,000/-
	3. Water sprinkling	: Rs. 60,000/-
	4. Afforestation	: Rs. 60,000/-
	5. Water quality test	: Rs. 40,000/-
	6. Air quality test	: Rs. 40,000/-
	7. Noise/vibration test	: Rs. 40,000/-
	8. Cost towards charity	: Rs. 40,000/-
	Total=	: <b>Rs. 5,00,000/-</b>
	<b>Total Project Cost(A+B+C)</b>	: <b>Rs. 70,90,000/-</b>

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## **9 Environmental Cost Benefit Analysis**

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

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## **10 Environmental Management Plan**

### 10.1 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.

### 10.2 Subsidence

Mining will be carried out by opencast mechanized mining method with drilling & blasting as per mining plan approved by Department of Mining and Geology, Krishnagiri. 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 5m. The individual bench slope has been proposed to be kept at 60° from horizontal. Moreover, all safety standards/ safeguards will be implemented as per guidelines prescribed by Director General of Mines Safety.

### 10.3 Mine Drainage

#### *10.3.1 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.,

#### *10.3.2 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

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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.

### *10.3.3 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.P.Venkatareddy will work in association with M/s. Ecotech Labs Pvt Ltd.

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**Table 10-1: Impacts and mitigation measures**

<b>S. No</b>	<b>Impacts on Environment</b>	<b>Activity /Aspect</b>	<b>Anticipated impacts</b>	<b>Mitigation measures</b>	<b>Budgetary Allocation</b>
1.	Air	Fugitive Emission	During mining operation, fugitive dust and other air pollutants like particulate matter (PM10 & PM 2.5) will be generated.	<ul style="list-style-type: none"> <li>Planting of trees along the safety distance of the Mine Lease Area</li> <li>Water will be sprinkled in the site as dust suppression measure.</li> </ul>	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	<ul style="list-style-type: none"> <li>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.</li> </ul>	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	<ul style="list-style-type: none"> <li>Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas.</li> </ul>	Rs.10,000
4.	Land	Improper management of Storm water Runoff	Storm water Runoff may result in Soil Erosion	<ul style="list-style-type: none"> <li>Garland drainage of 1m x 1m will be provided to avoid storm water run-off.</li> </ul>	Rs.1,00,000

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5.	Social Responsibility	Mining workers	Unhygienic site sanitation facilities may cause health damage to workers.	<p>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</p> <ul style="list-style-type: none"> <li>✓ By complying with the safety procedures, norms and guidelines (as applicable) as outlined in the National Building Code of India, Bureau of Indian Standards.</li> <li>✓ Provide adequate number of decentralized latrines and urinals</li> <li>✓ Providing Septic tank along with Soak pit arrangement</li> <li>✓ Providing First Aid room, conducting frequent health checkups to labor and conducting free medical camps</li> <li>✓ Providing safety helmet, Gloves, Jacket &amp; Boots</li> <li>✓ Providing measures to prevent fires. Fire fighting extinguishers and buckets of sand will be provided in the construction site</li> </ul>	<p>Rs.25,000</p> <p>Rs.30,000</p> <p>Rs.1,00,000</p> <p>Rs.36,000</p> <p>Rs.50,000</p>
6.	Building materials resource conservation	Building Material consumption	Use of farfetched construction materials than the locally available construction	<ul style="list-style-type: none"> <li>• Use of locally available construction materials.</li> </ul>	

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			materials may lead to over exploitation of natural resources & increase in carbon footprint.		
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**Table 10-2: Budgetary Allocation for EMP during Mining**

<b>S. No</b>	<b>Description</b>	<b>Budgetary Allocation (in Rs.)</b>
1.	<b>EMP COST</b>	
	i. Drinking water facility	1,20,000
	ii. Safety Kits	1,00,000
	iii. Water Sprinkling	60,000
	iv. Afforestation	60,000
2.	<b>Environmental Monitoring</b>	
	i. Air Quality Monitoring	40,000
	ii. Water Quality Monitoring	40,000
	iii. Noise/Vibration Monitoring	40,000
<b>Total Cost</b>		<b>5,00,000</b>

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## 11 Summary & Conclusion

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

### 11.1 Introduction

Thiru.P.Venkatareddy site is a cluster of 14 mining project. The individual mine lease area is 2.38.5 Ha of Rough Stone Quarry located at S.F.Nos.1267/2, 1268/2 & 1268/3 of Kammandoddi Village, Shoolagiri Taluk in Krishnagiri District.

### 11.2 Project Overview

**Table 11-1: Project Overview**

<b>S. No.</b>	<b>Description</b>	<b>Details</b>
1	Project Name	Rough Stone Quarry-2.38.5 ha
2	Proponent	Thiru.P.Venkatareddy
3	Mining Lease Area Extent	2.38.5Ha
4	Location	S.F.Nos. 1267/2, 1268/2 & 1268/3 Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District.
5	Latitude	12 ° 39' 42.99" N to 12 ° 39' 42.99"N
6	Longitude	77° 57' 41.79" E to 77° 57' 33.09"E
7	Topography	Undulated terrain
8	Site Elevation above MSL	739 m from MSL
9	Topo Sheet No.	57-H/14
10	Minerals of Mine	Rough Stone
11	Proposed production of Mine	Proposed capacity of Rough Stone: 405 339 m <sup>3</sup>



<i>Project</i>	<i>Scheme of Mining- Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</i>	<i>EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Venkatareddy</i>	
<i>Project Location</i>	<i>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</i>	

12	Ultimate depth of Mining	43m below ground level(1.0m Topsoil + 42.0m Rough Stone).
13	Method of Mining	Open cast mechanized mining
14	Water demand	2 KLD
15	Source of water	Water will be supplied through tankers supply
16	Man power	Direct :7 , Indirect :7 nos
17	Mining Lease	Proceedings letter received from the The District collector, Krishnagiri vide letter Rc.No. 721/2015/Mines-2 dated 30.10.2017.
18	Mining Plan Approval	The Scheme of Mining was approved by Assistant Director, Geology and Mining, Krishnagiri vide letter Roc No.1123/2021/Mines dated:23.04.2021 for a period of 2022-2023 to 2026-2027
19	Production details	Geological reserves of Rough Stone : 9,44,148 m <sup>3</sup> Proposed year wise recoverable reserves of Rough Stone : 4,05,339 m <sup>3</sup>
20	Boundary Fencing	7.5m barrier all along the boundary Fencing will be provided
21	Disposal of overburden	The top soil of the lease area is 9603 m <sup>3</sup> . Top Soil formation will be removed and dumped in the North, South and West side 7.5m boundary barrier of the lease area and will be utilized for Afforestation purposes.
22	Ground water	The quarry operation is proposed up to a depth of <b>43 m</b> below ground level. The water table is below <b>70m</b> from ground level which is observed from the nearby open wells and bore wells. Hence the ground water will not be

<i>Project</i>	<i>Scheme of Mining- Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</i>	<i>EIA Report</i>
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<i>Project Location</i>	<i>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</i>	

		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 of the project site.
24	Drinking water	Water will be supplied through tankers from Kammandoddi Village which is 1.50 km from the project site.

### 11.3 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 Krishnagiri, 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.

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<i>Project Location</i>	<i>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</i>	

**Table 11-2: Anticipate Impacts & Appropriate Mitigation Measures**

<b>S. No.</b>	<b>Potential Impact</b>	<b>Mitigation Measure</b>
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.

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	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.

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<i>Project Location</i>	<i>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</i>	

## **12. Disclosure of Consultant**

### **12.1 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.

### **12.2 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.

#### ***12.2.1 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.

<i>Project</i>	<i>Scheme of Mining- Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</i>	<i>EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Venkatareddy</i>	
<i>Project Location</i>	<i>Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District</i>	

**Declaration by Experts contributing to the EIA of Rough Stone Quarry- 2.38.5 Ha by Thiru.P.Venkatareddy at S.F.No. 1267/2, 1268/2 & 1268/3, Kammandoddi Village, Shoolagiri Taluk, Krishnagiri 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.


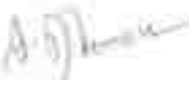
**Signature:**

**Period of involvement:** 01.06.2022 to 30.08.2022

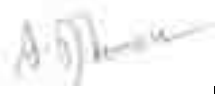

**Contact information:** M/s. Ecotech Labs Pvt Ltd.,  
 No. 48, 2<sup>nd</sup> Main road, Ram Nagar South Extension,  
 Pallikaranai

<b>S. No.</b>	<b>Functional areas</b>	<b>Name of the expert/s</b>	<b>Involvement (Period and task)</b>	<b>Signature and date</b>

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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.	

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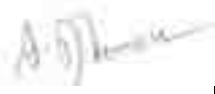



3	SHW	Dr. A. Dhamodharan	Identification of nature of solid waste generated, Categorization of the generated waste and estimating the quantity of waste to be generated based on the per capita basis. Identification of impacts of SHW on Environment, Suggesting suitable mitigation measures by recommending 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	




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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.	

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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 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	NV	Mrs. K. Vijayalakshmi	4. Selection of monitoring locations 5. Interpretation of baseline data 6. Prediction of impacts due to noise pollution and suggestion of appropriate mitigation measures	
11	LU	Dr. T. P. Natesan	Preparation of land use, land cover maps for the study area using satellite imagery.	

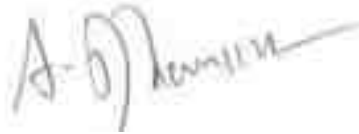
<i>Project</i>	<i>Scheme of Mining- Rough Stone Quarry – 2.38.5 Ha by Thiru.P.Venkatareddy</i>	<i>EIA Report</i>
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12	RH	Mrs. K. Vijayalakshmi	4. Identification of the risk 5. Interpreting consequence contours 6. Suggesting risk mitigation measures	
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**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. 1267/2, 1268/2 & 1268/3 of Kammandoddi Village, Shoolagiri Taluk, Krishnagiri 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**





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

**STATE LEVEL ENVIRONMENT IMPACT  
ASSESSMENT AUTHORITY-TAMILNADU**  
3<sup>rd</sup> Floor, Panagal Maaligai,  
No.1, Jeevis Road, Saidapet,  
Chennai - 600 015.  
Phone No. 044-24359973  
Fax No. 044-24359975

**TERMS OF REFERENCE (ToR)**

**Lr No. SEIAA-TN/E.No.9320/SEAC/ToR-1237/2022 Dated -30.08.2022**

**To**

Thiru.P.Venkatareddy  
S/o. G. Pillareddy  
Kukknapalli, Kammandoddi  
Shoolagiri Taluk  
Krishnagiri - 635109

**Sir / Madam,**

**Sub:** SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for the Proposed Rough Stone Quarry lease over an extent of 2.38.5Ha(Patta land) in S.F.Nos.1267/2, 1268/2, 1268/3 of Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu by Thiru.P. Venkatareddy - under project category – “B1” and Schedule S.No. 1(a) – ToR issued along with Public Hearing- preparation of EIA report – Regarding.

- Ref:** 1. Online proposal No.SIA/TN/MIN/77901/2022, dated: 18.08.2022  
2. Your application seeking Terms of Reference submitted on: 15.06.2022  
3. Minutes of the 302<sup>nd</sup> meeting of SEAC held on 17.08.2022  
4. Minutes of the 547<sup>th</sup> meeting of Authority held on 30.08.2022.

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

  
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The project proponent, Thiru.P.Venkatareddy has submitted application seeking ToR for B1 category project in Form-I, for the Proposed Rough Stone Quarry lease over an extent of 2.38.5Ha(Patta land) in S.F.Nos.1267/2, 1268/2, 1268/3 of Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu and has furnished Pre-feasibility report.

**Discussion by SEAC and the Remarks:-**

Proposed Rough Stone Quarry lease over an extent of 2.38.5Ha(Patta land) in S.F.Nos.1267/2, 1268/2, 1268/3 of Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu by Thiru.P. Venkatareddy- For Terms of Reference. (SIA/TN/MIN/77901/2022 dated 07.06.2022)

The proposal was placed for appraisal in this 302<sup>nd</sup> meeting of SEAC held on 17.08.2022. The details of the project furnished by the proponent are available on the PARIVESH web portal ([parivesh.nic.in](http://parivesh.nic.in)).

**The SEAC noted the following:**

1. The project/activity is covered under category "B1" of Item 1 (a) "Mining of Minerals Projects" of the schedule to the EIA Notification, 2006.


Sl. No	Details of the proposal furnished by the PP	
1	Name of the Owner/Firm	Thiru.P.Venkatareddy S/o. G. Pillareddy Kodikalapalli Kammandoddi Shoolagiri Taluk Krishnagiri - 635109
2	Type of quarrying (Savvudu/Rough Stone/Sand/Granite)	Rough stone
3	S.F. No. Of the quarry site with area break-up	1267/2, 1268/2, 1268/3
4	Village	Kammandoddi
5	Taluk	Shoolagiri
6	District	Krishnagiri
7	Extent of quarry (in ha)	2.38.5Ha (Patta land)
8	Period of quarrying proposed	5 years
9	Type of mining	open cast mechanized mining
10	Production (Quantity in m3)	As per the scheme of mining, the lease period is for 5 years and the production for 5 years not to exceed 4,15,447 cum of Rough stone for an ultimate depth of 50m (1m Top soil + 49m Rough Stone & Mine waste).

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		The Annual peak production as per mining plan is 1,14,799 m <sup>3</sup> of Rough stone (1 <sup>st</sup> year).
11	Depth of quarrying	50m (1m Top soil + 49m of Rough Stoned & Mine waste)
12	Latitude & Longitude of all corners of the quarry site	12°39'42.99"N to 12°39'41.44"N 77°57'41.79"E to 77°57'33.09"E
13	Topo Sheet No.	57- H/14
14	Man Power requirement per day	14Nos.
15	Precise area communication	Roc.No.721/2015/Mines-2 Dated: 30.10.2017
16	Mining Plan	Scheme of mining Roc.No.1123/2021/Mines Dated: 23.04.2021 for a period of 2022-2023 to 2026-2027.
17	500m cluster letter	Re No. 1123/2021/Mines Dated: 19.05.2022
18	Water requirement 1. Drinking & domestic purposes (in KLD) 2. Dust suppression & Green Belt (in KLD)	2.0 KLD
19	Power requirement for domestic purpose	TNEB
20	Depth of water table	70m-80m
21	Whether any habitation within 300m distance	No as per the VAO letter dated 03.03.2022
22	Project Cost (Including EMP cost)	Rs. 70.90 Lakh
23	EMP cost	Rs. 5.0 Lakh
24	CER cost	As per O.M dated 20.09.2020
25	VAO certificate regarding habitation within 300m radius	Letter dated 03.03.2022

Based on the presentation made by the proponent, SEAC decided to **recommend for the grant of Terms of Reference (TOR) with Public Hearing** subject to the following TORs, in addition to the standard Terms of Reference for EIA study for non-coal mining projects and details issued by the MOEF & CC to be included in EIA/EMP Report:

1. The Project Proponent shall include the letter received from DFO concerned stating the proximity details of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., upto a radius of 25 km from the proposed site.
2. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall


  
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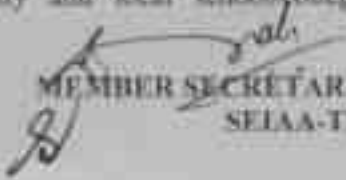
- prepare and submit an 'Action Plan' for carrying out the realignment of the benches in the proposed quarry lease after it is approved by the concerned Asst. Director of Geology and Mining during the time of appraisal for obtaining the EC.
3. The EIA Coordinators shall obtain and furnish the details of quarry-quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidence.
  4. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD mines.
    - What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
    - Quantity of minerals mined out.
    - Highest production achieved in any one year.
    - Detail of approved depth of mining.
    - Actual depth of the mining achieved earlier.
    - Name of the person already mined in that leases area.
    - If EC and CTO already obtained, the copy of the same shall be submitted.
    - Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
  5. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Tops sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
  6. The PP shall carry out Drone video survey covering the cluster, green belt, fencing etc..
  7. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
  8. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.

  
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9. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act 1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
10. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
11. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.
12. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of air pollution, water pollution, & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
13. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
14. Issues relating to Mine Safety, including slope geometry in case of Granite quarrying, blasting parameters etc. should be detailed. The proposed safeguard measures in each case should also be provided.
15. 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.
16. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.

  
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17. Since non-saleable waste /OB / intermediate waste etc. is huge in the granite quarry, the Proponent shall provide the details pertaining to management of the above material with year wise utilization and average moving inventory be submitted.
18. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.
19. 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.
20. Impact on local transport infrastructure due to the Project should be indicated.
21. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.
22. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
23. Public Hearing points raised and commitments of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.
24. The Public Hearing advertisement shall be published in one major National daily and one most circulated Tamil daily.
25. The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.
26. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
27. The purpose of green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the **appendix-I** in consultation with the DFO, State Agriculture University and local school/college

  
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- authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
28. Taller/one year old Saplings raised in appropriate size of bags; preferably eco-friendly bags should be planted as per the advice of local forest authorities/ botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner.
  29. A Disaster Management Plan shall be prepared and included in the EIA/EMP Report.
  30. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report.
  31. 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.
  32. 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.
  33. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
  34. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
  35. 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.
  36. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.

  
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37. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

#### Appendix -I

#### List of Native Trees Suggested for Planting

1. *Aegle marmelos* - Vilvam
2. *Adenanthera pavonina* - Manjadi
3. *Albizia lebbek* - Vangai
4. *Albizia amara* - Usil
5. *Bauhinia purpurea* - Mantharai
6. *Bauhinia racemosa* - Aathi
7. *Bauhinia tomentosa* - Iruvathi
8. *Buchanania allurea* - Kattama
9. *Borassus flabellifer* - Pazai
10. *Butea monosperma* - Murakkamaram
11. *Bobaxcelba* - Iluva, Sevviluva
12. *Calophyllum inophyllum* - Panmai
13. *Cassia fistula* - Sarakondrai
14. *Cassia roxburghii* - Sengondrai
15. *Chloroxylon swietenia* - Parasamaram
16. *Cochlospermum retigiosum* - Kerega, Manjallava
17. *Cardulidichotome* - Meekachalimaram
18. *Cretevadansoni* - Mavalingam
19. *Dillenia indica* - Uva, Uzha
20. *Dillenia pentagyna* - Sindilva, Sitrazha
21. *Diospyros chinensis* - Karungali
22. *Diospyros chloroxylon* - Vagandi
23. *Ficus amplissima* - Kallichi
24. *Hibiscus tiliaceus* - Antrapoovarasi
25. *Hardwickia binata* - Aachia
26. *Holopteleu integrifolia* - Aiyil
27. *Lannea coromandelica* - Odhiam
28. *Lagerstroemia speciosa* - Poo Marudhu
29. *Leptanthus tetraphylla* - Neikottamaram
30. *Limonia acidissima* - Vila maratt
31. *Litsea glutinosa* - Pisimpattai
32. *Madhucalongifolia* - Iluppai
33. *Manilkura hexandra* - UkkaiPaalai
34. *Mimusops elengi* - Magachamaran

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35. *Mitragynaparvifolia* - Kadambu
36. *Morinda pubescens* - Nuna
37. *Morinda trifolia* - VellaiNuna
38. *Phoenix sylvestre* - Eachai
39. *Pongamia pinnata* - Pungam
40. *Premna mollissima* - Munnai
41. *Premna serratifolia* - Narumunai
42. *Premna tomentosa* - PurangaiNaari, PudangaNaari
43. *Prosopis cinerica* - Vannimaram
44. *Pterocarpus marsupium* - Vengal
45. *Pterospermum canescens* - Vennangu, Tada
46. *Pterospermum xylocarpum* - Polavu
47. *Putranjiva roxburghii* - Puthranjivi
48. *Salvadora persica* - UgaMaram
49. *Sapindus marginatus* - Manipungan, Soapukai
50. *Saraca asoca* - Asoca
51. *Streblus asper* - Pirayattaram
52. *Strychnos nuxvomica* - Yetti
53. *Strychnos potatorum* - TherthangKottai
54. *Syzygium cumini* - Naval
55. *Terminalia bellerica* - Thundri
56. *Terminalia arjuna* - Venmarudhu
57. *Toona ciliata* - Sandhanavembu
58. *Thespesia populnea* - Pavarasi
59. *Walsura trifoliata* - valaura
60. *Wrightia tinctoria* - Vep

**Discussion by SEIAA and the Remarks:-**

The proposal was placed in the 547<sup>th</sup> meeting of Authority held on 30.08.2022. The Authority noted that the proposal was placed in the 302<sup>nd</sup> meeting of SEAC held on 17.08.2022. SEAC has furnished its recommendations to the Authority for granting Terms of Reference (ToR) along with Public Hearing for the project.

After detailed discussions, the Authority accepted the recommendation of SEAC and decided to **grant Terms of Reference (ToR) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the ToR as recommended by SEAC & subject specific standard ToR stipulated by MoEF & CC in addition to the following ToR:


1. Considering the environmental impacts due to mining, safety of the working personnel and following the principle of sustainable mining, the ultimate depth of mining is restricted to 43m

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(1m topsoil+42m Rough stone) and the quantity of Rough stone is 405339 cu.m is permitted for mining over a period of five years as per the approved mining plan.

2. The scientific studies shall be carried out for any proposed quarry over the existing pit/quarry by the reputed Government Scientific Research / Academic Institutions such as Anna University, NITs, IITs, NIRM, CISR laboratories when the depth of the proposed working (or) ultimate depth of working is extended beyond 40 m below ground level (BGL) in case of flat terrain and the excavation extends beyond 30 m above ground level (AGL) in case of outcrop/hilly terrains for evaluating the stability of slopes. A copy of the report shall be submitted to the SEIAA, the concerned AD/DGM, the concerned DEE/TNPCB and the Director of Mines Safety, Chennai.
3. Detailed study shall be carried out regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
4. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological structures etc.
5. As per the MoEF& CC office memorandum F.No.22-65/2017-IA,III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.
6. The Environmental Impact Assessment shall study in detail on the carbon emission and also suggest the measures to mitigate carbon emissions including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.
7. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.
8. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
9. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the nearby water body and Reservoir.
10. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
11. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
12. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.

  
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13. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.
14. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.
15. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.
16. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.
17. The project proponent shall study and furnish the impact of project on plantations in adjoin patta lands, Horticulture, Agriculture and livestock.
18. The project proponent shall study and furnish the details on potential fragmentation impact of natural environment, by the activities.
19. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.
20. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.
21. The project proponent shall study and furnish the possible pollution due to plastic and micro plastic on the environment. The ecological risks and impacts of plastic & micro plastic on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.
22. The project proponent shall study on impact of mining on Reserve forests free ranging wildlife.
23. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
  - a) Soil health & bio-diversity.
  - b) Climate change leading to Droughts, Floods etc.
  - c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
  - d) Possibilities of water contamination and impact on aquatic ecosystem health.
  - e) Agriculture, Forestry & Traditional practices.
  - f) Hydrothermal/Geothermal effect due to destruction in the Environment.

  
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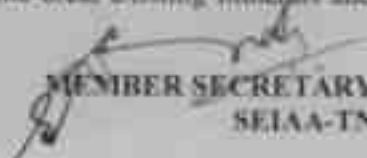
g) Bio-geochemical processes and its foot prints including environmental stress.

h) Sediment geochemistry in the surface streams.


24. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby water bodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.
25. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/unto ward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.
26. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.
27. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.

#### **A. STANDARD TERMS OF REFERENCE**

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


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

  
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Expert Appraisal Committees.

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


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

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

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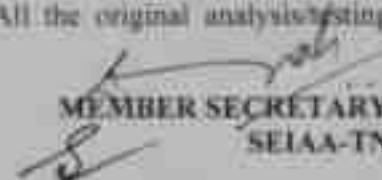
- 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
- 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary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

  
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plans and with adequate number of sections) should be given in the EIA report.

- 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction/order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- 44) Besides the above, the below mentioned general points are also to be followed:-
  - a) Executive Summary of the EIA/EMP Report
  - b) All documents to be properly referenced with index and continuous page numbering.
  - c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
  - d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing

  
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reports should be available during appraisal of the Project.

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


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

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

1. Project name and location (Village, District, State, Industrial Estate (if applicable)).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.

  
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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 its acquisition, nearby (in 2-3 km.) water body, population, within 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary).
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/

  
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Accredited agencies.


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

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

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF & CC vide O.M. No. J-H013-41/2006-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-H013/77/2004-IA-III(I) dated 2<sup>nd</sup> December, 2009, 18<sup>th</sup> March 2010, 28<sup>th</sup> May 2010, 28<sup>th</sup> June 2010, 31<sup>st</sup> December 2010 & 30<sup>th</sup> 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 with public hearing prescribed shall be valid for a period of three years from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-1A-III(D)(part) dated 29<sup>th</sup> August, 2017.

  
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**Copy to:**

1. The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi-110032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
4. The APCCF (C), Regional Office, MoEF & CC (SZ), 34, HEPC Building, 1<sup>st</sup> & 2<sup>nd</sup> Floor, Cathedral Garden Road, Nungambakkam, Chennai -54.
5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi 110003
6. The District Collector, Krishnagiri District.
7. Mail copy to Regional office, MoEF&CC, Chennai
8. Stock File.



TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

**COMPLIANCE OF TOR CONDITIONS**

**Point wise compliance of TOR points issued by SEIAA, TN vide letter No. SEIAA-TN/F.No.9320/SEAC/TOR-1237/2022, dated 30.08.2022 for Scheme of Mining of Minor Minerals in the Mine of “Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha in S.F Nos. 1267/2, 1268/2 & 1268/3 of Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu State.**

S.No	Standard ToR	Compliance	Page Ref in the Report
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.	This is a proposed Rough Stone Quarry  The Scheme of Mining was approved by Assistant Director, Geology and Mining, Krishnagiri vide letter Roc No.1123/2021/Mines dated:23.04.2021 for a period of 2022-2023 to 2026-2027.  Proposed Production of Rough Stone for five years is proposed in the EIA/EMP in chapter no-2.	Page 42
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 2.38.5 hectare in Kammandoddi Village for Rough Stone and Gravel Quarry approved by Department of Geology and Mining, Krishnagiri vide letter Roc No.1123/2021/Mines dated:23.04.2021 for a period of 2022-2023 to 2026-2027.	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	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	

## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

	generation and its management and mining technology and should be in the name of the lessee.	compatible with one another. The mining plan of the project site has been submitted to The Assistant Director, Geology and Mining Krishnagiri District.	Annexure-III  Chapter-II
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
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
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 in Chapter 2.	Chapter-2
7.	It should be clearly stated whether the proponent company has a well laid down Environment Policy		

TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

	<p>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?</p> <p>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.</p>	<p>Noted.</p>	
<p>8.</p>	<p>Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.</p>	<p>It is an open cast mining project. Blasting details are incorporated in chapter-2</p>	<p>Chapter-2,</p>

## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

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
10.	<p>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.</p> <p>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.</p>	<p>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.</p> <p>There is no wildlife sanctuary and national park, migratory routes of fauna in the study area.</p>	Chapter-2, Table no. 2.2
11.	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	There is no overburden anticipated during the entire quarrying operation. The excavated rough stone will be directly loaded into tipper to the needy crusher/other buyers for road project and construction works for filling leveling of low lying areas.	Chapter-2,

## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

12.	<p>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.</p> <p>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.</p>	<p>The proposed mining lease area is not falling under forest land. DFO Letter is attached as Annexure.</p>	-
13.	<p>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.</p>	<p>The proposed mining lease area is not falling under forest land.</p>	-
14.	<p>Implementation status of recognition of forest rights under</p>	<p>Not Applicable.</p>	-



## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

	the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	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	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.	-

## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

	be obtained from the State Wildlife 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, 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.	<p>Detail biological study (flora &amp; fauna) within 10 km radius of the project site have been incorporated in Chapter-3 of EIA/ EMP Report.</p> <p>No flora &amp; 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 &amp; fauna, if any in the lease hold area.</p>	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	The proposed mining lease area is not falling under forest land. / critically polluted areas.	-

## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

	<p>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.</p>		
20.	<p>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).</p>	<p>There is no Coastal Zone within 15km radius of the project site.</p>	-
21.	<p>R &amp;R Plan/compensation details for the Project Affected People ( PAP) should be furnished. While preparing the R&amp;R Plan, the relevant State / National Rehabilitation &amp; Resettlement Policy should be kept in view. In respect of SCs</p>	<p>There is no Rehabilitation and resettlement is involved. Land classified as Patta land.</p>	-

## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

	<p>/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.</p> <p>The issues relating to shifting of Village including their R&amp;R and socio-economic aspects should be discussed in the report.</p>		
22.	<p>One season (non-monsoon) and (Summer Season), (Post monsoon) primary baseline data on ambient air quality 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.</p> <p>Site-specific meteorological data should also be collected. The</p>	<p>Baseline data collected during June to August 2022 has been incorporated in EIA/EMP report.</p> <p>The key plan of monitoring station has been discussed in Chapter-3. 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.</p>	Chapter 3

## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

	<p>location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the predominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the predominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.</p>		
23.	<p>Air quality modeling should be Carried out for prediction of impact of the project on the air quality of the area.</p> <p>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.</p> <p>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.</p>	<p>Air quality modeling &amp; Impact of Air quality incorporated in chapter-4</p> <p>Transportation of mineral during operation of mines will be done by road &amp; NH-44 through dumpers and the impact of movement of vehicles are incorporated in Draft EIA/EMP report.</p> <p>Air quality modeling &amp; Impact of Air quality will be incorporated in the final EIA Report.</p>	Chapter-4

## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

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: 2.0 KLD Dust Suppression: 0.5 KLD Domestic Purpose: 1.0 KLD Plantation : 0.5 KLD Domestic Water will be sourced from nearby Kammandoddi village and other water will be source from nearby road tankers supply.	Chapter-2
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
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	Maximum working depth: 43m BGL(1.0m Topsoil + 42.0m Rough Stone) The ground water table is reported as 70m 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	Chapter-2

## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

	<p>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.</p>	<p>mine working will not be intersecting the ground water table.</p>	
29.	<p>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.</p>	<p>There is no any stream crossing in the new quarry</p>	<p>Executive Summary</p>
30.	<p>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.</p>	<p>Highest elevation: 739 m AMSL Ultimate Depth of mining :43 m BGL Ground Water Table : 70 m BGL</p>	<p>Chapter-2 Table no. 2.2</p>
31.	<p>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</p>	<p>Green Belt Development plan is proved given in Chapter 2.</p>	<p>Chapter-2</p>

## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

	<p>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.</p>		
32.	<p>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.</p>	<p>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.</p>	Chapter-3



## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

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
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-6
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-7 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	Detailed CER Activity is provided in Draft EIA Report.	-

## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

	Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.														
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-10 of the Draft EIA/EMP Report.	Chapter-9												
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 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.													
41.	The cost of the project (capital cost and recurring cost) as well as the cost towards implementation of EMP should clearly be spelt out.	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">S.No.</th> <th style="text-align: center;">Description</th> <th style="text-align: center;">Cost</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Project Cost</td> <td style="text-align: right;">25,90,000</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Expenditure Cost</td> <td style="text-align: right;">40,00,000</td> </tr> <tr> <td style="text-align: center;">3</td> <td>EMP Cost</td> <td style="text-align: right;">5,00,000</td> </tr> </tbody> </table>	S.No.	Description	Cost	1	Project Cost	25,90,000	2	Expenditure Cost	40,00,000	3	EMP Cost	5,00,000	
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## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

		<b>Total</b>	<b>70,90,000</b>	
42.	A Disaster Management Plan shall be prepared and included in the EIA/EMP Report.	Disaster Management and Risk Assessment has be incorporated in Chapter-7		Chapter-7
43.	Benefits of the project if the project is implemented should be spelt out. The benefits of the project shall clearly indicate environmental, social economic ,employment potential etc.	Benefits of the project has incorporated		Chapter-8
44.	Besides the above, the below mentioned general points are also to be followed:			
(a)	Executive Summary of the EIA/EMP report	Executive Summary of EIA Report is given from page No.14-38		
(b)	All documents to be properly referenced with index and continuous page numbering.	Complied		
(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.	Complied		
(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.	Complied		
(e)	Where the documents provided are in a language other than	Complied		

**TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha**

	English, an English translation should be provided.		
(f)	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	The complete questionnaire has been 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) dated 4th 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.	

TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

(i)	As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified 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.	Will be complied after grant environment clearance from SEIAA, Tamilnadu	
(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.	

## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

### Additional ToR Compliance

S.No.	Condition	Compliance
1.	The Project Proponent shall include the letter received from DFO concerned stating the proximity details of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., upto a radius of 25 km from the proposed site.	DFO Letter has been obtained. Same is enclosed as annexure.
2.	In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall prepare and submit an 'Action Plan' for carrying out the realignment of the benches in the proposed quarry lease after it is approved by the concerned Asst. Director of Geology and Mining during the time of appraisal for obtaining the EC.	It is an existing quarry and Earlier EC obtained from SEIAA in the year 2016. The action plan is prepared and same has been incorporated.
3.	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past. either in the same location or elsewhere in the State with video and photographic evidence.	The details of existing quarry will be submitted with photo and videographic evidences.
4.	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,	It is an existing quarry and Earlier EC obtained from SEIAA in the year 2017. All details will be incorporated in the final EIA report.

## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

	<p>a) What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?</p> <p>b) Quantity of minerals mined out.</p> <p>c) Highest production achieved in any one year</p> <p>d) Detail of approved depth of mining.</p> <p>e) Actual depth of the mining achieved earlier.</p> <p>f) Name of the person already mined in that leases area.</p> <p>g) If EC and CTO already obtained, the copy of the same shall be submitted.</p> <p>h) Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.</p>	
5.	<p>All corner coordinates of the mine lease area, superimposed on High Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).</p>	<p>All maps have been provided in chapter 2 and chapter 3 of Draft EIA report.</p>
6.	<p>The Proponent shall carry out Drone video survey covering the Cluster, Green Belt, Fencing etc.,</p>	<p>Noted. The drone video to cover the cluster area clearly showing the extent of operation and the surrounding environment will be submitted along with the final EIA report.</p>
7.	<p>The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees &amp; safety distance between the adjacent</p>	<p>It is an existing quarry, fencing and green belt photos will be attached along with Final EIA report.</p>

## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

	quarries & water bodies nearby provided as per the approved mining plan.	
8.	The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.	<p>The geological reserves, mineable reserves and Yearwise production details has been discussed in Chapter 2 – Pg No. 53</p> <p>The anticipated impacts due to mining operations carried out in the quarry cluster and its mitigation measures have been discussed in Chapter 4 of Draft EIA Report.</p>
9.	The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	The Organization chart has been discussed in Chapter 2
10.	The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD/ TWAD to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater.	The hydro-geological study will be conducted and submitted in final EIA report.



## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

	Necessary data and documentation in this regard may be provided.	
11.	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.	The baseline data for the environmental and ecological parameters about surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study have been incorporated in Chapter 3.
12.	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of air pollution, water pollution, & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	The anticipated impacts due to mining operations carried out in the quarry cluster and its mitigation measures have been discussed in Chapter 4 of Draft EIA Report.
13.	Rainwater harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	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.
14.	Issues relating to Mine Safety, including slope geometry in case of Granite quarrying, blasting parameters etc. should be detailed. The proposed safeguard measures in each case should also be provided.	The proposed safeguard measures are provided in the Draft EIA Report.
15.	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human	The Land Use details are provided in Chapter 3 of the Draft EIA Report.

## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

	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.	
16.	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided	This area is covered 1.0m Top Soil in this mine area 9603 m3. Topsoil formation will be dumped in Eastern side Boundary Barrier of the lease area. And it will be utilized for Plantation Purposes.
17.	Since non-saleable waste /OB / intermediate waste etc. is huge in the granite quarry, the Proponent shall provide the details pertaining to management of the above material with year wise utilization and average moving inventory be submitted.	The proposed quarry is rough stone so the mentioned waste in not applicable.
18.	Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	The proposed mining lease area is not falling under critically polluted area.
19.	Description of water conservation measures proposed to be adopted in the Project should	At the last stage of mining operation, almost complete area will be worked to restore the

## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

	be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	land to its optimum reclamation for future use as water reservoir.
20.	Impact on local transport infrastructure due to the Project should be indicated	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 EIA/EMP report
21.	A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	The list of trees in the core and buffer zone have been discussed in chapter 3 -
22.	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	Mine closure plan has been attached along with mining plates as Annexure VI.
23.	Public Hearing points raised and commitments of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.	Agreed to Comply.
24.	The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.	The Public hearing advertisement will be published in one major National daily and one most circulated vernacular daily.
25.	The Project Proponent shall produce/display the EIA Report, Executive Summary and other	Noted.

## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

	related with respect to Public Hearing should be in Tamil Language also.	
26.	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study. wherever possible.	
27.	The purpose of green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner	<p>Around 1200 trees will be planted around the site. The list of trees to be planted are given below:</p> <p>Neem, Pungam, Poovarasu, Naval, Mantharai, Arasa Maram, Magizham, Vilvam, vaagai, Marudha maram, Thandri, Poovarasu, Quaker buttons, Thethankottai maram, Manjadi, Usil, Aathi, Panai, Uzha, Illuppai, Eachai, Vanni Maram.</p>
28.	Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted in proper espacement as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall carmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner.	The green belt plan is enclosed along with mining plates in Annexure VI

## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

29.	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	A Disaster management Plan will be prepared and included in the Final EIA/EMP Report.
30.	A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report.	A Risk Assessment and management Plan will be prepared and included in the final EIA/EMP Report.
31.	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.	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-10 of EIA/EMP.
32.	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	Public health implications and remedial measures is provided in the Draft EIA Report.
33.	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	The socio-economic study has been carried out discussed in chapter 3
34.	Details of litigation pending against the	Not applicable

## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

	project, if any, with direction /order passed by any Court of Law against the project should be given.	No. litigation is pending against the project in any court.
35.	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	
36.	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.	We are in the processing of obtaining Certified EC Compliance report from MOEF and once obtained the same will be submitted along with the final EIA report.
37.	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Reference besides attracting penal provisions in the Environment (Protection) Act, 1986.	Noted.

### **Additional ToR by SEIAA**

1.	Considering the environmental impacts due to mining. safety of the working personnel and following the principle of sustainable mining, the ultimate depth of mining is restricted to 43m (1m topsoil+42m Rough stone) and the quantity of Rough stone is	The depth of the mining has been restricted to 43 m and the revised production capacity has been incorporated in the Draft EIA Report.
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## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

	405339 cu.m is permitted for mining over a period of five years as per the approved mining plan.	
2.	The scientific studies shall be carried out for any proposed quarry over the existing pit/quarry by the reputed Government Scientific Research / Academic Institutions such as Anna University, NITs. IITs. NIRM. CISR laboratories where the depth of the proposed working (or) ultimate depth of working is extended beyond 40 m below ground level (BGL) in case of flat terrain and the excavation extends beyond 30 m above ground level (AGL) in case of outcrops/hilly terrains for evaluating the stability of slopes. A copy of the report shall be submitted to the SEIAA. the concerned AD/DGM, the concerned DEE/TNPCB and the Director of Mines Safety, Chennai.	Noted
3.	Detailed study shall be carried out regard to impact of mining around the proposed mine lease area on the nearby villages, Water-bodies/Rivers, & any ecological fragile areas.	The detailed study will be carried out and will be furnished in the Final EIA Report.
4.	The project proponent shall furnish VAO Certificate with reference to 300m radius regard to approved habitations, schools, Archaeological structures etc.	Obtained and same has been attached as Annexure.
5.	As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the	Noted and public hearing details will be included along with final EIA report.

## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

	concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	
6.	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks, and temperature reduction including control of other emission and climate mitigation activities.	Noted and will be complied in Final EIA report.
7.	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	The biodiversity has been studied and discussed in chapter 3 – Pg No. 100.
8.	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	<p>It is an existing Rough Stone and Gravel Quarry with a proposed depth of 30m only and hence, no need of mitigation and restoration / reclamation of the applied lease area.</p> <p>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.</p>
9.	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	There is no water body within 1km surrounding the project site. Hence there won't be much impact on fish habitats and



## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

		the food WEB/ food chain in the water body and Reservoir.
10.	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	<p>The soil erosion map 5km surrounding the project site has been given in chapter 3 – Pg No. 97.</p> <p>The soil samples have been collected surrounding the project site and physical, chemical components and microbial components study has been carried out and the results are tabulated in chapter 3 – Pg No. 99.</p>
11.	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	The biological environment impacts, and its mitigation measures has been given in Chapter 4. Page no. 129.
12.	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	There is no existing trees in the project site and surrounding the project site. Only thorny shrubs were present.
13.	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	The water environment impacts and its mitigation measures has been given in Chapter 4 – Pg No. 120
14.	The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.	The EMP details has been given in Chapter 8 – Pg No. 146
15.	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil	Noted and will be complied in Final EIA report.

## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

	carbon stock.	
16.	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	<p>There is no Reserve Forest within 15 km radius of the Project Site. Hence our project will not cause any damage to reserve forest. Also, we will get letter from DFO indicating the nearest reserve forest and submit along final EIA report.</p> <p>There is no protected areas, National Parks, Corridors and Wildlife pathways near project site.</p>
17.	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.	There is no plantation surrounding 500m from project site. Hence there won't be any impact in adjoining patta lands, Horticulture, Agriculture and livestock.
18.	The project proponent shall study and furnish the details on potential fragmentation impact of natural environment, by the activities.	Noted and will be complied in Final EIA report.
19.	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	Environment Management Plan has been described in detail in Chapter-10 of the Draft EIA/EMP Report.
20.	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.	There is no water body within 1km surrounding the project site. Hence there won't be much impact on aquatic plant and animals. There is no caves, heritage sites and archaeological sites near the project site.
21.	The project proponent shall study and furnish	There will not be any plastic and

## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

	<p>the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic &amp; microplastics on the water systems due to activities aquatic environment and freshwater systems due to activities, contemplated during mining may be investigated and reported.</p>	<p>microplastic pollution due to mining activity. Also, we ensure that we won't use any single use plastics in the project site.</p>
22.	<p>The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.</p>	<p>There is no Reserve Forest within 15 km radius of the Project Site . Also we will get letter from DFO indicating the nearest reserve forest and submit along final EIA report.</p>
23.	<p>Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following.</p> <ol style="list-style-type: none"> <li>a. Soil Health &amp; Bio-diversity.</li> <li>b. Climate Change leading to Droughts, Floods etc.</li> <li>c. Pollution leading to release of Greenhouse gases (GHG), rise in Temperature &amp; livelihood of the local people.</li> <li>d. Possibilities of water contamination and impact on aquatic ecosystem health.</li> <li>e. Agriculture, Forestry &amp; Traditional practices.</li> <li>f. Hydrothermal/Geothermal effect due to destruction in the Environment.</li> <li>g. Bio-geochemical processes and its footprints</li> </ol>	<p>The biodiversity has been studied and discussed in chapter 3</p> <p>The soil erosion map 5km surrounding the project site has been given in chapter 3 – Pg No. 97.</p> <p>The detailed study will be carried out and will be enclosed in the Draft EIA Report.</p>

## TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

	<p>including environmental stress.</p> <p>h.Sediment geochemistry in the surface streams.</p>	
24.	<p>Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping &amp; open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) to assess the impacts on the nearby water bodies due to mining activity. Based on actual monitored data, It may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.</p>	<p>The hydro-geological study will be conducted and submitted in final EIA report.</p>
25.	<p>To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards &amp; to cope with disaster/unfavorable accidents in &amp; around the proposed mine lease area due to the proposed method of mining activity &amp; its related activities covering the entire mine lease period as per precise area communication order issued.</p>	<p>Disaster Management and Risk Assessment has been incorporated in Chapter-7</p>
26.	<p>To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of mining.</p>	<p>A Risk Assessment and management Plan will be prepared and included in the final EIA/EMP Report.</p>
27.	<p>Detailed mine closure plan covering the entire mine lease period as per precise area communication order issued.</p>	<p>Mine closure plan has been attached along with mining plates as Annexure VI.</p>

TOR Reply of Proposed Rough Stone Quarry over an Extent of 2.38.5 Ha

**ANNEXURE-II**  
**COLLECTOR PROCEEDINGS**



PROCEEDINGS OF THE DISTRICT COLLECTOR, KRISHNAGIRI

Present: Thiru C. Kathiravan, I.A.S.,



Roc.No.721/2015/Mines-2

Dated: 23.04.2021

Sub: Mines and Minerals - Krishnagiri District - Shoolagiri Taluk - Kammandoddi Village - S.F.Nos. 1267/2, 1268/2 and 1268/3, - Over an extent of 2.38.5 Hects of patta Lands - Quarry Lease for Rough Stone Application preferred by Thiru P. Venkata Reddy S/o Late G. Pilla Reddy, Kukkalapalli Village, Kammandoddi Post, Hosur Taluk (Now Shoolagiri) Krishnagiri District - precise area given to the applicant - SEIAA clearance and TNPCB consent obtained - orders issued - reg .

- Ref: 1 Quarry lease application of Thiru P. Venkata Reddy S/o Late G. Pilla Reddy, Kukkalapalli Village, Kammandoddi Post, Hosur Taluk, (Now Shoolagiri) Krishnagiri District dated 30.09.2015.
- 2 The District Forest Officer, Hosur letter Roc. No. 7447/2014/L dated 18.11.2014.
- 3 The Sub Collector, Hosur letter Roc. No. 5997/2015/B2 dated 20.7.2016.
- 4. The Deputy Director of Geology and Mining, Krishnagiri technical report dated 26.07.2016.
- 5 The State Level Environmental Impact Assessment Authority Tamil Nadu Lr No. SEIAA TN/F.No. 5883/1 (a)/E.C No. 3902/2016 Dated 13.06.2017.
- 6. The District Environmental Engineer, Tamil Nadu Pollution Control Board, Hosur Proceedings No. P. 1382HSR/RS/DDE/TNPCB/HSR/W/2017 dated 14.09.2017.
- 7. The District Environmental Engineer, Tamil Nadu Pollution Control Board, Hosur Proceedings No. P. 1382HSR/RS/DDE/TNPCB/HSR/A/2017 dated 14.09.2017.
- 8. The Deputy Director of Town and Country Planning Dharmapuri letter No. 849/2017 Thama dated 29.08.2017.

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**ORDER:**

Thiru P. Venkata reddy S/o Late G. Pilla Reddy, Kukkalapalli Village, Kammandoddi Post, Hosur Taluk, Krishnagiri District has applied for the grant of quarry lease to quarry Rough stone for a period





of five years over an extent of 2.38.5 hec. in patta land in S.P. Nos. 1267/2 (0.26.5), 1268/2 (0.26.5) and 1268/3 (0.77.5) in Kammandodi village, Shoolagri Taluk, Krishnagiri District under the provisions of Rule 99 of Tamil Nadu Minor Mineral Concession Rules, 1959 vide in their application 1<sup>st</sup> cited.

2) The District Forest Officer, Hosur Forest Division, Hosur has already given consent for the grant of rough stone quarry lease in the applied area vide his letter RC No. 7447/2014-I dated 18.11.2014. From his letter the following facts are revealed.

a) The subject area had been inspected by the Hosur Forest Ranger on 06.11.2014 and submitted his report as follows:

i) The applied area in S.F No. 1268/2 (0.26.5), 1268/3 (0.77.5) and 1267/2 (1.34.5) is the patta land of the applicant.

ii) The subject area is situated 3.00 kms away from the Sanamavu Reserve Forest.

iii) The subject area is not situated on the migratory path of elephants.

iv) There is no rare species of animal and plant kingdom in the patta lands applied for.

v) Finally, the Forest Ranger had recommended for issue of No. Objection Certificate.

vi) Based on the report of the Hosur Forest Ranger, The Assistant Conservator of Forest and District Forest Officer, Hosur inspected the subject area on 08.11.2014 and the observations of the Forest Ranger are acceptable and for proposal to the Conservator of Forest, Dharmapuri recommending for the issue of no objection certificate subject to the following conditions.

a) Blasting of rocks, quarrying activity and vehicular movement should not be carried out during 6.00 P.M to 6.00 A.M.

b) A green belt should be constructed by planting 250 seedlings and it should be maintained in good conditions.

vii) Based on the report of the District Forest Officer, Hosur the Conservator of the Forest Dharmapuri had given consent for the issue of no objection certificate vide his letter Rec. No. 10057/2014/Va dated 17.11.2014.

viii) Finally, the District Forest Officer, Hosur had recommended for the issue of NOC for the grant of rough stone quarry lease to the applicant in the applied area subject to the following conditions.

- a) Blasting of rocks, quarrying activity and vehicular movements should not be carried out during 6.00 P.M to 6.00 A.M
- b) A green belt should be constructed by planting 250 seedlings and it should be maintained in good conditions.

3. The above application is in order as per Rules, The District Forest Officer, Hosur had given no object certificate for the grant of rough stone quarry lease in the applied area. Hence, the application was forwarded to the Sub Collector, Hosur for land availability report.

4. The Sub Collector, Hosur had forwarded the land availability report vide in the reference 3<sup>rd</sup> cited has furnished is land availability report. From his report the following facts area revealed.

(i) The applied area in S.F No. 1267/2 (1.34.5), 1268/2 (0.26.5) and 1268/3 (0.77.5) over an extent of 2.38.5 Hectares stands registered in the name of the applied vide patta number 879, 2159 and 2036 of Kanmandoddi Village records. The area is barren with outcrops of rocks.

(ii) There is no residential area, school buildings, National Highways situated within 300 mts radial distance.

(iii) There is no lake, ponds, graveyards situated in the area.

(v) There is no encroachment by the Forest Department by way of plantation of seedlings.



v) The approach road to the area is available from the Koneripalli Thirumalaikowlikotta road through in S.F Nos. 716/21 (patta land), 724 (Madenam), 725 (Eri), 761/1A ( patta land), 762/1C (Patta land), 763/1A (patta land), 775 (patt land), 1267/3 (patta land). The applicant obtained consent for the pathway from the pattadars.

vi) The Kammandoddi Panchayat had given no objection certificate to the applicant for using the road situate on the bund of the lake as approach road.

vii) He had furnished the four boundaries of the applied area.

ix) Finally, he had recommended for the grant of rough stone quarry lease to the applicant in the applied area.

5. The Deputy Director of Geology and Mining, Krishnagiri has furnished his technical report vide in the reference 4<sup>th</sup> cited, From his report the following facts are revealed.

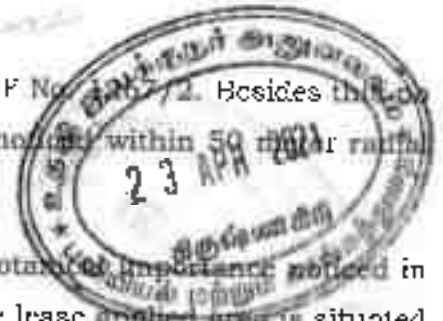
(a) The applied area over an extent of 2.38.5 hects. In S.F No. 1267/2 (1.34.5), 1268/2 (0.26.5) and 1268/3 (0.77.5) of Kammandoddi Village stands registered in the name of the applicant vide patta Nos. 879, 2036 and 2169 respectively in Kammandoddi Village, revenue records.

(b) The area is situated almost on a plain terrain with gentle slope towards southeast. The Country rock of the area is Granitic Gneiss concealed under gravelly soil and weathered rock having a thickness ranging from 1 to 2 mts. The rock type available in the area is suitable for making rough stone, cut stone, and jellies. The area is barren. Inferred reserves of rough stone available in the area is 2,91,730 cbm. Approach road to the area is available. No habitation is situated within 300 meters radial distance from the applied area.

c) Government land in S.F No. 1269/2A is situated on the east side, Government land in S.F No. 1268/1 is situated on the north side of the applied area in S.F No. 1268/2,3. The Government land in S.F No. 1267/1 is situated on the North side and S.F No. 761/6 is situated

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on the west side of the applied area in S.F No. 1267/2. Besides this, no objectionable permanent structures are noticed within 50 meter radius distance.



d) There is no fauna and flora of botanical importance noticed in the applied area. The Village in which the lease applied area is situated is not classified as a Hill Village.

c) Four boundaries of the applied area.

S.F No.	North	South	East	West
1267/2	S.F NO. 1267/3 Government land	S.F No. 1267/3 Patta land	S.F No. 1268/2,3 & 4 Patta land	S.FNo. 761/4,5,7 Patta land 761/7 Government land
1268/2	1268/1 Government land	1268/3 Patta land	1269/2A Government land	1267/2 Patta land
1268/3	1268/2 patta land	1268/4 Patta land	1269/2A Government land	1267/2 Patta land

6) Based on the recommendation of the District Forest Officer, Hosur, Sub Collector, Hosur and the Deputy Director ( Geology and Mining), Krishnagiri, precise area had been given over an extent of 2.38.5 Hects in S.F.Nos. 1267/2 (1.34.5), 1268/2 (0.26.5) and 1268/3 (0.77.5) of Kammandoddi Village, Shoologiri Taluk, Krishnagiri District for the proposed grant of quarry lease for rough stone for a period of five years from the date execution of lease deed subject to certain special conditions in addition to the usual conditions stipulated for rough stone quarry and the applicant had been directed to submit the Approved Mining Plan and Environmental Clearance from the State Level Environmental Impact Assessment Authority, Tamil Nadu.

7) The applicant have submitted the approved mining plan approved by the Deputy Director of Geology and Mining vide in the reference 4<sup>th</sup> cited and the Environment clearance given by the State Level Environment Impact Assessment Authority Tamil Nadu in the reference 5<sup>th</sup> cited and consent of the Tamil Nadu Pollution Control Board vide in the reference 6<sup>th</sup> and 7<sup>th</sup> cited.

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8) In the Deputy Director of Town & Country Planning Bangalore letter RC No. 1439/2017/Tha.ma dated 27.10.2017 it is informed that the lease granted area are classified as "Unclassified dry agriculture land" and if there is no residential area and other constructions are situated within 300 mts. From the said area, there is no objection for the carrying out of quarrying activity in the area. In the Ms. No. 129 Housing and Urban Development (UD4 (3)) Department dated 08.07.2016 construction of residential, commercial, industrial or institutional or any structure for occupation shall not be allowed within 300 mts from any quarry area is not allowed.

9) Further, the applicant had submitted the paper cuttings in which the grant of Environment Clearance is published in the daily news paper as per the condition imposed by the State Level Environmental Impact Assessment Authority.

10) In view of the above a quarry lease for rough stone is here by granted to Thiru P. Venkata roddy, S/o Late G. Pilla Reddy, Kukkalapalli Village, Kammandoddi Post, Hosur Taluk, Krishnagiri District over an extent of 2.38.5 Hects in patta land S.F. Nos. 1267/2 (1.34.5), 1268/2 (0.26.5) and 1268/3 (0.77.5) of Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District under the provisions of Rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959 for a period of five years from the date of execution of lease deed subject to the following special conditions and conditions.

I) Special Conditions :

- a) A safety zone of 7.5 mts should be left out for the adjacent patta land.
- b) A safety zone distance 10 mts should be left for the adjacent Government lands and Pathai poramboke.
- c) The grantee should send the notice for opening of the quarry to the Director General of Mines safety, Bangalore.
- d) Quarrying operation should be carried out only after appointing Mines Manager/Mines Mate and Foremen.

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e) At any cost the blasting activity should be carried out under the Supervision of Mines Mate.

f) If any accident occur in the quarry area the lessees should give immediate intimation to the Director of Mines Safety Bangalore and District Collector, Krishnagiri and lessee is solely held responsible for any violation.

g) The grantee should remit Rs.5000/- towards security deposit and Rs. 1193/- towards area assessment in the relevant head of account and submit the original challans.

h) The grantee should submit the non judicial stamp papers for the value of Rs. 2,17,000/- and to execute the lease deed with the District Collector in the prescribed time limit.

ii) Conditions imposed for rough stone quarrying:

1. குத்தகை காணம், குத்தகை ஒப்புத்துப்பத்திம் சிவாஜிவேற்றும் நாளிலிருந்து ஐந்து ஆண்டுகளாகும்.
2. குவாரி குத்தகை வழங்கப்பட்ட இடத்தில் குவாரி செய்யும் வேலிக்கல் / குண்டுகல் / கட்டுக்கல் / சக்கை மற்றும் ஐக்கி ஆகியவற்றை மேற்படி இடத்திலிருந்து வெளியில் எடுத்துச் செல்வதற்கு முன்பு அவை ஒய்வொன்றிற்கும் அவற்றிற்குரிய வீதத்தில் சிவியரேஜ் தீர்வை செலுத்தி இவ்வலுவலகத்தில் பரீட்சி மற்றும் நடைக்கீட்டு பெற்ற பின்புறம் மேற்படி கவியங்களை குவாரியிலிருந்து வெளியில் எடுத்துச் செல்ல வேண்டும். 1959 ஆம் வருடத்தில் தமிழ்நாடு சிறுகளிய சபாலை விதிகள், இணைப்பு II-ல் அங்கப்பொது அரசால் நிர்ணயிக்கப்படும் வீதத்தில் மேற்படி தீர்வை செலுத்த வேண்டும். மேற்கண்ட தொகையைத் தவிர அரசால் அங்கப்பொது நிர்ணயிக்கப்படும் இரா தொகைகளையும் குத்தகைதாரர் செலுத்த வேண்டும்.
3. குத்தகை இடத்திற்கு அருகிலுள்ள குடியிருப்புகள், கட்டடங்கள், நீர்நிலைகள், குளங்களின் கரைகள், யான்கள், சாலைகள், வண்டிப்பாதைகள், நடைபாதைகள் மற்றும் இரா பொதுச் சொத்துக்களுக்கு பாதுகாப்பான குவாரி செய்ய வேண்டும்.
4. குத்தகை வழங்கப்பட்ட இடத்திற்கு அருகாமையில் உள்ள பட்டாபாரர்கள் மற்றும் பொது மக்களுக்கு பாதுகாப்பான குவாரி செய்ய வேண்டும்.
5. குத்தகை வழங்கப்பட்ட இடத்திற்கு அருகிலுள்ள சுவீட்சாதைகள், சாலைகள், மின்சாரம் மற்றும் தொலைபேசி கம்பிகளுக்கு 50 மீட்டரும், குடியிருப்பு பகுதியிலிருந்து 300 மீட்டரும், நடைபாதைகள், சிறிய சாலைகளுக்கு 10 மீட்டரும் பாதுகாப்பு இடைவெளி விட்டு குவாரி செய்ய வேண்டும்.
6. மாவட்ட ஆட்சித்தலைவர் (அல்லது அரசால் அதிகாரம் வழங்கப்பட்ட அலுவலரை குத்தகை வழங்கப்பட்ட இடத்தைப் பார்வையிடவும், குவாரி பழிவேடுகள், ஆலணங்கள் மற்றும் கனம்மை சரிபார்க்கவும் அனுமதிக்க வேண்டும். இது சம்பந்தமாக அவர்கள் கோரும் அனைத்து விவரங்களையும் வழங்க வேண்டும்.
7. சுற்றுப்புற மூழ்கியை பாதுகாப்பு களிய பாதுகாப்பு, தொழிலாளர் பாதுகாப்பு முதலியவற்றைக் கருத்தில் கொண்டு விஞ்ஞான அடிப்படையில் திறமையுடன் முறையாகக் குவாரி செய்ய வேண்டும்.
8. மாவட்ட ஆட்சித்தலைவர் மற்றும் ஆணையர், ஸ்ரீரீயல் மற்றும் காவல்துறை, ஆகியவர்கள் அதிகாரம் வழங்கப்பட்ட அலுவலரை மேலே பத்தி (5)-ல் குறிப்பிட்டுள்ள நிபந்தனைகள் தொடர்பாகவும், மேற்கண்ட அலுவலர்களில் ஆணையர் சிவாஜிவேற்றும் குத்தகை வழங்கப்பட்ட இடத்தைப் பார்வையிட அனுமதிக்க வேண்டும்.



*[Handwritten signature]*



8. குத்தகைதாரரின் செலவில் குத்தகை ஒப்பந்தத்திரம் நிறைவேற்றி அதனை பதிவு செய்வதற்கு முன்பு குத்தகை இடத்தில் குவாரி மற்றும் இயு கம்பவுண்டிங் வேலைகளைத் தொடங்கக்கூடாது. குத்தகை ஒப்பந்தப்பட்டுள்ள இடத்திற்குள் வல்லயினிருந்து 7.5 மீட்டர் தூரத்திற்குள் குவாரி செய்க்கூடாது. மெட்ரா சாலைகளிலிருந்து குத்தகை வழங்கப்பட்ட இடத்திற்குச் செல்ல யாத வசதி குத்தகைதாரர் செய்த பொறுப்பில் செய்ய கொள்ள வேண்டும். குத்தகை ஒப்பந்தப்பத்திரத்துடன் இணைத்துள்ள வரைபட்டில் காட்டப்பள்ள குத்தகை இடத்தைச் சுற்றிலும் என்னைக்கற்கள் ஈட்டு அவற்றைச் சரிபாண்படி உடையரிக்க வேண்டும். 1959 ஆம் வருடத்திய தமிழ்நாடு சிறுகளியச் சலுகை விதிகள் இணைப்பு XII மற்றும் XII-ல் உள்ள படிவங்களில் ஸ்பாறியே இரைவாவைவச்சீட்டு மற்றும் நடைச்சீட்டினைத் தயார் செய்து அவற்றில் மாவட்ட ஆட்சியத்தியவைகள் அதிகாரம் வழங்கப்பட்ட அலுவலரின் கையொப்ப முத்திரை மற்றும் அலுவலக முத்திரைகள் பெற்று குவாரியினிருந்து குண்டுக்கல், கட்டுக்கல், சக்கை மற்றும் ஐஸ்லி ஆகியவற்றை வெளியில் எடுத்துச் செல்லும் ஒவ்வொரு வாகனத்திற்கும் ஒவ்வொரு நடைக்கல் ஒப்பந்தப்பத்திரத்துடன், குண்டுக்கல், கட்டுக்கல், சக்கைகள், ஐஸ்லி ஆகியவற்றை ஏற்றிச் செல்லும் ஒவ்வொரு வாகனமும் அதனைச் சேதவைப்ப செய்வதற்கு அதிகாரம் பெற்ற அலுவலர் சோதனைச் செய்யும்போது நடைச்சீட்டினைக் காண்பிக்க வேண்டும். இசைவாவைவச்சீட்டு மற்றும் நடைச்சீட்டின் நடவடிக்கை குவாரியில் வைத்திருக்க வேண்டும் முன்புள்ள இசைவாவைவச்சீட்டு மற்றும் நடைச்சீட்டுகள் இல்லாமல் கமிஷனரிடம் ஏற்றிச் செல்லும் வாடகைக்கள் 1959-ம் வருடத்திய தமிழ்நாடு சிறுகளியச் சலுகை விதிகள் மற்றும் அங்கங்கள் மற்றும் களியத்தின் (ஒழுங்குமுறை மற்றும் அரிவிருத்தி) சட்டம், 1957-ம் ஆம், கைப்பற்றப்பட்டு, குத்தகைதாரர் மீது நடவடிக்கை எடுக்கப்படுவதுடன் குவாரிக் குத்தகையையுட ரத்து செய்ய நடவடிக்கை எடுக்கப்படும்.
14. குத்தகை வழங்கப்பட்ட இடத்தை குண்டுக்கல், கட்டுக்கல், சக்கை மற்றும் ஐஸ்லி குவாரி செய்க்கூடும் மாவட்ட ஆட்சியத்திய வேண்டும் குத்தகை சரிபாண அல்லது குத்தகை ஒப்பந்தப்பத்திரத்தில் நவறுதலாக யாமி விவரம் குறிக்கப்பட்டு இடத்தில் அதனை எந்த நேரத்திலும் திருத்தப்பதற்கு யாவட்ட ஆட்சியத்திய அதிகாரம் உண்டு. குத்தகைதாரர் அதனடியப்படையில் எந்த உரிமையையும் சேரமுடியாது.
15. மெட்ராசேற்றுவதற்கும், அயல் நாட்டிற்கு ஏற்றாதி செய்வதற்கும் யவண்டும் பெரிய கற்குண்டுகள் வடிவத்தில் கற்குவையி செய்யக்கூடாது.
16. குத்தகை ஒப்பந்தப்பத்திரத்தில் குறிக்கப்படாத வேறு ஏதாவயொரு களியம் கிடைத்தால், அதனை சம்பந்தப்பட்ட அலுவலரின் அனுமதியைப் பெறாமலும், அதற்கரிய சீரியரேஜ் மெட்ராசேற்றுவச் செலுத்தலும் எடுக்கக்கூடாது. புதிய களியம் கிடைத்த விவரத்தை 30 தியங்களுக்குள் தெரிவிக்காமல் எடுத்துச் சென்றால் இக்குற்றத்திற்கு அந்த களியத்திற்குரிய சாதாரண சீரியரேஜ் கட்டணத்தைமேல் 15 மடங்குவரை மாவட்ட ஆட்சியத்தியவைகள் அபராதம் விதித்து வசூலிக்கப்படும்.
17. குத்தகை களியம் முடிந்தபிறகு, குத்தகை வழங்கப்பட்ட இடத்திலிருந்து குண்டுக்கல், கட்டுக்கல், சக்கை மற்றும் ஐஸ்லி குவாரி செய்ய வெளியில் எடுத்துச் செல்ல குத்தகைதாரருக்கு உரிமையி்லை.
18. குத்தகை களியம் முடிவடைந்த பிறகு குத்தகை இடத்தில் எஞ்சின், மெஷின் போன்ற எந்தவிதமான தளவாட பொருட்களையும் வைத்திருக்கக்கூடாது. அவற்றை குத்தகை காலத்தில் கடைசியாகவந்து குத்தகைதாரர் எடுத்துச் சென்றால் வேண்டும்.
19. குத்தகையை வேறு வசூலுக்கு உள் குத்தகைக்கு விடக்கூடாது.
20. குவாரி செய்வதில் இழப்பு ஏற்படின் நட்டம் ஈடுகக்கூடாது.
21. குவாரியில் வேலை செய்யும் தொழிலாளர்கள் மற்றும் இதர நபர்களுக்கு விடப்படாத ஏதாவது ஏற்படின் அதற்கு முழுப் பொறுப்பினையுள் குத்தகைதாரரேயும், இடக்கு அரசு பொறுப்பல்ல.



22. அரசுக்கு செலுத்த வேண்டிய தொகையை உரிய கட்டணத்திற்குள் செலுத்தவில்லை என்றால் அத்தொகை 24% அல்லது அரசுக்கு அளவடவொது நிர்ணயிக்கப்படும் வீதத்தில் வட்டியுடன் குத்தகைதாரரிடமிருந்து வசூலிக்கப்படும்.
23. அரசுக்கு செலுத்த வேண்டிய பாக்கித் தொகை குவிந்து வருவாய் வருவாய்திட்டம் 1864-ன் கீழ் வசூலிக்கப்படும்.
24. குத்தகை நிபந்தனைகள், 1959-ஆம் வருடத்திய தமிழ்நாடு சிறுசெய்தி சட்டம் விதியன், அரசு, ஆணையர், புவியியல் மற்றும் சுற்றுச்சூழல் துறை, மாநாட்ட ஆட்சித்தலைவர் ஆசிரியோரது ஆணைகள் மீறப்படும் அல்லது அபராதம் விதிக்கப்படுகிறது அல்லாமல் குத்தகைதாரருக்கு நேர்முக விசாரணைக்கு வாய்ப்பளித்த பின்பு குத்தகை உரியம் ஏற்று செய்ய நடவடிக்கை எடுக்கப்படும்.
25. அரசின் அளவடவொது ஆணைகளுக்கேற்ப நிபந்தனைகளை மாற்றி அளவடவொ, நிகலொ, கூடுதலாக சேர்க்கலொ, மாநாட்ட ஆட்சித்தலைவருக்கு முழு அதிகாரம் உண்டு.
26. மேற்கூறிய நிபந்தனைகளுடன் 1959-ஆம் வருடத்திய தமிழ்நாடு சிறுசெய்தி சட்டம் விதிகள், அளவடவொ மற்றும் களியங்கள் (முழுமுகமுறை மற்றும் அபிவிருத்தி) உட்டம் 1957, மாநாட்ட ஆட்சித்தலைவர் ஆசிரியோரால் அளவடவொறு பிறப்பிக்கப்படும் ஆணைகள் குத்தகைதாரரைக் கட்டுப்படுத்தும்.
27. குவாரிசன்/வரவடவொகளுக்கு பொருந்தக்கூடிய தொழிலாளர் உட்டக்களுக்கு கட்டுப்பட்டு குத்தகைதாரர் குவாரி செய்யவேண்டும். தவறினால் சம்பந்தப்பட்ட அரசின் உட்டப்புவளான நடவடிக்கைகளுக்கு குத்தகைதாரர் உள்ளாக வேண்டி இருக்கும்.
28. இந்திய வெடிமருந்து உட்டம் 1884 (Central Act IV of 1884)-ன்டி உரிய வெடிமருந்து உரியம் வெற்று குத்தகைதாரர் பாறைகளை வெடிவைத்து உணாக்க வேண்டும். தவறும் பட்சத்தில் குத்தகைதாரர் கடும் தண்டனைக்கு உள்ளாக வேண்டியிருக்கும்.
29. குத்தகைதாரர் குவாரியில் குடிநீரை தொழிலாளர்களை பாணியமார்த்தக்கடாது.

- III) a) The conditions imposed by the Tamil Nadu Pollution Control Board in the consent to establishment in Air and Water Pollution Act should be strictly adhered and the consent should be renewed periodically.
- b) The Environment Clearance issued by the SELAA, Tamil Nadu should be renewal within the prescribed time limit.

IV) Conditions imposed by the SELAA.

1. (i) The Environment Clearance will be coterminous with the mine lease period or limited to a maximum period of 5 years from the date of issue whichever is earlier.
- (ii) The approved quantity of rough stone to be quarried - 481972
- (iii) Depth of mining permitted - 51 mts.

2.) Conditions to complied before the commencing of mining operation

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
  - i) The project has been accorded Environmental Clearance.





Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.

Environmental Clearance may also be seen on the website of the State Level Environment Impact Assessment Authority.

The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.

2. Mining activity should be reviewed by the District Collector after three years and decide for further extension.

3. The applicant has to obtain land use classification as industrial use before issue / renewal of mining lease.

4. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.

5. The project proponent shall comply the conditions laid down in section V Rule 36 of Tamil Nadu Minor Mineral Concession Rules, 1959.

6. A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.

7. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.

8. The proponent shall ensure that First Aid Box is available at site.

9. The excavation activity shall not alter the natural drainage pattern of the area.

10. The excavated pit shall be restored by the project proponent for useful purposes.

11. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.

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12. The quarrying operation shall be restricted between 7AM and 5 PM.

13. The proponent shall take necessary measures to ensure that there shall not be any adverse impact due to quarrying operation on the nearby human habitations, by way of pollution to the environment.

14. A minimum distance of 15 mts. From any civil structure shall be kept from the periphery of any excavation area.

15. Depth of quarrying shall be 2m above the ground water table /approved depth of mining whichever is lesser to be considered as a safe guard against Environmental Contamination and over exploitation of resources.

16. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.

17. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.

18. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.

19. The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.

20. Blasting shall be carried out after arranging to the public adequate through public address system to avoid any accident.

21. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.

22. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, GoI on 16.11.2009.

23. The following measures are to be implemented to reduce Air Pollution during transportation of mineral





- i. Roads shall be graded to mitigate the dust emission.
- ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust.

24. The following measures are to be implemented to reduce Noise Pollution.

- i. Proper and regular maintenance of vehicles and other equipment.
- ii. Limiting time exposure of workers to excessive noise.
- iii. The workers employed shall be provided with protection equipment and earmuffs etc.
- iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.

25. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt:11.01.2010 issued by the MoE&F, Govt to control noise to the prescribed levels.

26. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.

27. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.

28. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.

29. The following measures are to be adopted to control erosion of dumps:-

- i. Retention/ toe walls shall be provided at the foot of the dumps.
- ii. Worked out slopes are to be stabilized by planting appropriate shrub / grass species on the slopes.

30. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.

31. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this

P. @ 202

clearance and attract action under the provisions of Environment (Protection) Act, 1986.

32. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.

33. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.

34. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that measures shall be carried out District Collector / Mining officer shall ensure this.

35. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.

36. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic institution.

37. It shall be ensured that the total extent of nearby quarries (existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 25.00.0 hectares within the mining lease period of this application.

38. It shall be ensured that there is no habitation is located within 500 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 500m radius from the periphery of the quarry site

39. Ground water quality monitoring should be conducted once in 3 Months.

40. Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.

41. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI.

42. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI.

43. Bunds to be provided at the boundary of the project site.

44. The project proponent shall undertake plantation / afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.

45. At least 10 Neem trees should be planted around the boundary of the quarry site.

46. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.

47. The Project Proponent shall ensure a minimum of 2.5 of the annual turnover will be utilized for the CSR Activity .

48. The Project Proponent shall provide solar lighting system to the nearby villages

49. The Project Proponent shall comply with the training and other relevant rules and regulations where ever applicable.

50. Rainwater shall be pumped out Via Settling Tank only

51. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.

52. As per MoEF & CC, GoI, Office Memorandum dated 30.03.2015, prior clearance from Forestry & Wild Life angle including clearance from obtaining committee of the National Board for Wild life as applicable shall be obtained before starting the quarrying operation, if the project site is located within 10KM from National Park and Sanctuaries.

53. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the

quarry lease period and the same shall be monitored by the District Authorities.



54. Safety equipments to be provided to all the employees.

55. Safety distance of 50 m has to be provided in case of railway, reservoir, canal / odai.

56. The Assistant / Deputy Director, Department of Geology & Mining shall ensure that the proponent has engaged the blaster with valid Blasting license / certificate obtained from the competent authority before execution of mining lease.

57. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.

58. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked quarry for the proposed quarry site before execution of mining lease.

59. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.

60. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent etc., with respect to the existing activity before execution of mining.

61. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.

62. The proponent shall ensure that the project activity including blasting mining transportation etc should in no way have adverse impact to the other forests, such as reserve forests and social forests, tree plantation and bio diversity, surrounding water bodies etc.

63. The project proponent is also directed to strictly adhere to the Sustainable Sand Mining Management Guidelines, 2016, wherever applicable.

64. The proponent shall provide Green Belt development at the rate of not less than 400 trees/Hectare. The tree saplings shall be not less than 1m height.

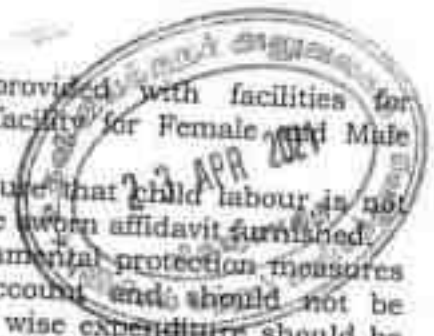
65. The quarrying activity in no way should disturb wildlife habitat, free migratory movement of wildlife, not disturb the wildlife in any way.



**B. General Conditions:**

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent for Establishment from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying them mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, Masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personal protective measures such as maska, gloves, boots etc.

*[Handwritten signature]*

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13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female ~~and~~ Male separately.
  14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
  15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its regional office located at Chennai.
  16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
  17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance
  18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
  19. The SEIAA, Tamil Nadu may cancel the environmental clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this environmental clearance, if it is found or if it comes to the knowledge of this SEIAA.TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the environmental clearance.
  20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
  21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, draft Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.
  22. Any other conditions stipulated by other Statutory/ Government authorities shall be complied.

V. The lessee should strictly adhere all the conditions imposed in the environmental clearance issued by The SEIAA, Tamil Nadu and consent order of the Tamil Nadu Pollution Control Board.




VI. The lessee should periodically renew the environmental clearance and the consent orders of the Tamil Nadu Pollution Control Board without any lapse.

VII. If any illicit quarrying is found in the area over an extent of 2.38.5 hectares in S.F.Nos. 1267/2 (1.34.5), 1268/2 (0.26.5) and 1268/3 (0.77.5) of Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District before the date of execution of lease deed, this lease deed is liable to be cancelled and criminal action will be initiated.

VIII. If the quarry area is situated within 10 km distance from any protected areas NOC from the Standing committee of NBWL should be obtained before commencing the quarry operation.

IX. If the lease holder wants to quarry more than the quantity permitted in the environmental clearance within the lease period, modified mining plan / scheme and Environment Clearance for the additional quantity should be submitted.

o/c

  
DISTRICT COLLECTOR,  
KRISHNAGIRI.

2/2  
30/10/12

To  
Thiru P. Venkatarreddy  
S/o Late G. Pilla Reddy,  
Kulkalapalli Village, Kammandoddi Post,  
Hosur Taluk, (Now Shoolagiri Taluk)  
Krishnagiri District.

  
30/10/12  
30/10/12

Copy to the Sub Collector, Hosur

Copy to the Tahsildar, Shoolagiri.

Copy to the Village Administrative Officer, Kammandoddi Village.

  
S. DHANASEKAR, V.Sc., (Govt)  
Qualified Person



**ANNEXURE-III**  
**MINING PLAN APPROVED LETTER**



From

Thiru.L.Suresh., M.Sc.,  
Assistant Director(Addl. Charge)  
Dept of Geology and Mining,  
Collectorate,  
Krishnagiri .

To

Thiru.P.Venkatreddy,  
S/o.G.Pillareddy,  
Kukkalapalli Village,  
Kammandoddi Post, Shoolagiri Taluk,  
Krishnagiri District.

Roc.No.1123/2021/Mines Dated: .04.2021.

Sir,

Sub: Mines and Minerals – Minor Mineral – Rough stone -Krishnagiri District – Shoolagiri Taluk – Kammandoddi Village – Patta land - S.F. No.1267/2 (1.34.5), 1268/2 (0.26.5), 1268/3 (0.77.5) over an extent of 2.38.5 Hects of - quarry lease for rough stone granted to Thiru. P.Venkatreddy S/o.G.Pillareddy, Krishnagiri District-submission of Scheme of Mining Plan for the period 2022-2023 to 2026-2027- submitted for approval - Reg.

- Ref: 1. The District Collector, Krishnagiri Proc.Roc.No.721/2015/M-2 dt-30.10.2017.
2. Mining plan approved by the Deputy Director of Geology and Mining, Krishnagiri in Roc.No.721/2015/M Dt:30.09.2016.
3. 1<sup>st</sup> Scheme of mining plan for the period 2022-2023 to 2026-2027 submitted by the lessee at district office on 19.04.2021.

Kind attention is invited to the references cited.

2) Thiru.P.Venkatreddy S/o.G.Pillareddy, Krishnagiri District has been granted a Rough stone quarry lease for a period of 05 years over an extent of 2.38.5 hecets of Patta land in S.F.No.1267/2 (1.34.5), 1268/2 (0.26.5), 1268/3 (0.77.5) of Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District vide the District Collector, Krishnagiri Proc.Roc.No.721/2015/M-2 Dated-30.10.2017. The lease deed has been executed on 10.11.2017 and the lease period is from 10.11.2017 to 09.11.2022.

3) The Mining plan the said for Rough stone quarry had been approved by the Deputy Director of Geology and Mining, vide the reference 2<sup>nd</sup> cited. The scheme of mining for the period from 2022-2023 to 2026-2027 (5 years) is now prepared and submitted in time. As per the scheme of mining plan the total available geological reserves is calculated as 9,44,148 Cbm and after necessary

benches the mineable reserves is calculated at 4,15,447Cbm (@ 95% recovery upto a maximum of depth of 50mts (1.0 mtr Top soil + 49.0 mtr Rough stone). During the mining plan period, from 2016-17 to 2020-21, the lessee had transported a quantum of 34,500 Cbm of rough Stone from the quarry lease area. The lessee has obtained Environment Clearance from SEIAA vide Lr.No. SEIAA-TN/F.No.5883/1(a)/Ec.No.3902/2016 Dt.13.06.2017. The lessee had obtained 4,81,972 Cbm from Environment Clearance for five years. Hence, the reserves of 4,15,447 Cbm indicated in the scheme of mining period is accepted.

4) As per the Scheme of mining the year wise production for the proposed five years are as follows.

<b>Year</b>	<b>Recoverable reserves @ (m<sup>3</sup>)</b>
2023-23	114799
2023-24	91584
2024-25	74527
2025-26	58800
2026-27	75737
<b>Total</b>	<b>415447</b>

5) The lease granted area has been inspected by the Assistant Geologist O/o. Assistant Director (Addl.Charge) Geology and Mining, Krishnagiri District and he has submitted his report and stated that all the lease deed conditions has been complied by the lessee and the details furnished in the scheme of mining plan are verified with reference to the field Conditions and they are found to be correct.

6) The draft Scheme of Mining submitted by Thiru.P.Venkatreddy S/o. G.Pillareddy, Krishnagiri District has been scrutinized as per the guide lines/ instructions issued by the Commissioner of Geology and Mining, Chennai-32.The Scheme of mining is prepared in accordance with the guidelines/ instructions issued and tallies with the field conditions. The special conditions imposed in the lease deed had been incorporated in the scheme of mining.

7) Hence, as per the guidelines/instructions issued by the Commissioner of Geology and Mining, Chennai, the said scheme of mining hereby approved subject to the following conditions.

- i. Based on the above details and in exercise of the powers conferred under Rule 41(9)(iii) of TNMMCR 1959 the scheme of mining submitted by Thiru.P.Venkatreddy S/o. G.Pillareddy, Krishnagiri District is here by approved subject to the following conditions.
- ii. That the scheme of mining is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
- iii. This approval of the scheme of mining does not in any way imply the approval of the Government in terms of any other provisions of Mines and Minerals Development and Regulation Act 1957, or any other connected laws including Forest(Conservation)Act 1957, or any other connected Laws industry Forest (Conservation)Act 1980, Forest Conservation Rules 1981 Environment protection Act 1980, Indian Explosive Act 1884 (Central Act IV of 1884) and the rules made there under, Mineral Conservation and Development Rules 1988 and The Tamil Nadu Minor Mineral Concession rules, 1959.
- iv. This scheme of Mining including progressive mine closure plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- v. Provisions of the Mines Act, 1952 and the Rules and Regulations made there under including submission of notice of opening, appointment of manager and other statutory officials as required under Mines Act, 1952 shall be complied with.
- vi. Provisions made under Mines and Minerals(Development and Regulation) Act, 1957 MMDR amendment Act, 2015 made there under shall be complied with.
- vii. This approval of scheme of mining is restricted to the mining lease area only. The mining lease area is as shown on the statutory plan under TNMMCR Rules, 1959.
- viii. The lessee should obtain environmental clearance from the appropriate authority.

- ix. The earlier instances of irregular/illegal quarrying, if any shall not be regularized through the approval of this document.
- x. The lessee shall remit the penalty/cost of mineral/other dues if any as arrived by the District Collector/Assistant Director (Addl.Charge) Geology and Mining, Krishnagiri District.
- xi. Non adherence to any condition set-out above, the approval shall be deemed to have been withdrawn with immediate effect.

In view of the above, the 1<sup>st</sup> scheme of mining for the 2022-2023 to 2026-2027 submitted on 19.04.2021 within the prescribed time by Thiru. P.Venkatreddy S/o.G.Pillareddy, Krishnagiri District in respect of the area granted on lease in S.F.Nos.1267/2 (1.34.5), 1268/2 (0.26.5), 1268/3 (0.77.5) a total extent of 2.38.5 hectares of Kammandoddi Village, Shoolagiri Taluk, Krishnagiri district is approved.

Encl: 1.Scheme of Mining Plan 3.Copies.

  
23/4/21

  
29/4/21

Assistant Director (Addl. Charge),  
Dept of Geology and Mining,  
Krishnagiri.

**ANNEXURE-IV**  
**500M Radius letter**





**From**

Dr. S.Vediappan, M.Sc.,Ph.d.,  
Deputy Director,  
Dept of Geology and Mining,  
Collectorate,  
Krishnagiri.

**To**

Thiru.P.Venkat Reddy,  
S/o.G.Pilla Reddy,  
Kukkalapalli Village,  
Kammandoddi Post,  
Shoolagiri Taluk,  
Krishnagiri District.

**Rc.No.1123/2021 /Mines Dated: 19.05.2022.**

**Sir,**

**Sub:** Mines and Minerals - Minor mineral - Rough Stone - Krishnagiri District - Shoolagiri Taluk- Kammandoddi Village - Patta land in S.F.Nos.1267/2(1.34.5), 1268/2 (0.26.5), 1268/3 (0.77.5) - Over an extent of 2.38.5 Hects - Rough Stone quarry lease granted to Thiru.P.VenkatReddy - Details of quarries situated within 500 mts radial distance - Details furnished - reg.

- Ref:**
1. The District Collector Krishnagiri Roc.No.721/2015/ Mines-2 dated: 30.10.2017
  2. Scheme of mining plan approved by the O/o. The Deputy Director of Geology and Mining, Krishnagiri in Letter Roc.No.1123/2021/Mines dated:23.04.2021.
  3. Thiru.P.Venkat Reddy, S/o.G.Pilla Reddy, Kukkalapalli Village, Kammandoddi Post, Shoolagiri Taluk, Krishnagiri Distirct letter dated : 13.04.2022.

Kind attention is invited to the references cited above.

2. A quarry lease had been granted in favour of Thiru.P.Venkat Reddy for quarrying Rough Stone over an extent of 2.38.5 Hects of Patta land S.F.Nos.1267/2 (1.34.5), 1268/2 (0.26.5), 1268/3 (0.77.5) of Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District for a period of 05 years vide reference 1<sup>st</sup> cited under the provisions of Tamil Nadu Minor Mineral Concession Rule 1959. The lease period is valid upto 09.11.2022.

3. In order to extend the lease period for another five years as per the amended rule, the Scheme of Mining plan for the 2<sup>nd</sup> five year period submitted by the applicant had been approved by Deputy Director of Geology and Mining vide letter dated:23.04.2021. In addition to this Thiru.P.VenkatReddy in his representation vide letter dated:13.04.2022 has requested to furnish details of quarries

situated within 500mts radial distance from the subject quarry is furnished as follow:

### Details of Existing quarries.

Sl. No	Name of the lessee	Village & Taluk	S.F No.& Extent in Hect	GO No.& Date	Lease period
1.	Thiru.P.Venkata Reddy, S/o.Pilla Reddy, Kakkalappalli Village, Kamandoddi, Shoolagiri Taluk, Krishnagiri District	Shoolagiri Taluk, Kamandoddi Village	1267/2, 1268/2, 1268/3. Ext. 2.38.5	Roc.721/ 2015/Mines dated: 30.10.2017	10.11.2017to 09.11.2022 (Instant Proposal)
2.	Thiru.Rajappa Kamandoddi, Shoolagiri Taluk, Krishnagiri District	Shoolagiri Taluk, Kamandoddi Village	1266 Ext. 4.04.5	Roc.103/ 2016/Mines dated: 29.02.2016	13.10.2017 to 12.10.2027
3.	Thiru.Surendiran Kamandoddi, Shoolagiri Taluk, Krishnagiri District	Shoolagiri Taluk, Kamandoddi Village	1269/2A Ext. 1.66.5	Roc.103/ 2016/Mines dated: 29.02.2016	13.10.2017 to 12.07.2022
4.	Tmt.V.Renuka Kamandoddi, Shoolagiri Taluk, Krishnagiri District	Shoolagiri Taluk, Kamandoddi Village	1269/2B Ext. 2.05.0	Roc.736/ 2015/Mines dated: 11.07.2017	13.07.2017 to 12.07.2022
5.	Thiru.S.Madhu, S/o.Srinivasan, No.12, Eden garden, Thally Road, Hosur Taluk, Krishnagiri	Shoolagiri Taluk, Kamandoddi Village	1151 etc Ext. 1.27.0	Roc.1088/ 2019/Mines dated: 06.12.2019	06.12.2019 to 05.12.2029.
6.	Thiru.G.Ashoka, S/o. Gunnanappa, No.31/5, 1 <sup>st</sup> Main 2 <sup>nd</sup> cross, Nehru nagar, Hosur Taluk, Krishnagiri	Shoolagiri Taluk, Kamandoddi Village	754 & 760 (P-3), Ext:3.66.0 hect	Rc.199/2018/ Mines, dated:17.2.2022	17.02.2022 to 16.02.2032

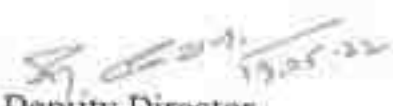
### II. Details of Expired/Old quarries.

Sl. No	Name of the lessee	Village	S.F No. & Extent in Hect	GO No.& Date	Lease period
1	Thiru. Subramani	Shoolagiri Taluk, Kamandoddi Village	1278/2, 1278/3,4 0.82.0	Roc.1135/ 2003/Mines dated: 02.06.2003.	02.06.2003 to 01.06.2008 (Lease Expired)

### Details of Proposed quarries

Sl. No	Name of the lessee	Village & Taluk	S.F No.& Extent in Hect	GO No.& Date	Lease period
1.	Thiru.P.Narayanappa, S/o. Chinnaguravappa, Pillaya Kothur Village, Shoolagiri Taluk, Krishnagiri	Shoolagiri Taluk, Kamandoddi Village	754 & 760 (P-1), Ext:1.80.0 hect	Rc.No.197/2018/Mines dated: 09.03.2018	Ec Pending
2.	Thiru.K.Govindhappa S/o.Krishnappa, No.79, Sipcot Housing Colony,Dharga, Hosur taluk,	Shoolagiri Taluk, Kamandoddi Village	754 & 760 (P-2), Ext: 2.10.0 hect	Rc.No.198/2018/Mines dated: 09.03.2018	Ec Pending

3	Thiru.P.Mallikarjun S/o.Y.Partha Sarathy, No.12, Naga Nayakkanahalli, Kasaba Hobli, marwar Post, Anekkal Taluk, Bangalore	Shoolagiri Taluk, Kamandoddi Village	754 & 760 (P-4), Ext:3.50.0 Hect	Re.200/2018/Mines, dated:09.03.2018	SEIAA - EC obtained
4	Thiru.V.Karunanuth i, S/o.Vellaya Gounder, No.127A, Molayanur, Pappireddipatti Taluk, Dharmapuri	Shoolagiri Taluk, Kamandoddi Village	754 & 760(P- 5), Ext:4.30.0he ct	Re.201/2018/Mines , dated: 09.03.2018	SEIAA - EC obtained
5	M/s.Royal Blue Metals, R.N.207, chinnammal Building, No.102-A, Peramanur Main Four Roads, Salem	Shoolagiri Taluk, Kamandoddi Village	1151,1155,1 212 to 1219,1222,1 225 & 1226/A (P- 1), Ext: 2.70.0 hect	Re.202/2018/Mines, dated: 09.03.2018	SEIAA - EC obtained
6	M/s.Royal Blue Metals, R.N.207, chinnammal Building, No.102-A, Peramanur Main Four Roads, Salem	Shoolagiri Taluk, Kamandoddi Village	1151,1155,1 212 to 1219,1222,1 225 & 1226/A (P- 2), Ext: 2.87.0 hect	Re.203/2018/Mines, dated: 09.03.2018	SEIAA - EC obtained
7	Thiru.K.Murugesh, S/o.Krishnappa, No.492, Kamandoddi Village, Shoolagiri Taluk, Krishnagiri	Shoolagiri Taluk, Kamandoddi Village	1151,1155,1 212 to 1219,1222,1 225 & 1226/A (P- 3), Ext: 2.82.0 hect	Re.204/2018/Mines, dated: 09.03.2018	Ec Pending
8	Thiru.S.R.Sambang i, S/o. Rajappa, No.1/129, Sanamavu Village, Shoolagiri Taluk, Krishnagiri.	Shoolagiri Taluk, Kamandoddi Village	1151,1155,1 212 to 1219,1222,1 225 & 1226/A (P- 4), Ext: 2.23.0 hect	Re.205/2018/Mines, dated: 09.03.2018	Ec Pending

  
 Deputy Director,  
 Dept of Geology and Mining,  
 Krishnagiri.

Copy to: -

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



**ANNEXURE-V**  
**FMB, A REGISTER, VILLAGE MAP AND**  
**PATTA COPY**



மாண்புமிகு

சுற்றுலா

Annexure - VI  
மாண்புமிகு அரசாங்கம் 23

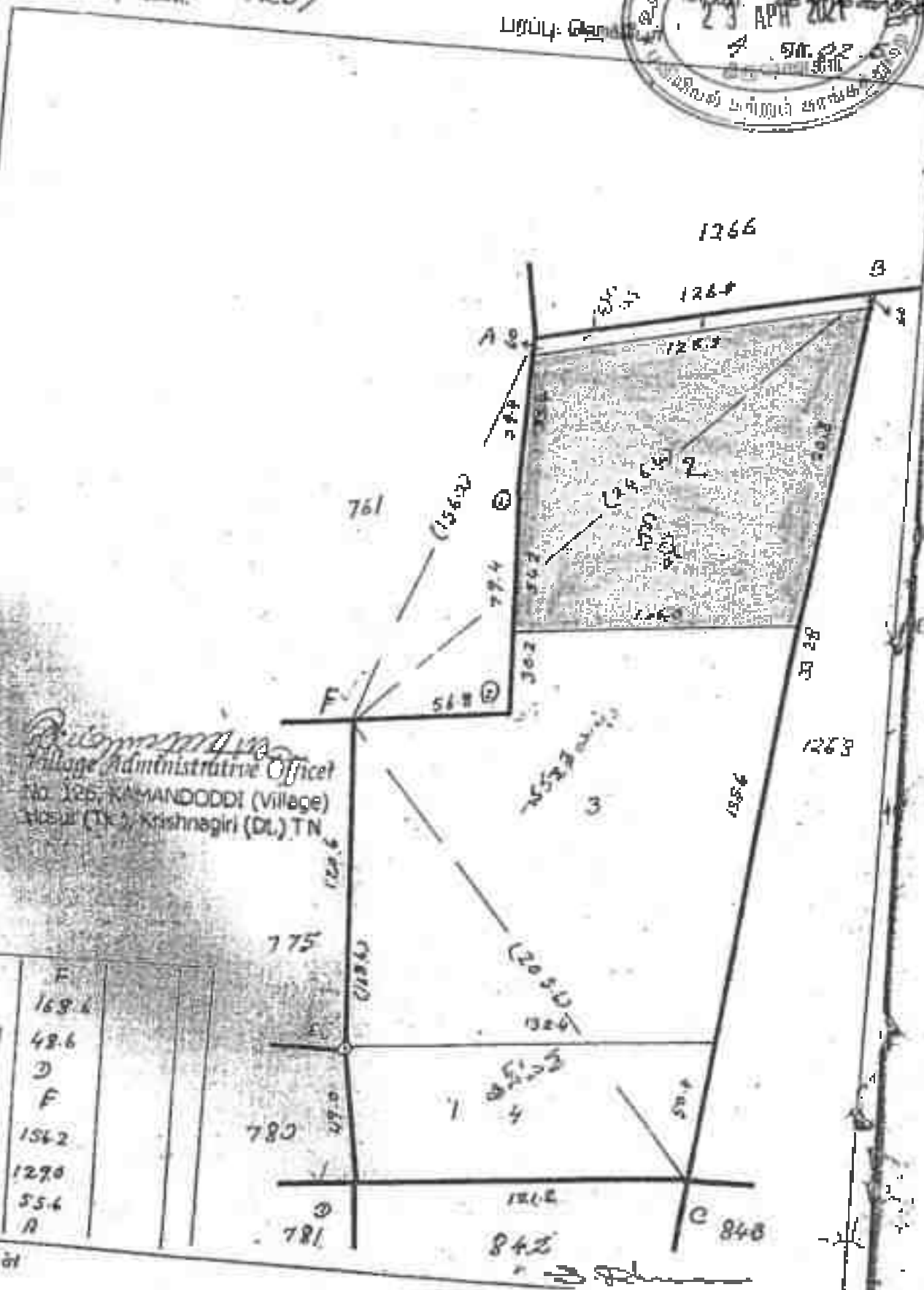
ச.ம.

சுற்று

புது கடை. 1267

மாண்புமிகு

புது கடை



புது கடை  
Village Administrative Officer  
No. 126, KAMANDODDI (Village)  
310511 (T.N.), Krishnagiri (Dt.) T.N.

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	D	
	F	154.2
		47.2
		127.0
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		55.4
	A	

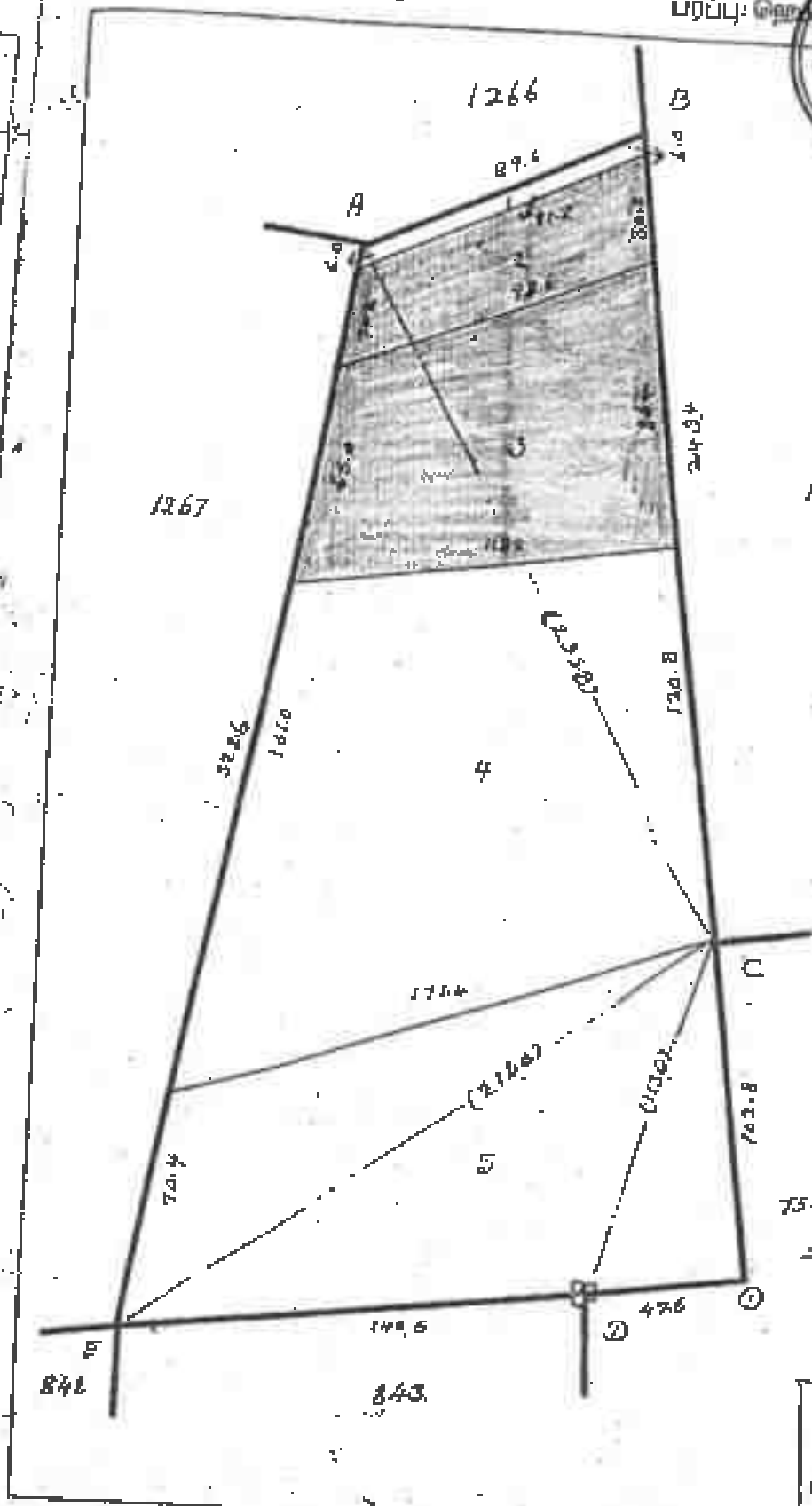
சுற்று

S.DHANASEKAR, I Sc. (Geo)  
Qualified Person



புலியூர் ஊராட்சி  
 புலியூர், 1268

பரப்பு: 6000 ச.மீ



Village Administrative Officer  
 No. 126, KAMANDODDI (Village)  
 Viluppur (TK), Krishnagiri (DL), TN

7544760.

S.DHANASEKAR, M.Sc. (Edu)  
 Qualified Person

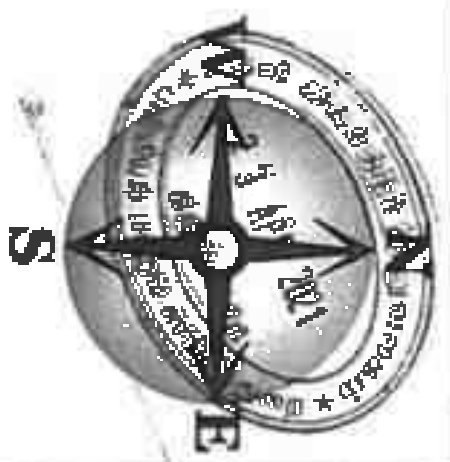
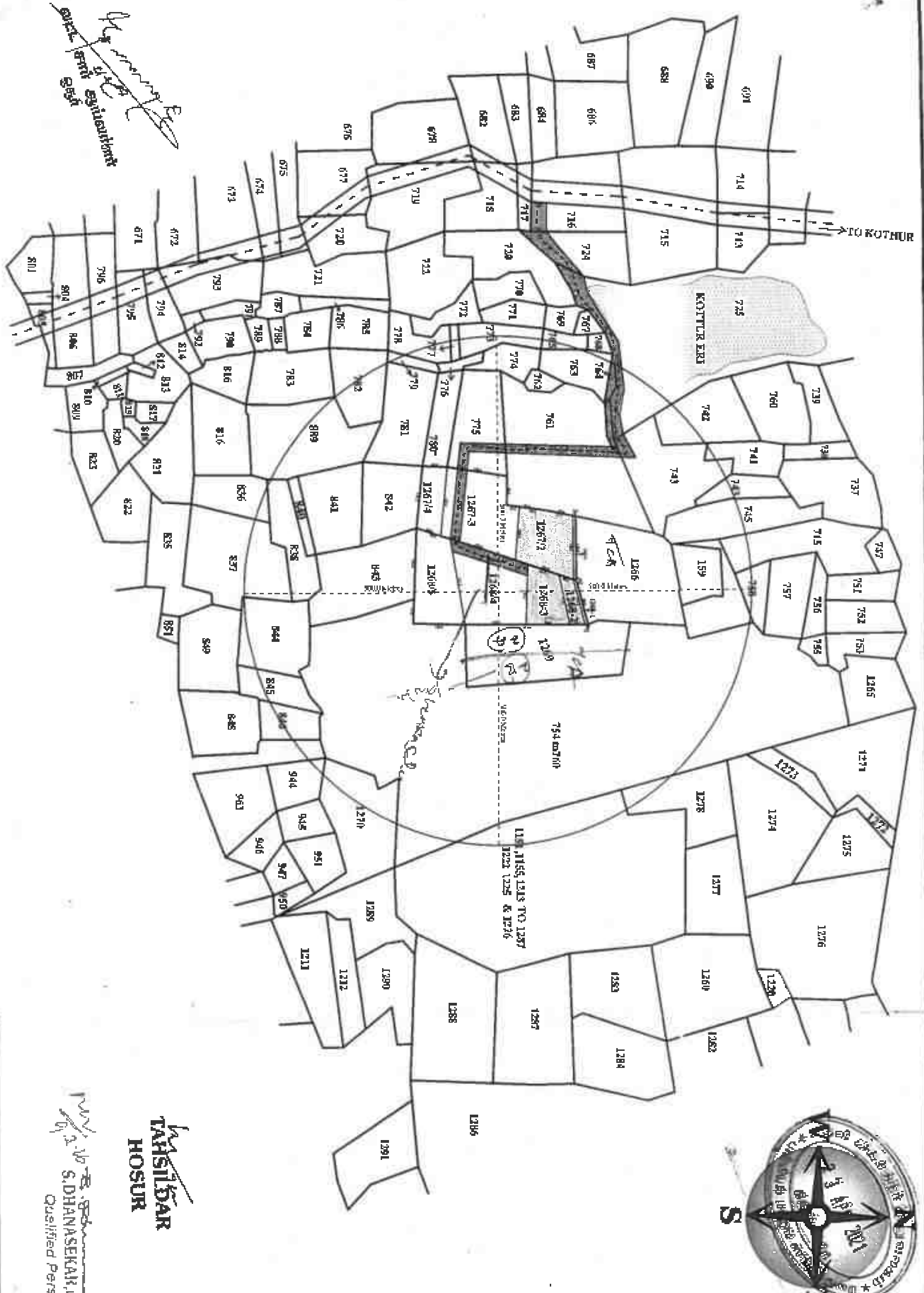
	①		
	113.0		
1	432	928	
		C	

புலியூர் ஊராட்சி  
 20/1/2021

அளவு: 147 மீ: 2000 மீ: 15

**PLAN SHOWING COMBINED SKETCH OF 126. KAMANDODDI VILLAGE, HOSUR TALUK, KRISHNAGIRI DISTRICT.**

ANNEXURE - VII



**TAHSILDAR  
HOSUR**

*S. Dhana Sekar*  
S. DHANASEKAR, J.S. (P)  
Qualified Person

*S. Dhana Sekar*  
S. DHANASEKAR, J.S. (P)  
Qualified Person

Annexure - VIII



தின உரிமை (பட்டா / சட்டா) விவரங்கள்



இணை 10(1) பிரிவு  
 மாவட்டம் : திரு.ஊளாதிரு  
 வட்டம் : ஒதுர்  
 கிராமம் : காமனத்தெட்டி  
 பட்டா எண் : 2035

உரிமைபாளர் பெயர்

பி. சிவசுப்பிரமணியன்  
 மகன்  
 பி.செல்வசுப்பிரமணியன்

		புள்ளியை		புள்ளியை		மற்றவை	
		பரப்பு	தீர்மானம்	பரப்பு	தீர்மானம்	பரப்பு	தீர்மானம்
புள்ளி எண்	உட்பிரிவு	பெறுக - ஏர்	கு - ஸ்ப	பெறுக - ஏர்	கு - ஸ்ப	பெறுக - ஏர்	கு - ஸ்ப
3267	2	--	--	1 - 34.50	0.81	--	--
		--	--	1 - 34.50	0.81	--	--






தமிழ் உரிமை (மட்டா / அட்டா) விவரங்கள்

இலக்ஷ்ணம் 2013 பிபிசி  
 மாவட்டம் : கிருஷ்ணகிரி  
 வட்டம் : ஒத்தூர்  
 கிளையம் : காயன்கொட்டி  
 பட்டா எண் : 879



உரிமையாளர்கள் பெயர்

1. செட்டிபிள்ளைவேலு மகன் பி.செங்கடையே

		நாடுகைய		புள்ளெயர்		பற்றணை	
		பரப்பு	தீர்ணை	பரப்பு	தீர்ணை	பரப்பு	தீர்ணை
புலா எண்	உட்பிரிவு	பெறாக - ஏர்	சூ - ஂய	பெறாக - ஏர்	சூ - ஂய	பெறாக - ஏர்	சூ - ஂய
1268	2	--	--	0 - 26.50	0.16	--	--
		--	--	0 - 26.50	0.16	--	--



*(Handwritten signature)*





தில் உரிமை (பட்டா / சிட்டா) விவரங்கள்

இ.எண் 10(1) பிரிவு

மாகட்டம் : கிருஷ்ணகிரி

வட்டம் : ஒதுர்

கிராமம் : காமசுந்தாடி

பட்டா எண் : 2159



உரிமையாளர்கள் பெயர்

1. (ஸெட்.) ஜி. பிசெலாடுட்டி மகள்

பி.வொங்கி. குட்டி

நட்செய்		புலசெய்		மற்றவை	
பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை
புல எண்	உட்பிரிவு	பெறுக - ஏர்	சூ - ஸப	பெறுக - ஏர்	சூ - ஸப
1268	3	--	--	0 - 77.50	0.50
		--	--	0 - 77.50	0.50

குறிப்பு :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 31/09/126/02159/60627 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.
2. இக் தகவல்கள் 12-09-2015 வரை வட்டாட்சியர் அலுவலகத்தில் இருந்து பெறப்பட்டவை.
3. இக் தகவல்கள் 18-09-2015 அன்று 04:39:00 PM நேரத்தில் அச்சடிக்கப்பட்டது.
4. லைஓபெசி கோராவின2D barcode பயிப்பாண மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



9/12/2015 |

தலைவரின் திட்டத்தின்படி  
 புள்ளிவிவரம் கீழ்க்கண்டவாறு.

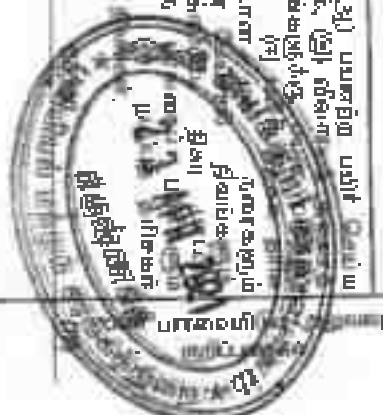
ஆண்டு	பகுதி	பெயர்	பொருள்	மொத்த அளவு (லீட்டர்)	மொத்த மதிப்பு (ரூ.)	மொத்த அளவு (லீட்டர்)	மொத்த மதிப்பு (ரூ.)	மொத்த அளவு (லீட்டர்)	மொத்த மதிப்பு (ரூ.)	மொத்த அளவு (லீட்டர்)	மொத்த மதிப்பு (ரூ.)	மொத்த அளவு (லீட்டர்)		மொத்த மதிப்பு (ரூ.)	
												மொத்த அளவு (லீட்டர்)	மொத்த மதிப்பு (ரூ.)	மொத்த அளவு (லீட்டர்)	மொத்த மதிப்பு (ரூ.)
2014	2	144.8	0.01	2016	P. சுவாமிநாதன்										

*P. Sivasubramanian*  
 No. 126, KAMANDODDI Village  
 Kishor (TK), Krishnagiri (Dt), TN.

MO/2-R.F. III-A-10-20,00,000 G.S.-G.B.P.-MODU-7-2014.

இலாபம் இல்லாதவாறு

ஆண்டு	பகுதி	பெயர்	பொருள்	மொத்த அளவு (லீட்டர்)	மொத்த மதிப்பு (ரூ.)	மொத்த அளவு (லீட்டர்)	மொத்த மதிப்பு (ரூ.)	மொத்த அளவு (லீட்டர்)	மொத்த மதிப்பு (ரூ.)	மொத்த அளவு (லீட்டர்)	மொத்த மதிப்பு (ரூ.)	மொத்த அளவு (லீட்டர்)		மொத்த மதிப்பு (ரூ.)	
												மொத்த அளவு (லீட்டர்)	மொத்த மதிப்பு (ரூ.)	மொத்த அளவு (லீட்டர்)	மொத்த மதிப்பு (ரூ.)



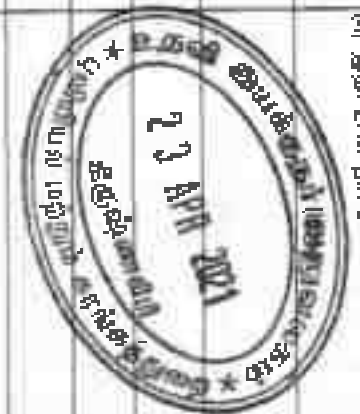
தொடர்வாக திட்டத்தில் புகளிடும் விவரம்.

தொடர்வாக திட்டத்தில் புகளிடும் விவரம்.	மாடுபட்டம்		முதல் பெயர்.					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
1244	2	1244	1244	1244	1244	1244	1244	1244

*Handwritten signature and address:*  
 No. 125, KAMANDODI (Village)  
 Musur (Tk), Krishnagiri (Dt), TN

இருண்டம் பெயர்.

இருண்டம் பெயர்.	(1)	(2)	(3)	(4)	(5)	(6)	(7)



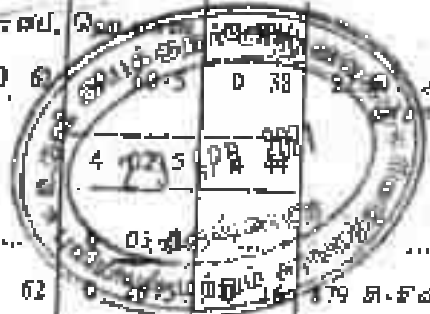




1	2	3	4	5	6	7	8	9	10	11	
1259	1	1259-1	ஈ	4	...	8-3	8	2 15	0 06	...	
	2	-2	ஈ	4	...	8-3	8	2 15	2	...	
									2	...	
1260	1	1260-1	ஈ	4	...	8-5	12	0 62	0 66-0	...	334 ஏ. காமநடுதரட்டி டீலர்.
	2	-2	ஈ	4	...	8-5	12	0 62	1 96-5	1 62	
									2 62-5	2 03	
1261	...	1261	ஈ	4	...	8-5	12	0 62	1 93-0	1 25	714 ஏ. காமநடுதரட்டி.
1262	1	1262-1	ஈ	4	...	8-5	12	0 62	1 43-5	0 94	1278 ஏ. காமநடுதரட்டி (1). ஏ. காமநடுதரட்டி (2).
	2	-2	ஈ	4	...	8-5	12	0 62	1 25-0	0 75	1278 ஏ. காமநடுதரட்டி (1). ஏ. காமநடுதரட்டி (2).
									2 73-5	1 69	
1263	1	1263-1	ஈ	4	...	8-5	12	0 62	0 83-5	0 50	21 ஏ. காமநடுதரட்டி.
	2	-2	ஈ	4	...	8-5	12	0 62	3 10-5	1 94	470 ஏ. காமநடுதரட்டி.
									3 94	2 44	
1264	...	1264	ஈ	4	...	8-5	12	0 62	3 22-5	...	...
1265	1	1265-1	ஈ	4	...	8-5	12	0 62	0 26-5	0 17	...
	2	-2	ஈ	4	...	8-5	12	0 62	1 19-0	0 73	645 ஏ. காமநடுதரட்டி.
									1 45-5	0 90	
1266	...	1266	ஈ	4	...	8-5	12	0 62	4 04-5	2 50	...
1267	1	1267-1	ஈ	4	...	8-5	12	0 62	0 08-0	...	...
	2	-2	ஈ	4	...	8-5	12	0 62	1 34-5	0 81	129 ஏ. காமநடுதரட்டி (1). ஏ. காமநடுதரட்டி (2).
	3	-3	ஈ	4	...	8-5	12	0 62	1 99-5	1 25	806 ஏ. காமநடுதரட்டி. டீலர்.

Village Kamanbuddi (Village)  
 No. 126, KAMANBODDI (Village)  
 Kamsur (Tk.), Krishnagiri (Dt.) T.N.

1	2	3	4	5	6	7	8	9	10	11
67	4	1267-4	ஈ	4	...	8-5	12	0 60	0 38	...
268	1	1268-1	ஈ	4	...	...	...	...	...	...
	2	-2	ஈ	4	...	8-5	12	0 62	0 50	670 கெ.மு.செய்யப்பட்டது.
	3	-3	ஈ	4	...	8-5	12	0 62	0 50	670 கெ.மு.செய்யப்பட்டது.
	4	-4	ஈ	4	...	8-5	12	0 62	1 20	35 கெ.மு.செய்யப்பட்டது.
	5	-5	ஈ	4	...	8-5	12	0 62	0 91	185 கெ.மு.செய்யப்பட்டது.
								4 55-0	2 50	
69	1	1269-1	ஈ	4	...	...	...	0 34-0	...	...
	2A	-2A	ஈ	4	...	8-5	12	0 62	1 03	...
	2B	-2B	ஈ	4	...	8-5	12	0 62	2 05-0	701 கெ.மு.செய்யப்பட்டது.
								3 85-5	2 34	
70	1	1270-1	ஈ	4	...	8-4	10	1 09	0 18-0	...
	2	-2	ஈ	4	...	...	...	0 01-0	...	...
	3	-3	ஈ	4	...	8-4	10	1 09	0 07-0	180 கெ.மு.செய்யப்பட்டது (1), கெ.மு.செய்யப்பட்டது (2).
	4	-4	ஈ	4	...	8-4	10	1 09	0 92-5	203 கெ.மு.செய்யப்பட்டது.
	5	-5	ஈ	4	...	8-4	10	1 09	0 15-5	135 கெ.மு.செய்யப்பட்டது.
	6	-6	ஈ	4	...	8-4	10	1 09	1 47-0	1471 கெ.மு.செய்யப்பட்டது.
								2 79-0	3 02	
71	1A	1271-1 1A	ஈ	4	...	8-5	10	1 09	1 30-0	1702 கெ.மு.செய்யப்பட்டது.
	1B	-1B	ஈ	4	...	8-5	10	1 09	0 12-0	91 கெ.மு.செய்யப்பட்டது.
	1C	-1C	ஈ	4	...	8-5	10	1 09	0 30-0	1031 கெ.மு.செய்யப்பட்டது.
	2A	-2A	ஈ	4	...	8-5	10	1 09	0 81-5	1028 கெ.மு.செய்யப்பட்டது.
	2B	-2B	ஈ	4	...	8-5	10	1 09	0 50-0	1629 கெ.மு.செய்யப்பட்டது.
								3 53-5	3 85	



S. DHANASEKAR, MS  
Qualified Person

*[Handwritten signature]*



**ANNEXURE-VI MINING PLAN REPORT &  
PLATES**



**SCHEME OF MINING**

**WITH  
PROGRESSIVE MINE CLOSURE PLAN  
FOR  
ROUGH STONE QUARRY**



(Prepared Under Rule 12 of Draft Minor Mineral Conservation and Development Rules, 2010 & as per the amendments Under Rule 41 & 42 of Tamil Nadu Minor Mineral Concession Rules, 1959)

**EXTENT** : 2.38.5 HA.  
**S.F.Nos.** : 1267/2, 1268/2 & 1268/3  
**VILLAGE** : KAMMANDODDI  
**TALUK** : SHOOLAGIRI  
**DISTRICT** : KRISHNAGIRI  
**STATE** : TAMIL NADU

PERIOD OF SCHEME OF MINING WITH PMCP: 2022-2023 to 2026-2027

**LESSEE**  
**THIRU. P. VENKATAREDDY,**  
S/o. G. PILLAREDDY,  
KUKKALAPALLI VILLAGE,  
KAMMANDODDI POST,  
SHOOLAGIRI TALUK,  
KRISHNAGIRI DISTRICT – 635 109.

**PREPARED BY :**  
**S. DHANASEKAR, M.SC., M.M.E.A.I.,**  
QUALIFIED PERSON  
8/3, KULLAPPAN STREET, OPP. INDIAN BANK LINE,  
OMALUR POST & TALUK  
SALEM DISTRICT – 636 455.  
E-mail: [geodhana@yahoo.co.in](mailto:geodhana@yahoo.co.in)  
CELL: 98946 28970 & 73733-74702.

**P. VENKATAREDDY,**  
S/o. Late G. PILLAREDDY,  
KUKKALAPALLI VILLAGE,  
KAMMANDODDI POST,  
SHOOLAGIRI TALUK,  
KRISHNAGIRI DISTRICT - 635 109.



**CONSENT LETTER FROM LESSEE**

The Scheme of Mining with Progressive Mine Closure Plan in respect of Rough Stone Quarry over an extent of 2.38.5 Ha. in S.F. Nos.1267/2, 1268/2 & 1268/3 of Kammandoddi Village, Shoologiri Taluk, Krishnagiri District, Tamil Nadu State has been prepared by **Shri S. DHANASEKAR, M.Sc.,** Qualified Person.

I request the Department of Geology and Mining, Krishnagiri to make further correspondence regarding modification of the Scheme of Mining with Progressive Mine Closure Plan with the said recognized qualified person in his following Address:

**S.DHANASEKAR, M.Sc., M.M.E.A.I.,**

QUALIFIED PERSON

8/3, Kullappan Street,

Opposite Indian bank Line,


Omatur Post & Taluk - 636 455

Salem District.

E-mail: [geodhana@yahoo.co.in](mailto:geodhana@yahoo.co.in)

Cell: 98946-28970

I hereby undertake that all the modifications, if any, made in the Scheme of Mining with Progressive Mine Closure Plan by the recognized qualified person may be deemed to have been made with our knowledge and consent and shall be acceptable to me and binding on me in all respects.

  
(P. Venkatareddy)  
Signature of the Lessee

Place: KRISHNAGIRI

Date:




P. VENKATA REDDY,  
S/o. G. PILLA REDDY,  
KUKKALAPATI VILLAGE,  
KAMMANDODDI POST,  
SHOOLAGIRI TALUK,  
KRISHNAGIRI DISTRICT - 655 109.



### DECLARATION OF THE MINE OWNER

The Scheme of Mining with Progressive Mine Closure Plan in respect of Rough Stone Quarry over an extent of 2.38.5 Ha. in S.O. Nos.1267/2, 1268/2 & 1268/3 of Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu State has been prepared in full consultation with us by Shri S. DHANASEKAR, M.Sc., Qualified Person. I have understood its contents and agree to implement the same in accordance with Laws applicable to mines.

  
(P. Venkatarreddy.)  
Signature of the Lessee

Place: KRISHNAGIRI

Date:







# KRK MEMORIAL MINING SERVICES

S.DHANASEKAR  
M.Sc. Geol. M.A.M.S.  
Sector Geologist /  
Recognized Qualified Person

OFF  
86680 20217

No.5/20-78, Avvai Nagar  
Peekumar Mines Road,  
Jagir Annappalayam,  
Salem - 636 302.

GST: 33ALIPD6733A1Z0



## CERTIFICATE

The provisions of Minor Minerals Conservation and Development Rules, 2010 (MMCDR) have been observed in the Scheme of Mining with Progressive Mine Closure Plan for Kammandoddi Rough Stone Quarry over an extent of 2.38,5 Ha. in S.F. Nos.1267/2, 1268/2 & 1268/3 of Kammandoddi Village, Shoologiri Taluk, Krishnagiri District prepared for Thiru. P. Venkatarreddy, S/o.Pillareddy, Kukkulapalli Village, Kammandoddi Post, Shoologiri Taluk, Krishnagiri District- 635 109.

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

It is also certified that the information furnished in the above Scheme of Mining with Progressive Mine Closure Plan are true and correct to the best of our knowledge.

Certified

  
Signature of Qualified Person,  
S.DHANASEKAR, M.Sc. Geol.  
Qualified Person

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  
MR. JWC 10622  
Senior Geologist/  
Recognized Qualified Person

☎ Off  
86680 20217

No.573D-78L Arval Nagar,  
Ponkumar Mines Road,  
Jagir Annampalayam,  
Salem - 636 302.

GST: 33A!IPD6733A!Z0



## CERTIFICATE

Certified that provision of Mines Act, Rules and Regulations and orders made there under have been observed in the Scheme of Mining with Progressive Mine Closure Plan for Kammandoddi Rough Stone Quarry over an extent of 2.38.5 Ha. in S.F. Nos. 1267/2, 1268/2 & 1268/3 of Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District prepared for Thiru. P. Venkatesareddy, S/o. G. Pillaroddy, Kukkalapalli Village, Kammandoddi Post, Shoolagiri Taluk, Krishnagiri District- 635 109.

Whenever specific permissions, approvals, exemptions or relaxations are required, the lessee will approach the concerned authorities of the Director General of Mines Safety (DGMS), No. 5, 11nd Street, Block - AA, Anna Nagar, Chennai-40, Tamil Nadu for such permissions, exemptions, relaxations and approvals.


It is also certified that information furnished in the above Scheme of Mining with Progressive Mine Closure Plan are true and correct to the best of our knowledge.

Certified

  
Signature of Qualified Person.  
S.DHANASEKAR, M.Sc., JWC10622  
Qualified Person

Place : SALEM

Date :



11°41'29.45" N  
76°07'13.58" E

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Omalar, Salem - 636 455.

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*P. S. S.*

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*P. [Signature]*

**SCHEME OF MINING  
WITH  
PROGRESSIVE MINE CLOSURE PLAN  
FOR**

**KAMMANDODDI ROUGH STONE QUARRY**

(Prepared Under Rule 12 of Draft Minor Mineral Conservation and Development Rules, 2010  
& as per the amendments Under Rule 41 & 42 of Tamil Nadu Minor  
Mineral Concession Rules, 1959)



**1.0 General:**

The Scheme of Mining along with Progressive Mine Closure Plan has been prepared in respect of Rough Stone Quarry in Patta Land S.F.Nos.1267/2, 1268/2 & 1268/3 over an extent of 2.38.5 Ha. in Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District, prepared for Thiru. P. Venkatarreddy, S/o. Pilla Reddy, Kukkalapalli Post, Shoolagiri Taluk, Krishnagiri District—635 109.

The fresh Mining Plan was approved by Deputy Director, Geology and Mining, Krishnagiri vide letter Rec No.721/2015/Mines dated:30.9.2016 for a period of 2017-2018 to 2021-2022. Please refer Annexure-V. Copy of Approved Mining plan Letter.

Accordingly, the Lessee had obtained Environmental Clearance from SELAA-TN vide Lr.No. SELAA- TN/F.No.5883/1(a)/EC.No:3902/2016 dated 13.06.2017. Please refer Annexure- III.

The Mining Lease was granted in Re.No.721/2015/Mines-2 dated:30.10.2017 for the period of Five years.

The lease deed was executed on 10.11.2017. Mining operation commenced on 01.01.2018. The lease will expire on 09.11.2022.

However as per the recent Amendment TNMMCR, G.O.(Ms)No.208 Industries (MMC.1) Department dated 21.09.2020, the validity of the Mining Lease is extended upto 09.11.2027.

As per notification of Ministry of mines, No. S.O. 423 (E) - by clause (e) of section 3 of the Mines and Minerals (Development and Regulation) Act,1957 (67 of 1957), The Central Government has declared 31 minerals including Rough Stone as Minor Minerals. Based on the above notification, the Government of Tamilnadu issued a Government order vide G.O. No.70, dated; 22.04.2016, including all 31 minerals as minor minerals under the rule 43 of TNMMCR stating that the procedure laid down in the rule 12 of TMMCR shall apply for the grant of quarry lease.

This Scheme of Mining for the period 2022-2023 to 2026-2027 is now being prepared and submitted under Rule 12 of MMCDR,2010 and 41 & 42 of TMMCR, 1959 for approval.

The mining operations are done by opencast semi-mechanized methods with jack hammer drilling and blasting, hydraulic excavators are used for loading the Rough stone from pithead to the nearby crushers.

**S.DHANASEKAR, M.Sc., (Geol)**  
Qualified Person

### 1.1. Review of Mining Plan:

a) **Name of lessee** : Thiru. P. Venkatarreddy,  
**Address** : S/o. G. Pillarreddy,  
Kukkalapalli Village,  
Karumandoddi Post,  
Shoolagiri Taluk,  
Krishnagiri District.  
**District** : Krishnagiri  
**State** : Tamil Nadu  
**Pin code** : 635 109.  
**Mobife No** : 94433 84809.



#### b) Status of lessee

The lessee is an Individual.

#### c) Mineral(s) which is / are included in the prospecting license (For Fresh grant):

-Nil-

#### d) Mineral(s) which is / are included in the letter of Intent / lease deed:

Rough Stone occurs in the lease area and the Lessee intends to quarry the same.

#### e) Mineral(s), which is the lessee, intends to Quarry:

Rough Stone occurs in the lease area and the Lessee intends to quarry the same.

#### f) Name and Address of the Qualified Person :

**Name** : SHRI S. DHANASEKAR, M.Sc., M.M.E.A.I.,  
**Address** : 8/3, Kullappan Street,  
Opp. Indian Bank Line,  
Ormalur Post & Taluk,  
Salem District - 636 455.  
**Cell No.** : 98946-28970 & 73733-74702.  
**Email** : [geodhana@yahoo.co.in](mailto:geodhana@yahoo.co.in)

### 2.0 LOCATION AND ACCESSIBILITY

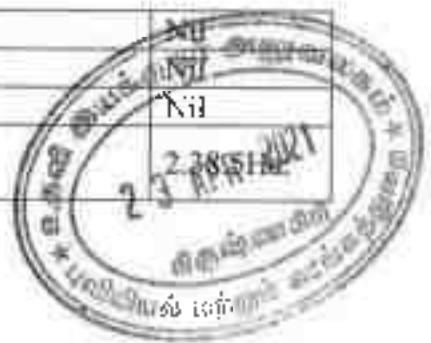
#### a) Lease Details (Existing Quarry)

**Name of the Quarry** : Karumandoddi Rough Stone Quarry  
**Lat/long of any boundary point** : N 12° 39' 42.99" & E 77° 57' 41.79"  
**Date of grant of lease** : 30.10.2017  
**Period/Expiry Date** : 09.11.2022.  
**Name of leaseholder** : Thiru. P. Venkatarreddy, S/o.Pilla Reddy,  
**Postal Address** : Kukkalapalli Village,  
Karumandoddi Post,  
Shoolagiri Taluk,  
Krishnagiri District.  
**Mobile No** : 94433 84809.

**b) Details of lease area with location map (Quarry)**

Table-1

Forest (specify)	Area (Ha.) -NIL-	i) Waste land	Nil
		ii) Grazing land	Nil
		iii) Agriculture land	Nil
		iv) Others, patta land (specify)	Nil



Total lease area : 2.38.5 Ha  
 State : Tamil Nadu  
 District : Krishnagiri  
 Taluk : Shoolagiri  
 Village : Kammandoddi  
 Whether the area is recorded to be in forest : This is Patta land and is not covered in Forest area of any kind.

Please refer Location Plan and Quarry lease plan – Plate No. 1A & B.

**c) Existence of public road/railway line, if any nearby and approximate distance:**

Extent of the area is shown in the FMB. The District Head Quarter Krishnagiri is at a distance about 32.0 Km. from quarry site. The area is at a distance of about 3.5 kms. from Kammandoddi Village. Krishnagiri – Hosur Road (Kanyakumari road) (NH-7) main road is at a distance of about 2.0 kms North from the Quarry area.

Nearest Railhead is Kalamangalam Railway Station that is located about 14.0 kms. from the Quarry. Post office and Police Station are available in Shoolagiri at a distance of about 6.0Kms. Air Port is available in Bangalore, about 55.0 kms. from the Quarry. Nearest Port is Chennai about 265.0 kms. from the area.

**d) The Mining lease area is bounded by four corners and the coordinates are:**

Table No:2

Toposheet No	: 57 II/14
Latitude	: N 12° 39' 42.99" to N 12° 39' 42.99"
Longitude	: E 77° 57' 41.79" to E 77° 57' 33.09"
North East	: N 12° 39' 42.99" E 77° 57' 41.79"
South East	: N 12° 39' 39.41" E 77° 57' 40.52"
North West	: N 12° 39' 44.50" E 77° 57' 34.83"
South West	: N 12° 39' 41.44" E 77° 57' 33.09"





e) A general location map showing area and access routes. It is preferred that the area be marked on a Survey of India topographical map or a cadastral map or forest map as the case may be. However, if none of these are available, the area may be shown on an administrative map:

A general location map showing area boundaries and existing access routes shown on the Toposheet Plan (Key Plan) which is enclosed as Plate No.Ib. Since existing routes are being followed to reach the lease area no fresh access routes are proposed hence not shown.

Top Sheet No. with : The area falls in Topo Sheet No.57 H14

Latitude and longitude of Survey of India

Latitude : N 12 ° 39' 42.99" to N 12 ° 39' 42.99"

Longitude : E 77° 57' 41.79" to E 77° 57' 33.09"



**f) Land use pattern :**

Dry Mineral bearing land.

**g) Location of the Area :**

The area for Mining Lease for Kammandoddi Rough Stone Quarry is located in S.F. Nos. 1267/2, 1268/2 & 1268/3 over an extent of 2.38.5 Ha. in Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District, Tamilnadu State.

**3.0 DETAILS OF APPROVED MINING PLAN/SCHEME OF MINING :**

**3.1 Date and reference of earlier approved MP:**

The fresh Mining Plan was approved by Deputy Director, Geology and Mining, Krishnagiri vide letter Roc No.721/2015/Mines dated:30.09.2016 for a period of 2017-2018 to 2021-2022. Please refer Annexure-V. Copy of Approved Mining plan Letter.

**3.2 Details of last modifications if any (for the previous approved period) of approved MP/SOM, indicating date of approval, reason for modification:**

-Nil-

**3.3 Give review of earlier approved proposal (if any) in respect of exploration, excavation, reclamation etc:**

**i) Exploration :**

In the previous approved Mining Plan, it is mentioned that no exploration was carried out. Massive rough stone exposures are clearly visible from the existing pit within the lease area.

Present Mine working has reached a depth of about 5.0m from general ground level.

There is only one working pit available in this area, the dimensions of which is given below :

Table No.3

	PIT
Length (m)	102.0
Width (m)	75.0
Depth (m) (avg.)	5.0



The area is very small. The attitude of the deposits like width and length are clearly known. Depth persistence of Rough Stone in this area is already proved upto 5.0m and even more.

**ii) Mine Development :**

The Mine workings have reached a maximum depth of nearly 5.0m. Development of the pits has been done only in the areas where the Rough Stone could be easily mined.

**iii) Exploitation :**

The Quarry workings have reached a maximum depth of nearly 5.0m.

There is only one working pit, the dimensions of which is given below :

Table No.4

	PIT
Length (m) (avg.)	102.0
Width (m)(avg.)	75.0
Depth (m) (avg.)	5.0

The Planned and Actual Production for last approved Mining Plan period figures are given as follows:

Table No.5

YEAR	PLANNED(Cu.m) ROUGH STONE	ACTUAL(Cu.m) ROUGH STONE
2017-2018	176804	-
2018-2019	107770	-
2019-2020	81795	-
2020-2021	58427	34500
2021-2022	57177	-
<b>TOTAL</b>	<b>481972</b>	<b>34500</b>

**iv) Waste Management:**

In the Previous approved Mining Plan Period, waste was dumped in the western side of the lease area. The topsoil was removed and preserved all along the boundary barrier for afforestation development. The part of the topsoil has been used for roads in the low laying adjacent area.

*P. [Signature]*

**v) Reserves and Resources estimated in the earlier approved mining plan period (2017-2018 to 2021-2022) with grade:**

Geological Reserve (insitu) under Proved category	: 1343972 cu.m
Mineable Reserve	: 507339 cu.m
Recoverable Reserve at about 95% recovery	: 481972 cu.m

While calculating Mineable Reserve, the boundary barrier and bench width, height and slope are taken into account. Hence, the Mineable Reserve will be always less than the insitu reserve.



**vi) Depletion of Reserve :**

The actual production of Rough Stone for the last five years (2017-2018 to 2021-2022) is about 34540 cu.m of saleable Rough Stone.

**vii) Afforestation and Reclamation :**

It was clearly stated in the approved Mining Plan that during afforestation programme 35 neem trees will be planted yearly, in the lease area. Presently, lessee had planted trees in the lease area in scattered manner. Since, the Quarry is active. Mining should be carried out in such a manner that after certain period, some part is available for reclamation.

**viii) Control of Dust, Noise & Ground Vibrations :**

Quarrying of Rough Stone had been carried out by drilling and control 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.

The dust control was taken care by water sprinkling on the haul roads. The amount of ground vibration is very less since only control blasting by using low power explosives is used.

**Reclamation & Rehabilitation :**

Reclamation of mined out area does not arise and has not reached the full extent of working. After closure of the Mine, the pit will be allowed to collect seepage and rain water. This will help to charge the nearby agricultural wells.

**PART - 'A'**

**1.0 GEOLOGY AND EXPLORATION**

**A) Briefly Describe The Topography, Drainage Pattern, Vegetation, Climate, Rainfall Data of the Area Applied/Mining Lease Area:**

**a) Topography :**

The Mining Lease area is approximately at N 12° 39' 42.99" latitude and at & E 77° 57' 41.79" longitude and is represented by Topo Sheet No.57 II/14 of Survey of India.

The area is an undulated terrain and gently sloping towards western side. The altitude of the area is about 739 MSL.

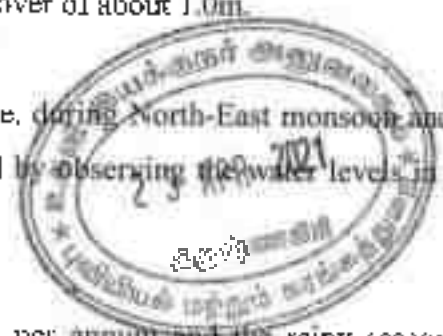
*P. [Signature]*

**Vegetation:**

It is a dry Mineral bearing. It is a dry place with a top soil cover of about 1.0m.

**Water table and Drainage Pattern:**

Water table is touched at a depth of 70m in rainy season, ie, during North-East monsoon and at 80m in summer months. The water table fluctuation is verified by observing the water levels in the above seasons in the nearby wells.

**Climatic Conditions:**

The area receives rainfall of about 800mm to 900mm per annum and the rainy season is mainly from October-January during NorthEast Monsoon. The summer is hot with maximum temperature of 38°C and winter encounters a minimum temperature of 18°C.

**Rainfall Data:**

The area receives scanty rainfall and the annual rainfall of the area varies between 800mm to 900mm.

**b) Geology of the Area :**

The lease applied area is a slightly undulated topography, the area has been quarrying operation earlier Rough stone exposures are clearly visible in existing pit within the lease applied area. Top soils are noticed at the average thickness of 1m (Avg) top soil. The slope is gentle towards Western side. The altitude of the area is above 739m from MSL.

Peninsular gneiss forms the oldest rock formations, in which the massives formation of charnockite lies over with rich accumulation of recent quaternary formation. On regional scale the charnockite body trends NE-SW with dipping towards SE70°.

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

AGE	FORMATION
Recent	Quaternary Recent (Top soil)
Archaean	Charnockite (Granitoid Gneiss)
	Peninsular Gneiss Complex II.

**c) Details of Exploration already carried out:**

The area was thoroughly explored by the Recognized Qualified Person and his geological team. No exploration was carried out. Massive rough stone exposures are clearly visible from the existing pit within the lease area.

In this area, the mine working has reached a depth of about 5.0m from general ground level.

P. [Signature]

There is only one working pit available in this area, the dimensions of which is given below :

Table No.6

	PIT
Length (m)	102.0
Width (m)	75.0
Depth (m) (avg.)	5.0



The area is very small. The attitude of the deposits like width and length are clearly known. Depth persistence of Rough Stone in this area is already proved upto 5.0m and even more.

**d) The Physical Character of the Rough Stone :**

Rough stone texture is medium to coarse grained and is composed of recrystallized minerals, hence it is a metamorphic rock. The grains are subhedral, inequigranular, with a granoblastic texture. The grains are crystalline i.e. Complete crystallization has occurred. Cleavage is absent. The color is dark olive green. The details collected during the field survey and found to be sufficient for the preparation of the Scheme of Mining with PMCP.

**e) Number of boreholes indicating type (Core/RC/DTH), diameter, spacing, inclination, Collar level, depth etc... with standard bore hole logs duly marking on**

There is no borehole exist in the lease area.

**i) RESERVES :**

**a. Method of Estimation of Reserves :**

The Geological and Recoverable reserves are estimated by cross sectional method up to a depth of 50.0m (1.0m Topsoil + 49.0m Rough Stone), as the Rough Stone. Plans and Sections have been drawn with a scale of 1:1000 respectively.

Selecting a method of reserve estimation depends upon the geology of the mineral deposit, exploration method, purpose of computation and the required degree of accuracy and also on the contemplated mining system.

The ideal method should be simple, rapid, reliable, consistent with the character of the mineral body and available data and suitable for rapid checking. The method adopted for calculation of reserves in this area is by computing the volume by cross sectional method upto a particular level. The volume is calculated by multiplying the cross sectional area with the length of the sectional influences.

The details of estimation of Geological Reserves and Mineable Reserves with reference to the Geological Plan & Cross section and Conceptual Plan & Section as shown in (Plate No.III & III-A and VII & VII-A) respectively.

## b. GEOLOGICAL RESERVES:

The Geological reserve of Rough Stone and Topsoil is calculated upto a depth of 50.0m (1.0m Topsoil + 49.0m Rough Stone). Total Geological reserve is estimated as 993839 Cu.m by area cross sectional method.

Table No.7

GEOLOGICAL RESERVES								
Section	Bench	Length in (m)	Width in (m)	Depth In (m)	Volume In M <sup>3</sup>	Geological Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m <sup>3</sup>
XY-AB	I	109	111	1				12099
	II	109	111	7	84693	80458	4235	
	III	109	111	7	84693	80458	4235	
	IV	109	111	7	84693	80458	4235	
	V	109	111	7	84693	80458	4235	
	VI	109	111	7	84693	80458	4235	
	VII	109	111	7	84693	80458	4235	
<b>Total=</b>					<b>508158</b>	<b>482748</b>	<b>25410</b>	<b>12099</b>
XY-CD	I	13	23	1				299
	II	43	41	7	12341	11724	617	
	III	115	98	7	78890	74946	3944	
	IV	115	98	7	78890	74946	3944	
	V	115	98	7	78890	74946	3944	
	VI	115	98	7	78890	74946	3944	
	VII	115	98	7	78890	74946	3944	
	VIII	115	98	7	78890	74946	3944	
<b>Total=</b>					<b>485681</b>	<b>461400</b>	<b>24281</b>	<b>299</b>
<b>Grand Total=</b>					<b>993839</b>	<b>944148</b>	<b>49691</b>	<b>12398</b>

Topsoil	=	12398 cu.m
Total Geological Reserves in ROM	=	993839 cu.m
Reserves @ 95%	=	944148 cu.m

*J. [Signature]*

**C. MINEABLE RESERVES:**

The Mineable reserves are calculated by deducting 7.5m & 10.0m Safety distance and Bench Loss. The Mineable Reserve is calculated upto a depth of 50.0m (1.0m Topsoil + 49.0m Rough Stone).

Table No.8

MINEABLE RESERVES								
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M <sup>3</sup>	Mineable Reserves in m <sup>3</sup> @ 95%	Mine waste in m <sup>3</sup> @ 5%	Top Soil in m <sup>3</sup>
XY-AD	I	102	91	1				9588
	II	101	92	7	65044	61792	3252	
	III	96	82	7	55104	52349	2755	
	IV	91	72	7	45864	43571	2293	
	V	86	62	7	37324	35458	1866	
	VI	81	52	7	29484	28010	1474	
	VII	76	42	7	22344	21227	1117	
<b>Total=</b>					<b>255164</b>	<b>242407</b>	<b>12757</b>	<b>9588</b>
XY-CD	I	3	5	1				15
	II	33	22	7	5082	4828	254	
	III	105	69	7	50715	48179	2536	
	IV	100	59	7	41300	39235	2065	
	V	95	49	7	32585	30956	1629	
	VI	90	39	7	24570	23342	1228	
	VII	85	29	7	17255	16392	863	
	VIII	80	19	7	10640	10108	532	
<b>Total=</b>					<b>182147</b>	<b>173040</b>	<b>9107</b>	<b>15</b>
<b>Grand Total=</b>					<b>437311</b>	<b>415447</b>	<b>21864</b>	<b>9603</b>

Topsoil = 9603 cu.m  
 Total Mineable Reserves in ROM = 437311 cu.m  
 Reserves @ 95% = 415447 cu.m

The geological reserves computed based on the geological cross sections up to the economically workable depth of 50m (1.0m Topsoil + 49.0m Rough Stone) works out to 944148 cu.m (95% recovery) (Table-7) and mineable reserves have been computed as 415447 cu.m (Table-8) at the rate of 95% recovery upto a depth of 50m (1.0m Topsoil + 49.0m Rough Stone) (Refer plate No.VII & VII-A). The above projections are for the Next Five years plan period.

Mineable reserves have been computed as 415447cu.m at the rate of 95% recovery up to a depth of 50m (1.0m Topsoil + 49.0m Rough Stone). The Mineable reserves are calculated by deducting 7.5m & 10.0m Safety distance Bench Loss.

*[Handwritten Signature]*

## 2.0 MINING

### A. Open Cast Mining

a) Briefly describe the existing as well as proposed method for excavation with all design parameters indicating on plans /sections:-

#### Existing method :

The mining operations are done by opencast semi-mechanized methods with jack hammer drilling and blasting, hydraulic excavators are used for loading the Rough stone from pithead to the needy crushers.

There is only one existing working pit, the dimensions of which is given below

Table No.9

	PIT
Length (m)	102.0
Width (m)	75.0
Depth (m) (avg.)	5.0

#### Proposed method :

The quarry is proposed to carry out mining operation with semi-mechanized opencast method ("B2" category of small mine). The quarry operation involves shallow jack hammer drilling, slurry blasting, excavation, loading and transportation of Rough Stone.

The operation will be confined to general shift only i.e. from 8.00 AM to 5.00 PM with one hour lunch interval between 12.00 PM to 1.00 PM. In Topsoil, a bench will be 1.0m height and width with 45° slope.

The Rough Stone, totally seven benches will be 7.0m height and 5.0m width for next Five years only. Please refer Plate No.IV & IV-A. The advancement of the pit will be from boundary towards middle side of the lease area for the next five years. Please refer Plate No.IV.

A bund will be constructed around the pit to prevent accident call and intrush of rainwater. Proper footpaths will be provided between benches for easy accessibility for workers.

Haul roads, to conform to statutory standards will be made according to convenience for smooth transport of Rough stone and waste. Wherever necessary, crossing platforms will be provided in the haul roads at suitable point for safe crossing as tractors, tippers, trucks etc..

The Top Soil will be dumped in the west and southern side 7.5m boundary barrier of the lease area in the next five years. The Top Soil will be utilized for the formation of mine roads, construction of bund and afforestation purpose.

Average annual production is about 83089 cum of Rough Stone with 300 working days in a year. Considering the nature of the deposit and the anticipated daily production level, semi-mechanized mining is proposed.



A boundary barrier of 7.5m & 10.0m width will be maintained as per statute. Rough Stone locked up in this barrier will be excavated after obtaining permission from DGMS under Regulation 111 of Mines and Mineral Regulation, 1961. The sequence of working for the next Five years is indicated in Plate Nos. IV and the rate of production is given in Table No.11.

b) Indicate Year-Wise Tentative Excavation in Cu.m indicating Production & development ROM, pit wise as in table below.

i) Planned Development for next Five years is given below :

The top soil of the lease area is 9603m<sup>3</sup>. Topsoil formation will be removed and dumped in west and southern side 7.5m boundary barrier of the lease area.

ii) Planned Production for next Five years is given below :

The proposed rate of production of Rough Stone is about 415447cu.m for Five Years. at the rate of 95% recovery up to a 50m depth (1m Top soil + 49m Rough Stone).

Table No.10

Year	ROM Cu.m	Production 95% (cu.m) of ROM
10.11.2022-09.11.2023	120841	114799
10.11.2023- 09.11.2024	96404	91584
10.11.2024-09.11.2025	78449	74527
10.11.2025-09.11.2026	61894	58800
10.11.2026-09.11.2027	79723	75737
<b>TOTAL.</b>	<b>437311</b>	<b>415447</b>

From Total ROM the Rough Stone deposits are categorized with the following percentage.  
Rough stone : 95% .

The average production of Rough Stone per year will be about 83089 cu.m. Please refer Table No.11 and Plate No.IV.

#### YEARWISE DEVELOPMENT & PRODUCTION SCHEDULE FOR NEXT FIVE YEARS

The proposed rate of production of Rough Stone is about 415447cu.m for Five Years. The average proposed rate of production of Rough Stone is about 83089cu.m. at the rate of 95% recovery up to a 50m depth (1m Top soil + 49m Rough Stone).

*[Signature]*

The proposed Production & development for next Five years 2022-2023 to 2026-2027 are given below :

Table - 11

YEARWISE DEVELOPMENT & PRODUCTION RESERVES									
YEAR	Section	Bench	L (m)	W (m)	D(m)	Volume In M <sup>3</sup>	Recoverable Reserves In m <sup>3</sup> @ 95%	Mine waste In m <sup>3</sup> @ 5%	Top Soil In m <sup>3</sup>
10.11.2022-09.11.2023	XY-AB	I	102	94	1				
		II	101	92	7	65044			
	XY-CD	I	3	5	1				15
		II	33	22	7	5082	4828	254	
		III	105	69	7	50715	48179	2536	
<b>Total=</b>						<b>120841</b>	<b>114799</b>	<b>6042</b>	<b>9603</b>
10.11.2023-09.11.2024	XY-AB								
		III	96	82	7	55104	52349	2755	
	XY-CD	IV	100	59	7	41300	39235	2065	
<b>Total=</b>						<b>96404</b>	<b>91584</b>	<b>4820</b>	
10.11.2024-09.11.2025	XY-AB								
		IV	91	72	7	45864	43571	2293	
	XY-CD	V	95	49	7	32585	30956	1629	
<b>Total=</b>						<b>78449</b>	<b>74527</b>	<b>3922</b>	
10.11.2025-09.11.2026	XY-AB								
		V	86	62	7	37324	35458	1866	
	XY-CD	VI	90	39	7	24570	23342	1228	
<b>Total=</b>						<b>61894</b>	<b>58800</b>	<b>3094</b>	
10.11.2026-09.11.2027	XY-AB	VI	81	52	7	29484	28010	1474	
		VII	76	42	7	22344	21227	1117	
	XY-CD	VII	85	29	7	17255	16392	863	
		VIII	80	19	7	10640	10108	532	
	<b>Total=</b>						<b>79723</b>	<b>75737</b>	<b>3986</b>
<b>Grand Total=</b>						<b>437311</b>	<b>415447</b>	<b>21864</b>	<b>9603</b>

Topsoil = 9603 cu.m

Total Reserves = 437311 cu.m

Reserves @ 95% = 415447 cu.m

**ROM:** The material excavated from mineralized zone and includes mineral reject and useable mineral component.

**OB:** Means overburden capping waste.

**iv) Estimated Life of the quarry**

Mineable ROM = 437311 cu.m

Mineable Reserves @ 95% = 415447 cu.m

Average production (Rough Stone) per year @ 95% = 83089 cu.m

Estimated Life of the Quarry = 415447 / 83089 = 5.0 years

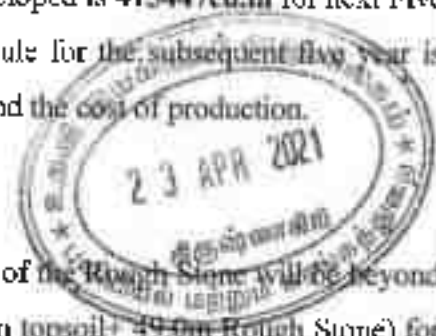
**Life = 5 years**

The average proposed rate of production of Rough Stone is about 83089 cu.m per year.

P. [Signature]

**v) Proposed Rate of Production When The Quarry Is Fully Developed**

The proposed rate of production when the quarry is fully developed is **415447cu.m** for next Five years and **83089cu.m** per annum. (Table-11) The production schedule for the subsequent five year is drawn mainly in consideration of reserves position, market demand and the cost of production.



**vi) Mineable Reserves and Anticipated Life of Mine**

The Rough Stone is **Massive** in nature. The depth persistence of the Rough Stone will be beyond the economically workable depth. An optimum depth of 50.0m (1.0m topsoil + 49.0m Rough Stone) for the next Five years Scheme of mining period and 50.0m (1.0m Topsoil soil + 49.0m Rough Stone) for entire lease period has been established as economically viable depth. Eventually this depth is the optimum depth for safe and scientific quarrying.

The mineable reserves are calculated by excluding the mining loss due to formation of benches, ultimate depth of mine, the mineral reserve held up within the safety distances all along the boundary of quarry lease applied area.

The mineable reserves for this Rough stone is thus arrived as **415447cu.m** (Table-15) for an assumed depth of 51m from top surface (1.0m Topsoil - 49.0m Rough Stone ). The details of estimation of five years development & production plan (plate no.IV) is furnished in Table-19. The average rate of production of Rough Stone from this quarry is **83089 cu.m** per year and mineable recoverable reserves **415447cu.m**.

Based on the above, and taking into consideration of the available Mineable Reserves, **the life of mine will be about 5 years**, if the quarry is being worked continuously with prevailing market conditions and according to this Scheme of mining period.

**c). Composite development plans showing pit layouts, dumps, stacks of mineral reject, if any, etc. and year wise sections in case of 'B' category mines:**

A composite development year wise Plan and Sections are shown in Plate Nos.IV & IV-A. The details are furnished in Table-11. The average annual production of Rough Stone per year will be about 83089 cu.m.

**d). Describe briefly giving salient features of the proposed method of working Indicating Category of mine:**

The quarry is proposed to carry out mining operation with semi-mechanized opencast method ("B2" category of small mine). The quarry operation involves shallow jack hammer drilling, slurry blasting, excavation, loading and transportation of Rough Stone. The removal of blasted Rough Stone material is loaded into 10 MT capacity trucks with the help of hydraulic excavators.

*[Handwritten signature]*

There is only one working pit available in this area, the dimensions of which is given below:  
Table No.12

	PIT
Length (m)	102.0
Width (m)	75.0
Depth (m) (avg.)	5.0



**Extent of Mechanization:**

The mine will be worked by semi-mechanized method. However for drilling and hauling, jack hammers, hydraulic excavators and tippers will be used respectively.

**Drilling Machines :**

Drilling of shot holes will be carried out using compressor and jack hammer. Depth of holes shall be 1 to 2m bench height and spacing shall be 0.75m and burden shall be 0.60m from the preface.

Details of drilling equipments are given below.

Table No.13

Type	Nos	Dia of hole	Size / Capacity	Make	Motive power	H.P.
Jack Hammer	6	25.5 mm	Hand held	Atlas copco 2Nos	Diesel	60

**Loading Equipment:**

Loading of rough stone shall be carried out by 10 tonne capacity tippers from the working place periodically. Details of loading equipment are given as under.

Table No.14

Type	Nns	Bucket Capacity (M <sup>3</sup> )	Make	Motive power	H.P.
Hydraulic excavator	1	1.2 M <sup>3</sup>	T&T or Ex200	Diesel	120

**Transportation:**

Transport of raw materials and waste shall be done by Tipper of 10 M.T. capacity.

Table No.15

Type	Nos	Size / Capacity	Make	Motive power	H.P.
Tipper	4	10 M.T	Ashok Leyland	Diesel	110

*(Handwritten signature)*

**Miscellaneous :**

There is no other miscellaneous operation worth mentioning except drilling by jack hammer, working of Rough stone deposit by opencast semi-mechanized methods, transport of Rough stone by tippers and trucks and pumping out seepage water during rainy season.

**Afforestation :**

The 7.5m and 10m safety distance all along the lease boundary has been identified to be utilized for afforestation purpose. Yearly 50 Neem trees will be planted in this lease area. These trees will be planted along the boundary line, (Please refer Plate No.V for Mine Layout, Land-use and Afforestation Plan).

The Topsoil soil will be spread over the same and vegetative cover with suitable species will be provided. The extent of area to be afforested in next Five years is 0.60.0 Ha. interval between trees - 5m, survival rate - 70%. A retaining wall will be constructed around the dumping yard.

The Afforestation programme for the next five years are described as follows :

Table No. 16

Year	Name of the species	No. of species	Interval	Area in Ha.	Survival rate
2022-2023	Neem	50	5m	0.12.0	70%
2023-2024	Neem	50	5m	0.12.0	70%
2024-2025	Neem	50	5m	0.12.0	70%
2025-2026	Neem	50	5m	0.12.0	70%
2026-2027	Neem	50	5m	0.12.0	70%
<b>TOTAL</b>		<b>250</b>		<b>0.60.0</b>	

e). Describe briefly the layout of mine workings, pit road layout, the layout of faces and sites for disposal of Topsoil/waste along with ground preparation prior to disposal of waste, reject etc. A reference to the plans and sections may be given. UPL or ultimate size of the pit is to be shown for identification of the suitable dumping site:

The quarry is proposed to carry out mining operation with semi-mechanized opencast method ("B2" category of small mine). The quarry operation involves shallow jack hammer drilling, slurry blasting, excavation, loading and transportation of Rough Stone.

The operation will be confined to general shift only i.e. from 8.00 AM to 5.00 PM with one hour lunch interval between 12.00 PM to 1.00 PM. In Topsoil, a bench will be 2.0m height and width with 45° slope.

The Rough Stone, totally seven benches will be 7.0m height and 5.0m width for next Five years only. Please refer Plate No.IV & IV-A. The advancement of the pit will be from boundary towards middle side of the lease area for the next Five years. Please refer Plate No.IV.

*[Handwritten signature]*

A bund will be constructed around the pit to prevent accident call and inrush of rainwater. Proper footpaths will be provided between benches for easy accessibility for workers.

Haul roads, to conform to statutory standards will be made according to convenience for smooth transport of Rough Stone and waste. Whenever necessary, crossing platforms will be provided in the haul roads at suitable point for safe crossing as tractors, tippers, trucks etc.

The Top Soil will be dumped in the west and southern side 7.5m boundary barrier of the lease area in the next five years. The Top Soil will be utilized for the formation of mine roads, construction of bund and afforestation purpose. Mineral reject will be dumped in the North and Eastern Side boundary barrier of the lease area.

Average annual production is about 83089 cum of Rough Stone with 300 working days in a year. Considering the nature of the deposit and the anticipated daily production level, semi-mechanized mining is proposed.

A boundary barrier of 7.5m & 10.0m width will be maintained as per statute. Rough Stone locked up in this barrier will be excavated after obtaining permission from DGMS under Regulation 111 of Mines and Mineral Regulation, 1961. The sequence of working for the next Five years is indicated in Plate Nos. IV & VI and the rate of production is given in Table No.11.

**f) Conceptual Mine planning upto the end of lease period taking into consideration the present available reserves and resources describing the excavation, recovery of ROM, Disposal of waste, backfilling of voids, reclamation and rehabilitation showing on a plan with few relevant sections:**

**Conceptual Mining Plan :**

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

While making the Conceptual Mining Plan and deciding the ultimate pit limits the following factors are considered.

i) Pit dimension :

a. Table No:17

	<b>PTT</b>
Length(m)	205.0
Width (m)	86.0
Depth (m)	50.0m (1.0m Topsoil + 49.0m Rough Stone)

**01. Boundary Barriers**

In this case a barrier of 7.5m and 10m and is left along the lease boundary.

**02. Depth of Mining :**

The depth of mining is about 50.0m (1.0m Topsoil + 49.0m Rough Stone).

03. **No. of benches :**

The no. of benches will be eight including the Topsoil bench.

04. **Size and slope of benches :**

In Topsoil, the bench height will be 1.0m with 45° slope.

In Rough Stone, the bench 7.0m height and width 5.0m for next Five years

05. **Nature of Topsoil :**

The nature of the topsoil in this area is gravelly soil. The top most gravelly soil, this layer which is thickness of about 1.0m from general ground level.

06. **The size of the lease hold :**

The lease area has an extent of 2.38.5Ha.

07. **Nature of ore body :**

In the area Rough Stone is massive Deposit and without much of geological disturbances.

i) **The ultimate pit limits will be :**

Ultimate pit limits have been marked in the Conceptual Mining Plan.

Table No. 18

	<b>PIT</b>
Length(M)	205.0
Width (m)	86.0
Depth (m)	50.0m (1.0m Topsoil + 49.0m Rough Stone)

01. Outline of the area already worked out – Plate No.III : 0.76.5 Ha.

02. The outline of the area to be worked out in the next Five years : 1.76.5 Ha.

Plate No. IV.

03. Yearwise area to be planted for next Five years -Plate No.IV. : 0.60.0 Ha.

04. Extent of areas occupied by roads, site services, : 0.02.0 Ha.

etc., - Plate No.V.

Table No. 19

<b>Sl. No.</b>	<b>Description</b>	<b>Present Area (Ha.)</b>	<b>Area in use during the quarrying period (Ha.)</b>
01.	Area under Quarrying	0.76.5	1.76.5
02.	Infrastructure	Nil	0.01.0
03.	Roads	0.01.0	0.01.0
04.	Green Belt & Dump	Nil	0.60.0
05.	Unutilized Area	1.61.0	Nil
	<b>TOTAL</b>	<b>2.38.5</b>	<b>2.38.5</b>

*[Signature]*

**Ultimate pit boundaries:**

Ultimate pit limits have been marked in the Conceptual Plan in Plate Nos. VII.

**ii) Waste dumps :**

The mineral reject (5%) will be dumped in the north and eastern side boundary barrier of the lease area.

Table No. 20

<b>Proposed Mine Waste Dump Dimensions:</b>
21865Cbm (333.6m(L) x 10.0m(W) x 6.55m (H))



50 Neem trees/per year is to be afforested over the topsoil dumps to prevent wash off of erosion.

The Topsoil will be dumped in the west and southern side 7.5m boundary barrier of the lease area.

The dumping details for the next five years plan period is furnished below :

Table No. 21

<b>Proposed Topsoil Dump Dimensions:</b>
Top Soil-9603Cbm (357.4m(L) x 7.5m(W) x 3.58m (H))

**Blasting Pattern:**

The massive formation shall be broken into pieces of portable size by drilling and Proposed Control 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.

Proposed Control Blasting parameters are as follows.

Table No. 22

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° from the horizontal.
Quantity of rock broken	: 0.45 MT x 2.6 = 1.17 MT
Control 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	: 276.96M <sup>3</sup> .

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**b) During dry season, ANFO as base charge and any conventional type of explosives as booster charge will be used:**

In rainy season, it is preferable to use only conventional type of explosives like slurry based explosives. Since it is a small mine and the working of the mine is also seasonal, drilling will be done by contractors and supply of explosives will be done by authorized dealer. However, blasting will be done by a qualified mate or Blaster.

**c) Secondary Blasting:**

Secondary blasting is not needed, since the primary blasting itself will take care of the required fragmentation of waste rock and mineral body.

**d) Storage of Explosives:**

The explosive shall be supplied by the authorized contractor at the blasting site at the time of blasting. The explosive shall be directly used so no storage of explosive is proposed.

**e) Safety Precautions:**

1. During handling all care shall be taken that no inflammable elements should be there.
2. Only safety explosive container with explosive license shall be used for safe and secure transportation of explosive.
3. Efficient Siren will be blown prior to the blasting & after clearance of blasting.

**f) Underground Mines :**

Not applicable.

### **3.0 MINE DRAINAGE**

The area is slightly undulated topography. Rain water finds its natural course. The water table is touched at a depth of 80m in summer and at 70m in NE monsoon. The water table fluctuation is verified by observing the water levels in the above seasons in the nearby wells.

During the mining of eighth bench, it may be necessary to pump out water. A 5 HP pump can easily deal rain water and seepage water and keep the mine dry. The pumped out water will be left out far away from the western boundary.

**b. Depth of Mining:**

The working in Rough Stone will reach a depth of 50.0m (1.0m Topsoil - 49.0m Rough Stone) in the next Five years.

**c) Quantity and quality of water likely to be encountered:**

In the next Five years, the water table will not pose any problem. However, to deal with storm water and seepage water, a diesel pump of 5 HP capacities is proposed.

In future, proper dewatering pumping arrangements to be made from pit bottom to nearby agricultural lands.



**d) Describe regional and local drainage pattern. Also indicate annual rain-fall, catchments area, and likely quantity of rain water to flow through the lease area, arrangement for arresting solid wash off etc.**

Ground water is the main source in this area, apart from rain in the monsoon period. The water table is at a depth of 80m in summer and at 70m in rainy season. The ground water will be collected in the sump for the deposition of solid particles. Once the suspended particles are deposited it will be pumped out for domestic purpose, dust suppression system, gardening and Afforestation purpose. The excess water only will be pumped out to the ponds/closer water bodies-pond after the deposition of solid particles. There are no toxic elements found in the sump water.

To cope up with storm water and seepage water, an energy efficient electrical pump of 5 H.P capacity will be installed and the discharge will be left-out in the nullah/pond. Garland drains will be made all along the periphery of dumpsites to prevent the water carrying the wash-offs from the dumps. The water collected in the garland drains will flow towards a settling tank formed near by the dumpsite. The water will be allowed to settle the wash offs from the dumps in the settling tank and pure and clear water will be utilized for Afforestation purposes and for haul roads arrest the dust generation.

#### **4.0. STACKING OF MINERAL REJECT /SUB GRADE MATERIAL AND DISPOSAL OF WASTE**

**a) Indicate briefly the nature and quantity of Topsoil, Topsoil/waste and Mineral Reject to be disposed off.**

##### **Topsoil:**

The Topsoil is gravelly soil. It occurs to a depth of 1.0m. The generation of Topsoil for next Five years is about 9603 tonnes.

##### **Sideburden:**

There is no sideburden in this lease area.

##### **Sub-grade Mineral:**

There is no Sub-grade Mineral produced in the next five years.

##### **Mineral reject:**

The mineral reject (5%) will be dumped in the north and eastern side boundary barrier of the lease area.

**b) The proposed dumping ground within the lease area be proved for presence or absence of mineral and be outside the UPL unless simultaneous backfilling is proposed or purely temporary dumping for a short period is proposed in mineralized area with technical constraints & justification.**

The dumping of waste material, will be done in steps to avoid sliding. One end of the waste dump to be nurtured for stabilization will be taken up for Afforestation.

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Construction of garland drain in around the pit and dump and settling tank will be provided to guard against the heavy rainwater.

Periodically sprinkling/spraying water on roads leading from working face to waste dump, so that areas are always kept wet to prevents emission of air borne dust. Retaining wall will be constructed around the dumping yard. Stabilization measures, to be made for Year wise (future) dumps.



The Topsoil is dumped in the west and southern side 7.5m and boundary barrier of the lease area.

**e) Attach a note indicating the manner of disposal of waste, configuration and sequence of year wise buildup of dumps along with the proposals for protective measures.**

The mine waste (5%) will be dumped in the north and eastern side boundary barrier of the lease area.

The Topsoil will be dumped in the west and southern side 7.5m boundary barrier of the lease area. Construction of garland drain in around the pit and dump and settling tank will be provided to guard against the heavy rainwater.

Periodically sprinkling/spraying water on roads leading from working face to waste dump, so these areas are always kept wet to prevent emission of air borne dust.

Retaining wall and garland drain will be constructed around the dumping yard. The dumping of topsoil, will be done in steps to avoid sliding. One end of the topsoil dump to be matured for stabilization will be taken up for afforestation.

#### **5.0 USE OF MINERAL AND MINERAL REJECT:**

**a) Describe briefly the requirement of end-use industry specifically in terms of**

The entire mined out mineral is been utilized by the nearby Crusher unit in Krishnagiri.

**b) Give brief requirement of intermediate industries involved in up gradation of Mineral before its end-use:**

There is no necessary for intermediate industries involved up gradation of Mineral.

**c) Give detail requirements for other industries, captive consumption, export, Associated industrial use etc:**

Not Applicable.

**d). Physical specifications:**

Rough stone texture is medium to coarse grained and is composed of recrystallized minerals, hence it is a metamorphic rock. The grains are subhedral, inequigranular, with a granoblastic texture. The grains are crystalline in nature. Complete crystallization has occurred. Cleavage is absent. The color is dark olive green.

**Supply of buyers :**

Used in nearby Crusher units at Krishnagiri.

**e) Give details of processes adopted to upgrade the ROM to suit the user Requirements:**

Not applicable.



**6.0 PROCESSING OF ROM AND MINERAL REJECT**

**a) If processing / beneficiation of the ROM or Mineral Reject is planned to be conducted, briefly describe nature of processing / beneficiation. This may indicate size and grade of feed material and concentrate (finished marketable product), recovery etc:**

The minerals produced from the mines need only specific sorting & grading for Size, Grade & Recovery factor. No mineral beneficiation processing will be required at mines. Besides this no other processing or beneficiation is required to be proposed at the mine site.

**Mineral Beneficiation of Mineral :**

Not applicable, no beneficiation is being carried out at this mine. Since the mineral was required and supplied in raw form.

**Beneficiation Test Done On Sub-Grade Mineral:**

Not applicable, since no sub-grade mineral is anticipated.

**b) Give a material balance chart with a flow sheet or schematic diagram of the Processing procedure indicating feed, product, recovery, and its grade at each stage of processing:**

Not applicable.

**c) Explain the disposal method for tailings or reject from the processing plant:**

Not applicable.

**d) Quantity and quality of tailings /reject proposed to be disposed, size and capacity of tailing pond, toxic effect of such tailings, if any, with process adopted to neutralize any such effect before their disposal and dealing of excess water from the tailings dam:**

Not applicable.

**e) Specify quantity and type of chemicals if any to be used in the processing plant:**

Not applicable.

**f) Specify quantity and type of chemicals to be stored on site / plant:**

Not applicable.

**g) Indicate quantity (cum per day) of water required for mining and processing and sources of supply of water, disposal of water and extent of recycling:**

Water balance chart may be given.

Not applicable.

*P. [Signature]*

**7.0. OTHERS:**

**a. Site Services :**

The proposed site services are:

Drinking water, rest shed, store room, public convenience etc., Mines office and blaster shelter etc., please refer Plate Nos.IV, V and VIII.

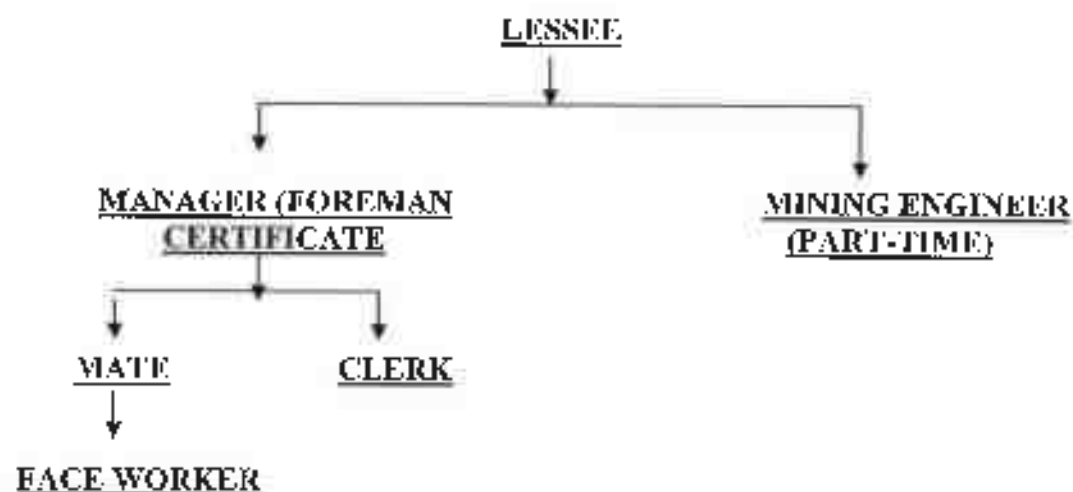


**Employment Potential:**

**i) Skilled Labour:**

Foreman/ Part time Mining Engineer	:	1
Excavator operator	:	1
Co- operator	:	1
Jack hammer operator	:	6
Blaster/mate	:	1
<b>ii) Semi-skilled:</b>	:	2
watchman	:	1
<b>iii) Unskilled helper</b>	:	1
<b>Total</b>	:	<b>14 Nos.</b>

A Part time Mining Engineer will be appointed as per rule 42(1) (b) (i) of MCDR 1988. The proposed organization chart :



The drilling will be done by contractors. The Manager will carry out blasting. The mine will work in a single shift from 8.00 AM to 5.00 PM with one hour lunch interval between 12.00 Noon and 1.00 PM.

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## 8.0 PROGRESSIVE MINE CLOSURE PLAN

### INTRODUCTION

Name of the Mine : Kammandoddi Rough Stone Quarry

Lessee : Thiru. P. Venkatarreddy,

Address : Thiru. P. Venkatarreddy,  
S/o. G. Pillareddy,  
Kukkalapalli Village,  
Kammandoddi Post,  
Shoolagiri Taluk,  
Krishnagiri District.

Cell : 94433 84809

#### Location :

Extent : 2.38.5 Ha.  
S.F.Nos : 1267/2, 1268/2 & 1268/3  
Village : Kammandoddi  
Taluk : Shoolagiri  
District : Krishnagiri

Type of Lease Area : Non-Forest

Present land use pattern : Quarrying of Rough Stone

Method of Mining : Semi-mechanized

Mineral processing operation : Drilling and blasting is done.



**8.1 Environment Base line information: Attach a note on the status of baseline information with regard to the following:**

#### Existing land use pattern:

Table No.23

Sl No.	Description	Present Area (Ha.)	Area in use during the quarrying period (Ha.)
01.	Area under Quarrying	0.76.5	1.76.5
02.	Infrastructure	Nil	0.01.0
03.	Roads	0.01.0	0.01.0
04.	Green Belt & Dump	Nil	0.60.0
05.	Unused Area	1.61.0	Nil
	<b>TOTAL</b>	<b>2.38.5</b>	<b>2.38.5</b>

*(Handwritten signature)*

### Water Regime

Ground water is touched at a depth of 80m in summer and at 30m in NE monsoon season. The average rainfall is 800-900mm. There is no lake, reservoir or river near the area. Villagers use open well water for drinking and other domestic purposes for ages without any adverse health effects. However drinking water will be supplied from the public water supply system from nearby hamlets.

### Air-Quality:

The air quality will be affected during the quarrying period due to blasting and jack drilling, which will be within permissible limits. Since this is an open area, the impact on air quality will be to the minimum. The mine roads will be sprinkled with water before starting the transportation of rough stone and wastes to minimize air pollution.

### Noise Level:

Quarrying of Rough Stone had been carried out by drilling and control 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.

### Flora and Fauna

Since the sub-seed area is a stony waste, it does not contain much vegetation. There is no report of existence of wild animals in this region.

### Climate Conditions

The area receives rainfall of about 800mm to 900mm per annum and the rainy season is mainly from October-January during NorthEast Monsoon. The summer is hot with maximum temperature of 38°C and winter encounters a minimum temperature of 18°C.

### Human Settlement

The hamlets near the area are: Table No:24

Name of Hamlet	Population	Direction from the area	Distance
Koneripalli	200	North	1.8 kms.
Thirumalaigowri Kotta	400	South	1.2kms.
Kukkala Palli	250	West	2.0 kms.
Chappadi Village	250	East	1.4 kms.

### Public building, Places of worship and Monuments

There is no public building, places of worship or archaeological or national monuments near the area. There is no wild life or bird sanctuary or no reserve or any protected social forest closer to the area.

**8.2 Impact Assessment:** Attach an Environmental Impact Assessment Statement Describing the impact of mining and beneficiation on environment on the following:

a) **Environmental Impact Assessment Statement:**

The factors that should be covered in this Para are: -

01. Land
02. Air Quality
03. Water Quality
04. Noise Levels
05. Vibration Levels
06. Water Regime
07. Socio-Economics
08. Historical Monuments etc.



**Land:**

It is a working mine. There is no proposal for back filling and reclamation. Before closure of the mine, a parapet wall will be constructed to prevent inadvertent entry of cattle and human beings. The dumps will be vegetated to prevent sliding. After closure of the mine, the pit will be allowed to collect seepage and rain water.

This will help to charge the nearby agricultural wells. Fish farming will also be attempted.

Afforestation will be attempted in the boundary barrier.

**Air-Quality:**

The air quality will be affected during the quarrying period due to blasting and jack drilling, which will be within permissible limits. Since this is an open area, the impact on air quality will be to the minimum. The mine roads will be sprinkled with water before starting the transportation of rough stone and wastes to minimize air pollution.

**Water Quality:**

Mining operation will not produce any toxic effluent in the form of solid, liquid or gas. The existing water quality will not be affected by mining operation. The Surface rain water flow through the seasonal water course as usual.

**Noise Level:**

Quarrying of Rough Stone had been carried out by drilling and control 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.

**Vibration levels:**

The ground vibration will be caused due to movement of earth moving equipment and blasting. But the impact on the environment will be negligible, since the quantity of explosives used will be very small and the movement of equipment will be intermittent.

*[Handwritten signature]*

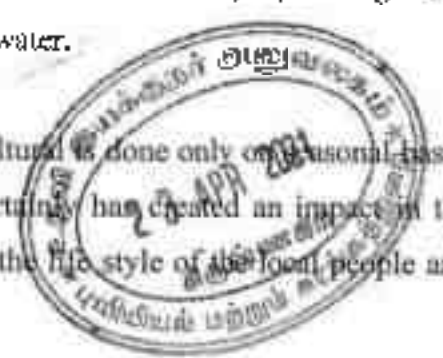


### Water Regime:

Mining operation will not produce any toxic effluent in the form of solid, liquid or gas and will not have any impact on quality of water and also on ground water.

### Socio-Economics:

The local population is mostly agriculture based. Agricultural is done only on seasonal basis. Mining in this area is an avenue for employment. Mining certainly has created an impact in the Socio-economic standards of the local people. It has improved the life style of the local people and has improve the standard of living.



### Historical Monuments:

There is no historical or Archaeological monument near the area. There is no scope for mining operation to have any impact on these aspects.

### **8.3 PROGRESSIVE RECLAMATION PLAN:**

Since, it is an existing mine, the only proposal now is to plant 50Necm trees every year in the boundary barrier. Whenever the dump becomes inactive, tree planting will be carried out. A retaining wall will be constructed around the dumping yard. Please refer Plate Nos.V. The Afforestation programme for the next Five years are described as follows :

Table No. 25

Year	Name of the species	No. Of species	Interval	Area in Ha.	Survival rate
2022-2023	Neem	50	5m	0.12.0	70%
2023-2024	Neem	50	5m	0.12.0	70%
2024-2025	Neem	50	5m	0.12.0	70%
2025-2026	Neem	50	5m	0.12.0	70%
2026-2027	Neem	50	5m	0.12.0	70%
<b>TOTAL</b>		<b>250</b>		<b>0.60.0</b>	

After complete extraction of mineral, the pit will be allowed to collect rain and seepage water to serve as a reservoir to charge the nearby wells. Fish culture will also be attempted. A bund will be constructed around the pits.

#### **8.3.1 MINED OUT LAND:**

It is an existing mining lease. There is no proposal for back filling and reclamation at this stage.

- 01. The area covered by pits : 1.76.5 Ha.
- 02. The area covered by waste dumps & Afforestation : 0.60.0 Ha.
- 03. The area covered by roads, infrastructure : 0.02.0 Ha.
- 04. Unutilized area : Nil

*[Handwritten signature]*

### 8.3.2. Topsoil management:

The gravelly soil will be stacked separated for Afforestation purpose, which is being dumped separately will be used for forming earth bund all along the mine. Neem trees are planted on the bund for protecting the bund.

### 8.3.3. Tailing Dam Management

Does not arise.

### 8.3.4 Acid mine drainage, if any and its mitigative measures

Not applicable.



### 8.3.5 Safety And Security

All the quarry workers will be provided with safety equipments like helmets, Mine Goggles, Ear plugs, Ear muffs, Dust mask, reflector jackets and Safety Shoes as personal protective device as per the specification approved by Director of mines safety. Periodically medical checkup will be conducted for all workers for any mine health related problems. Proper training and induction will be given by qualified and experienced safety officer to all employed about the safe and systematic Rough stone quarrying operations. The drillers and workers will be sent for vocational training periodically to carry out the quarrying operations scientifically to safe guard the men machinery and mineral and to create awareness of conventional opencast quarrying operations.

Parapet wall or bund have been constructed on all sides of the openings. Proper pumping arrangements during rainy season. Trees planted all along the mining lease boundary.

### 8.4 Disaster Management And Risk Assessment

The nearby hamlet is Shoogagiri which is at a distance of 6.0 kms. where facilities like Primary Health Centre etc., are available. Mode of transport available is Jeep. All the employee will be shifted to the nearest hamlet Shoogagiri. Mobile phone will be provided to the Mines Manager. The Manager/Supervisor will be provided with a mobile phone. The Mining area is very small. There is no chance for risk for any Disaster. However, the details of contact person are given :

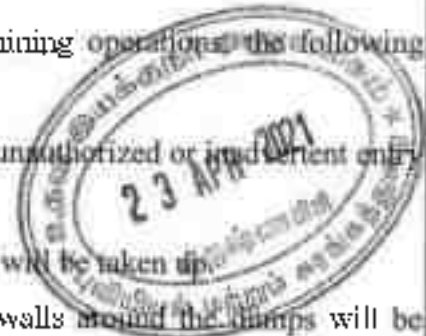
Contact person	:	P. Venkatarreddy
Postal Address	:	Kukkalapalli Village, Kannuroddodi Post, Shoogagiri Taluk, Krishnagiri District - 635 109.
Mobile No	:	94433 84809.

P. Venkatarreddy

### 8.5 Care and maintenance during temporary discontinuance:

In case, of any temporary closure or discontinuance of mining operations the following steps are proposed.

- Watchman will be posted round the clock to prevent any unauthorized or inadvertent entry of general public.
- Works on stabilization of dumps to provide vegetal cover will be taken up.
- Construction of garland drains in the pit and retaining walls around the dumps will be attempted.



### 8.6 .Project Cost:

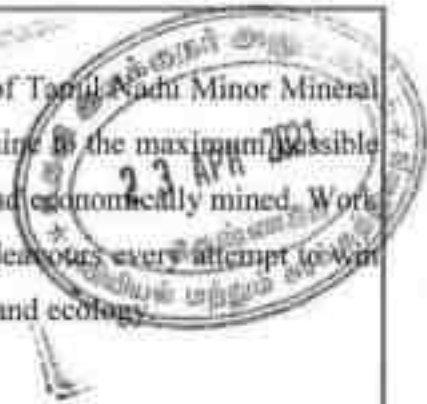
Table No.26

<b><u>A. Fixed Asset Cost:</u></b>		
1. Land Cost	:	Rs. 22,00,000/- (Patla Land)
2. Labour Shed	:	Rs. 2,00,000/-
3. Sanitary Facility	:	Rs. 90,000/-
4. Fencing cost	:	Rs. 1,00,000/-
Total=	:	Rs. 25,90,000/-
<b><u>B. Operational Cost:</u></b>		
<b><u>Machinery cost</u></b>	:	Rs. 40,00,000/-
<b><u>C. EMP Cost:</u></b>		
Drinking water facility	:	Rs. 1,20,000/-
Safety kits	:	Rs. 1,00,000/-
Water sprinkling	:	Rs. 60,000/-
Allorestation	:	Rs. 60,000/-
Water quality test	:	Rs. 40,000/-
Air quality test	:	Rs. 40,000/-
Noise/vibration test	:	Rs. 40,000/-
Cost towards charity	:	Rs. 40,000/-
Total=	:	Rs. 5,00,000/-
<b>Total Project Cost(A+B+C)</b>	:	<b>Rs. 70,90,000/-</b>

*[Handwritten signature]*

**9.0 Any Other Information:**

The Scheme of Mining proposed has fully covered the aspects of Tamil Nadu Minor Mineral Concession Rules with a plan to extend the proposed working of the mine to the maximum possible depth of the deposit. To avoid wastage, the deposit has to be carefully and economically mined. Work persons have to be educated about the value of mineral. The Lessee endeavours every attempt to win mineral economically without wastage and to improve the environment and ecology.



*S. Dhanasekar*  
**S. DHANASEKAR, M.Sc. (Geo)**  
Qualified Person

This Mining Plan is approved subject to the guidelines / instructions issued and in accordance of the particulars mentioned in the letter No. 1123/2021 dated 23/4/2021 of the Deputy Director, Geology & Mining, Krishnagiri and subject to further instructions of the said Dept. Issued under Tamil Nadu Minor Mineral Concession Rules, 1969 and Order Mineral Concession and Development Rule 1970.

*S. Dhanasekar*  
**Assistant Director**  
(Additional Charge)  
Geology & Mining Dept,  
Collectorate, Krishnagiri.

*23/4/21*

This Mining Plan is approved subject to the conditions / stipulations indicated in the Mining Plan Approval  
Letter No. 1123/2021 Dated 23/4/21

*A. S. S.*



12° 39' 42.99" N



77° 57' 33.09" E

77° 57' 41.79" E

12° 39' 41.44" N

PLATE NO:IA
LESSEE ADDRESS: THIRU.P.VENKATA REDDY, S/o.PILLA REDDY, KUKKALAPALLI VILLAGE, KAMMANDODDI POST, SHOOLAGIRI TALUK, KRISHNAGIRI DISTRICT - 635 109.
INDEX  QUARRY (FAST AREA) : ● TOPO SHEET NO. : 57- IV/14, LATITUDE : 12° 39' 42.99" N to 12° 39' 41.44" N LONGITUDE : 77° 57' 41.79" E to 77° 57' 33.09" E
LOCATION OF QUARRY EXTENT : 2.38.5 Hect S.F.NO : 1267/2,1268/2 & 1268/3, VILLAGE : KAMMANDODDI, TALUK : SHOOLAGIRI, DISTRICT : KRISHNAGIRI.
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., QUALIFIED PERSON

# KEY MAP



**PLATE NO-1-B**

**LESSOR ADDRESS:**

.HIRE.P.VENKATA REDDY,  
S/o.PALLA REDDY,  
KUKKALAPALLU VILLAGE,  
KAMMANDODDI POST,  
SHOOLAGIRI TALUK,  
KRISHNAGIRI DISTRICT - 635 109.

**LOCATION:**

S.F.NO : 1767/2,1268/2 & 1268/3.  
EXTENT : 2.38.5 Ha.  
VILLAGE : KAMMANDODDI,  
TALUK : SHOOLAGIRI,  
DISTRICT : KRISHNAGIRI.

**INDEX**

- QUARRY LEASE AREA
- VILLAGE ROAD
- APPROACH ROAD

*1999*

**KEY MAP**

Not to Scale

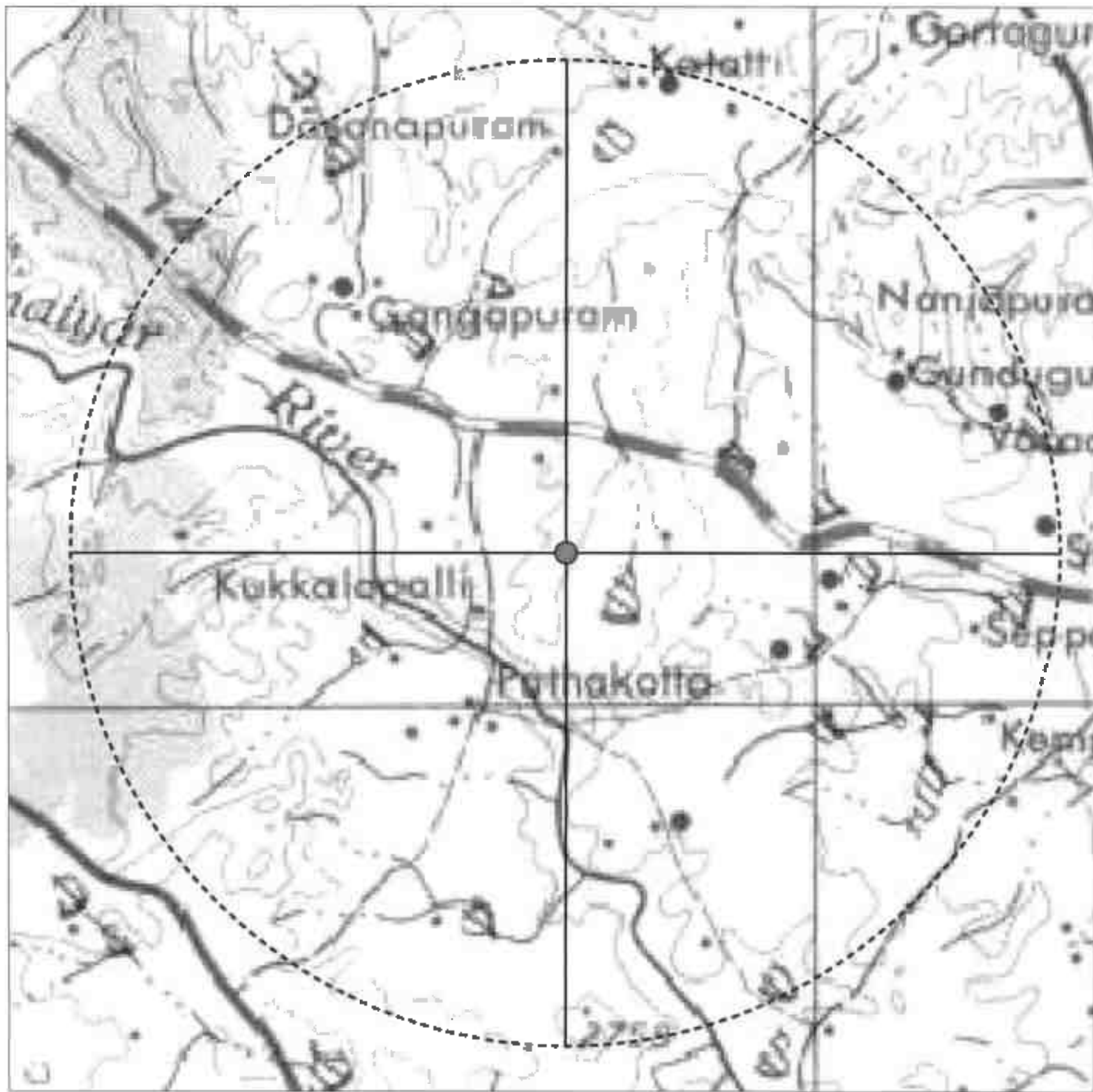
**Prepared By:**

I HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE.

S.GANASEKARAM S/o,  
QUALIFIED PERSON



12° 39' 42.99" N



77° 57' 33.09" E

77° 57' 41.79" E

12° 39' 41.44" N

*Handwritten signature/initials*



PLATE NO: I-C

LESSEE ADDRESS: .....

THIRU.P.VENKATA REDDY,  
 S/o.PILLA REDDY,  
 KUKKALAPALLI VILLAGE,  
 KAMMANDODDI POST  
 SHOOLAGIRI TALUK,  
 KRISHNAGIRI DISTRICT



QUARRY LEASE AREA :

5KM RADIUS



TOPO SHEET NO. : 57- H/14,

LATITUDE : 12° 39' 42.99" N to 12° 39' 41.44" N

LONGITUDE : 77° 57' 41.79" E to 77° 57' 33.09" E



LOCATION OF QUARRY

EXTENT : 2.38.5 Hect  
 S.F.NO : 1267/2,1268/2 & 1268/3,  
 VILLAGE : KAMMANDODDI,  
 TALUK : SHOOLAGIRI,  
 DISTRICT : KRISHNAGIRI.

TOPO SHEET MAP OF  
 THE LEASE AREA  
 NOT TO SCALE

PREPARED BY:

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 HAS BEEN CHECKED BY ME AND IS CORRECT  
 TO THE BEST OF MY KNOWLEDGE

*Handwritten signature of S.Dhanasekar*

S.DHANASEKAR, M.Sc.,  
 QUALIFIED PERSON





**PLATE NO:ID**

**LESSEE ADDRESS:**  
 THIRU.P.VLNKATA REDDY,  
 S/o.PILLA REDDY,  
 KUKKALAPALLI VILLAGE,  
 KAMMANDODDI POST,  
 SHOOLAGIRI TALUK,  
 KRISHNAGIRI DISTRICT - 635 109.

**INDEX**  
 QUARRY LEASE BOUNDARY

**LOCATION OF QUARRY**  
 EXTENT : 2.38.5 Hect  
 S.F.NO : 1267/2,1268/2 & 1268/3,  
 VILLAGE : KAMMANDODDI,  
 TALUK : SHOOLAGIRI,  
 DISTRICT : KRISHNAGIRI.

**SATELLITE IMAGE**  
 (LEASE AREA)  
 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  
  
 A.DHANASEKAR, M.Sc.,  
 QUALIFIED PERSON

12° 39' 44.50" N  
77° 57' 34.83" E



12° 39' 41.44" N  
77° 57' 33.09" E

12° 39' 42.99" N  
77° 57' 41.79" E

12° 39' 39.41" N  
77° 57' 40.52" E



PLATE NO: (E)

LESSEE ADDRESS:

THIRU.P.VENKATA REDDY,  
S/o.PILLA REDDY,  
KUKKALAPALLI VILLAGE,  
KAMMANDODDI POST,  
SHOOLAGIRI TALUK,  
KRISHNAGIRI DISTRICT - 635 109.

INDEX

QUARRY LEASE BOUNDARY



500M RADIUS



300M RADIUS



LOCATION OF QUARRY

EXTENT : 2.38.5 Hect  
S.F.NO : 1267/2,1268/2 & 1268/3,  
VILLAGE : KAMMANDODDI,  
TALUK : SHOOLAGIRI,  
DISTRICT : KRISHNAGIRI.

SATELLITE IMAGE

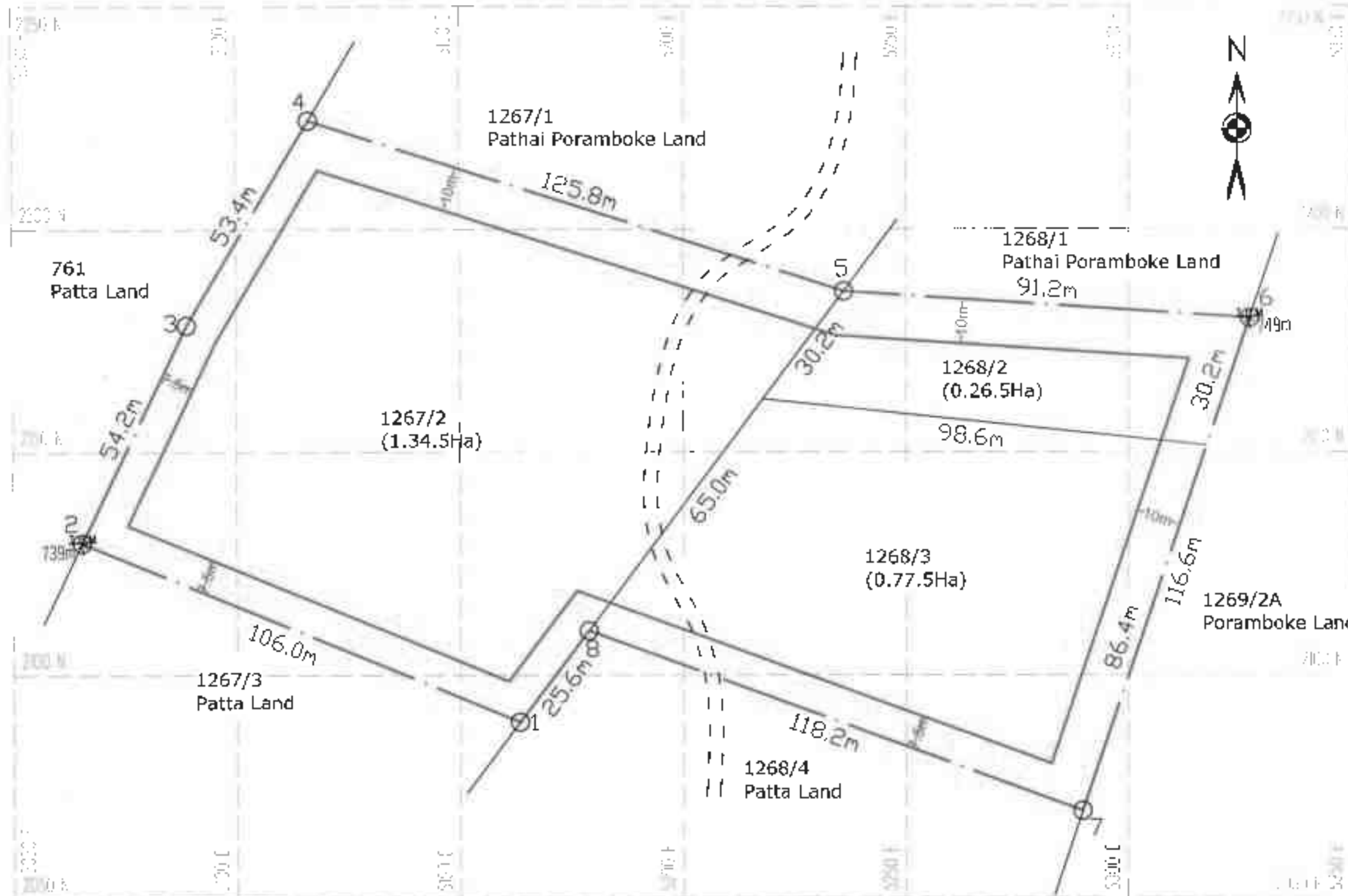
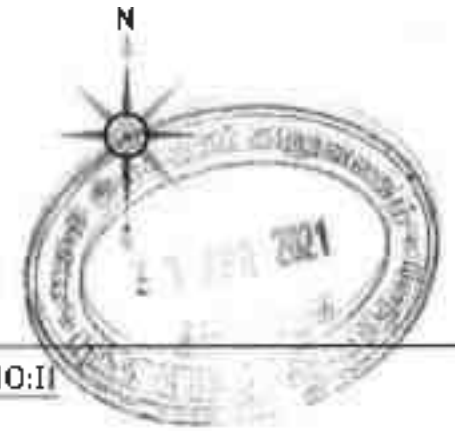
(500m RADIUS)

SCALE 1:5000

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TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR, M.Sc.,  
QUALIFIED PERSON



**PLATE NO:II**

**LESSEE ADDRESS:**  
 THIRU.P.VENKATA REDDY,  
 S/o.PILLA REDDY,  
 KUKKALAPALLI VILLAGE,  
 KAMMANDODDI POST,  
 SHOOLAGIRI TALUK,  
 KRISHNAGIRI DISTRICT - 635 109.

**INDEX**

QUARRY LEASE BOUNDARY	
7.5m & 10.0m SAFETY DISTANCE	
BOUNDARY PILLARS	
TEMPORARY BENCH MARK	
APPROACH ROAD	

**LOCATION OF QUARRY**

EXTENT : 2.38.5 Hect  
 S.F.NO : 1267/2, 1268/2 & 1268/3,  
 VILLAGE : KAMMANDODDI,  
 TALUK : SHOOLAGIRI,  
 DISTRICT : KRISHNAGIRI.

**MINE LEASE PLAN**

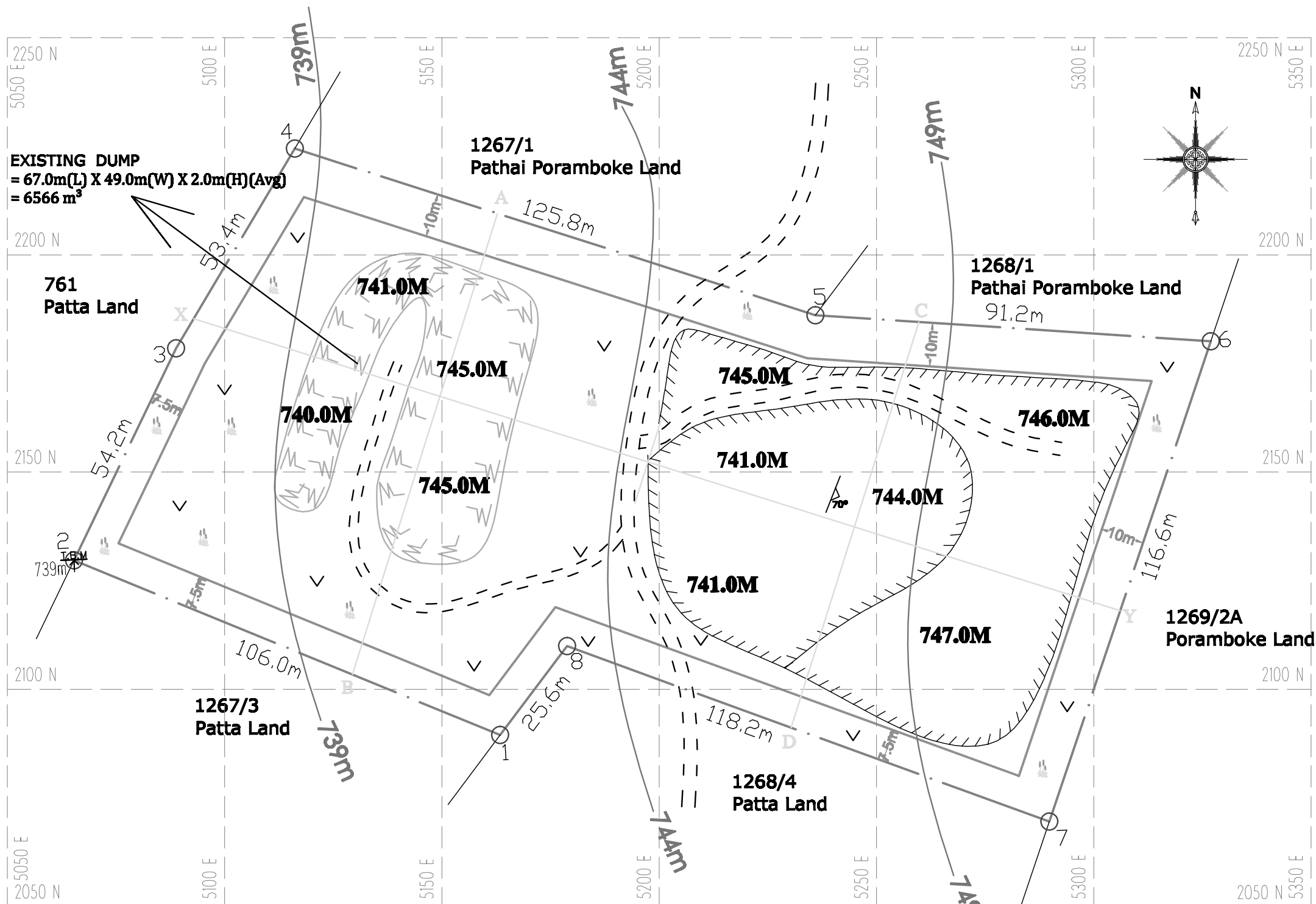
SCALE: 1:1000

**PREPARED BY:**

I DO HEREBY CERTIFY THAT THE PLAN HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE.

S.DHANASEKAR, M.Sc.,  
 QUALIFIED PERSON

PILLAR NO	LATITUDE	LONGITUDE
1	12° 39' 40.10" N	77° 57' 36.44" E
2	12° 39' 41.44" N	77° 57' 33.09" E
3	12° 39' 43.02" N	77° 57' 33.91" E
4	12° 39' 44.50" N	77° 57' 34.83" E
5	12° 39' 43.22" N	77° 57' 38.78" E
6	12° 39' 42.99" N	77° 57' 41.79" E
7	12° 39' 39.41" N	77° 57' 40.52" E
8	12° 39' 40.76" N	77° 57' 36.86" E



**EXISTING DUMP**  
 = 67.0m(L) X 49.0m(W) X 2.0m(H)(Avg)  
 = 6566 m<sup>3</sup>

**EXISTING PIT**  
 = 102.0m(L) X 75.0m(W) X 5.0m(D)(Avg)

**PLATE NO:III**

**LESSEE ADDRESS:**

THIRU.P.VENKATA REDDY,  
 S/o.PILLA REDDY,  
 KUKKALAPALLI VILLAGE,  
 KAMMANDODDI POST,  
 SHOOLAGIRI TALUK,  
 KRISHNAGIRI DISTRICT - 635 109.

**INDEX**

- QUARRY LEASE BOUNDARY
- 7.5m & 10.0m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- TOP SOIL
- ROUGH STONE
- EXISTING PIT
- STRIKE AND DIP
- CONTOUR LINE
- EXISTING DUMP
- QUARRY ROAD
- SHRUB

**LOCATION OF QUARRY**

EXTENT : 2.38.5 Hect  
 S.F.NO : 1267/2,1268/2 & 1268/3,  
 VILLAGE : KAMMANDODDI,  
 TALUK : SHOOLAGIRI,  
 DISTRICT : KRISHNAGIRI.

**SURFACE & GEOLOGICAL PLAN**

**SCALE: 1:1000**

**PREPARED BY:**

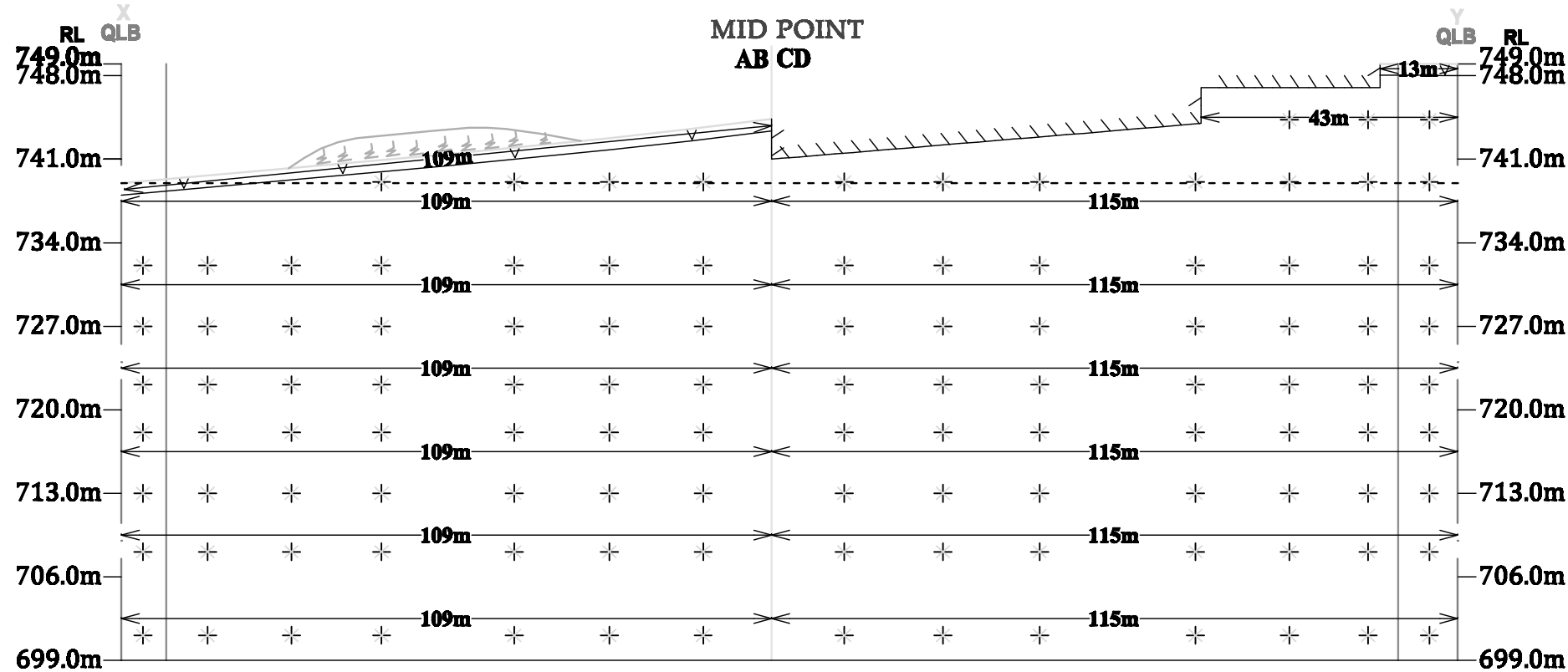
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 HAS BEEN CHECKED BY ME AND IS CORRECT  
 TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,  
 QUALIFIED PERSON

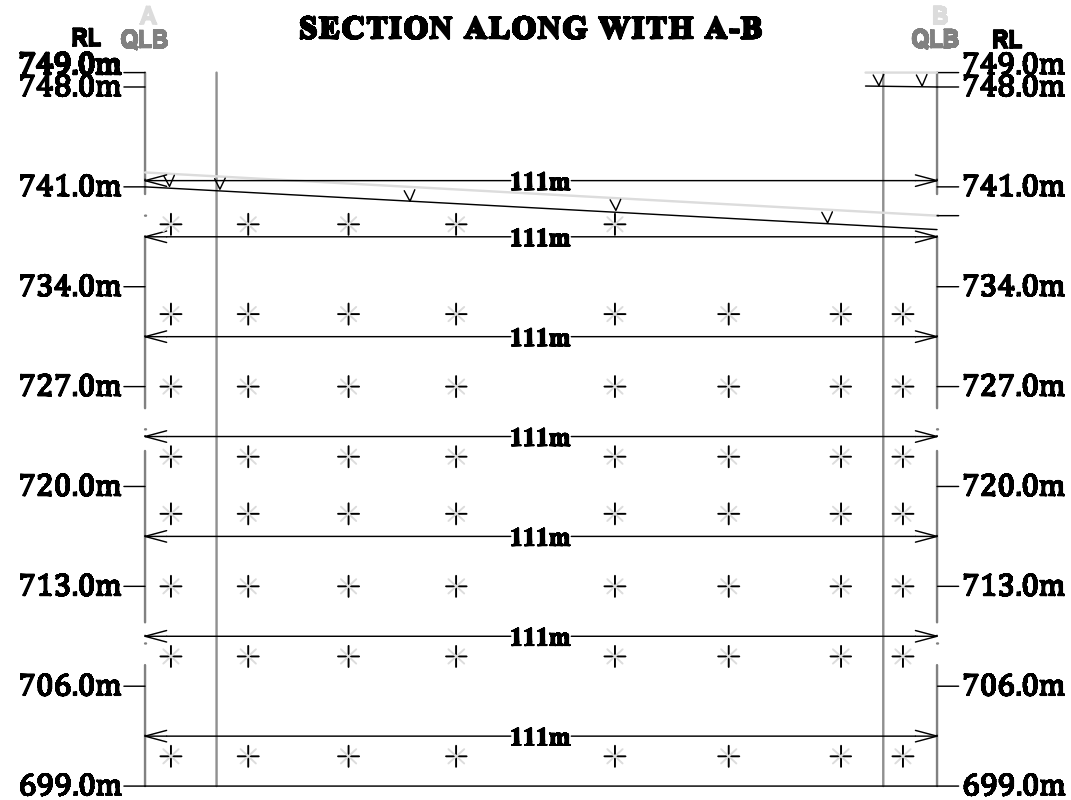
PILLAR NO	LATITUDE	LONGITUDE
1	12° 31' 40.10" N	77° 57' 36.33" E
2	12° 31' 41.44" N	77° 57' 33.00" E
3	12° 31' 43.02" N	77° 57' 33.91" E
4	12° 31' 44.50" N	77° 57' 34.83" E
5	12° 31' 43.22" N	77° 57' 38.76" E
6	12° 31' 42.86" N	77° 57' 41.79" E
7	12° 31' 39.41" N	77° 57' 40.52" E
8	12° 31' 40.76" N	77° 57' 36.86" E



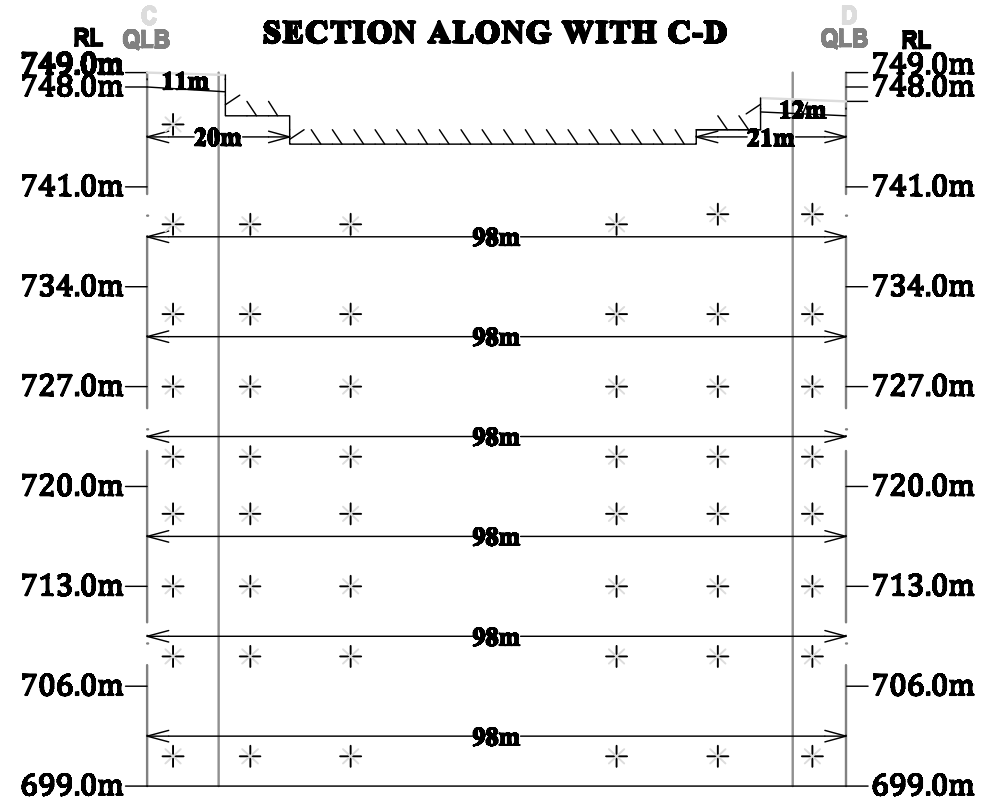
**SECTION ALONG WITH X-Y**



**SECTION ALONG WITH A-B**



**SECTION ALONG WITH C-D**



**PLATE NO:III-A**

**LESSEE ADDRESS:**

THIRU.P.VENKATA REDDY,  
S/o.PILLA REDDY,  
KUKKALAPALLI VILLAGE,  
KAMMANDODDI POST,  
SHOOLAGIRI TALUK,  
KRISHNAGIRI DISTRICT - 635 109.

**INDEX**

<b>QUARRY LEASE BOUNDARY</b>	
<b>7.5m &amp; 10.0m SAFETY DISTANCE</b>	
<b>TOP SOIL</b>	
<b>ROUGH STONE</b>	
<b>EXISTING PIT</b>	
<b>EXISTING DUMP</b>	

**LOCATION OF QUARRY**

EXTENT : 2.38.5 Hect  
S.F.NO : 1267/2,1268/2 & 1268/3,  
VILLAGE : KAMMANDODDI,  
TALUK : SHOOLAGIRI,  
DISTRICT : KRISHNAGIRI.

**GEOLOGICAL SECTIONS**

SCALE: HOR-1:1000  
VER-1:500

**PREPARED BY:**

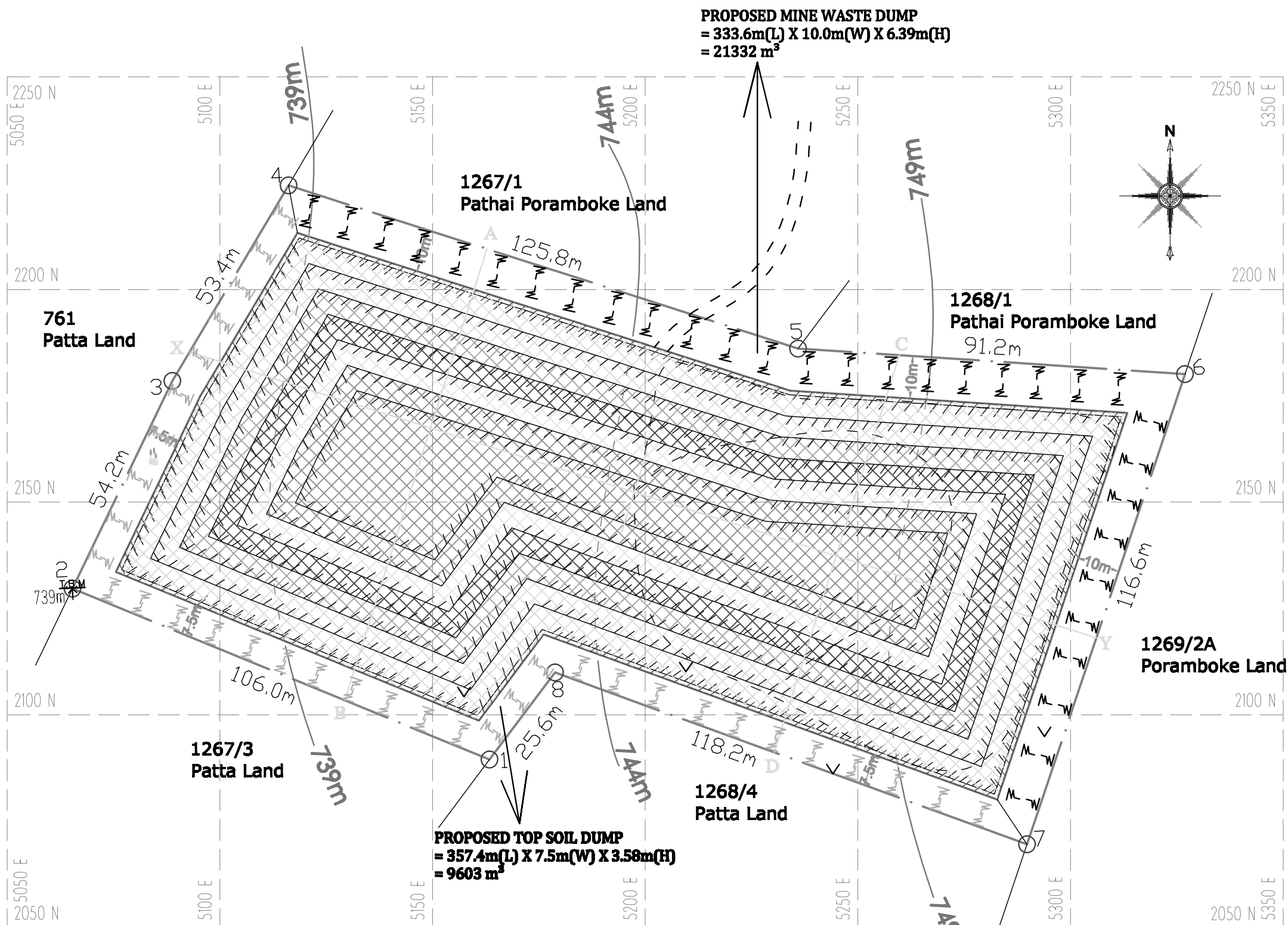
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HAS BEEN CHECKED BY ME AND IS CORRECT  
TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,  
QUALIFIED PERSON

<b>GEOLOGICAL RESERVES</b>								
<b>Section</b>	<b>Bench</b>	<b>Length in (m)</b>	<b>Width in (m)</b>	<b>Depth in (m)</b>	<b>Volume In M<sup>3</sup></b>	<b>Geological Reserves in m<sup>3</sup> @ 95%</b>	<b>Mine waste in m<sup>3</sup> @ 5%</b>	<b>Top Soil in m<sup>3</sup></b>
XY-AB	I	109	111	1				12099
	II	109	111	7	84693	80458	4235	
	III	109	111	7	84693	80458	4235	
	IV	109	111	7	84693	80458	4235	
	V	109	111	7	84693	80458	4235	
	VI	109	111	7	84693	80458	4235	
	VII	109	111	7	84693	80458	4235	
<b>Total=</b>					<b>508158</b>	<b>482748</b>	<b>25410</b>	<b>12099</b>
XY-CD	I	13	23	1				299
	II	43	41	7	12341	11724	617	
	III	115	98	7	78890	74946	3944	
	IV	115	98	7	78890	74946	3944	
	V	115	98	7	78890	74946	3944	
	VI	115	98	7	78890	74946	3944	
	VII	115	98	7	78890	74946	3944	
	VIII	115	98	7	78890	74946	3944	
<b>Total=</b>					<b>485681</b>	<b>461400</b>	<b>24281</b>	<b>299</b>
<b>Grand Total=</b>					<b>993839</b>	<b>944148</b>	<b>49691</b>	<b>12398</b>

**PREPARED BY:**

**S.DHANASEKAR,M.Sc.,  
QUALIFIED PERSON**



**PLATE NO:IV**

**LESSEE ADDRESS:**  
 THIRU.P.VENKATA REDDY,  
 S/o.PILLA REDDY,  
 KUKKALAPALLI VILLAGE,  
 KAMMANDODDI POST,  
 SHOOLAGIRI TALUK,  
 KRISHNAGIRI DISTRICT - 635 109.

**INDEX**

QUARRY LEASE BOUNDARY	
7.5m & 10.0m SAFETY DISTANCE	
TEMPORARY BENCH MARK	
TOP SOIL	
ROUGH STONE	
QUARRY PIT	
CONTOUR LINE	
QUARRY ROAD	
PROPOSED MINE WASTE DUMP	
PROPOSED TOP SOIL DUMP	

**LOCATION OF QUARRY**

EXTENT : 2.38.5 Hect  
 S.F.NO : 1267/2,1268/2 & 1268/3,  
 VILLAGE : KAMMANDODDI,  
 TALUK : SHOOLAGIRI,  
 DISTRICT : KRISHNAGIRI.

**YEARWISE DEVELOPMENT AND PRODUCTION PLAN**

**SCALE: 1:1000**

**PREPARED BY:**

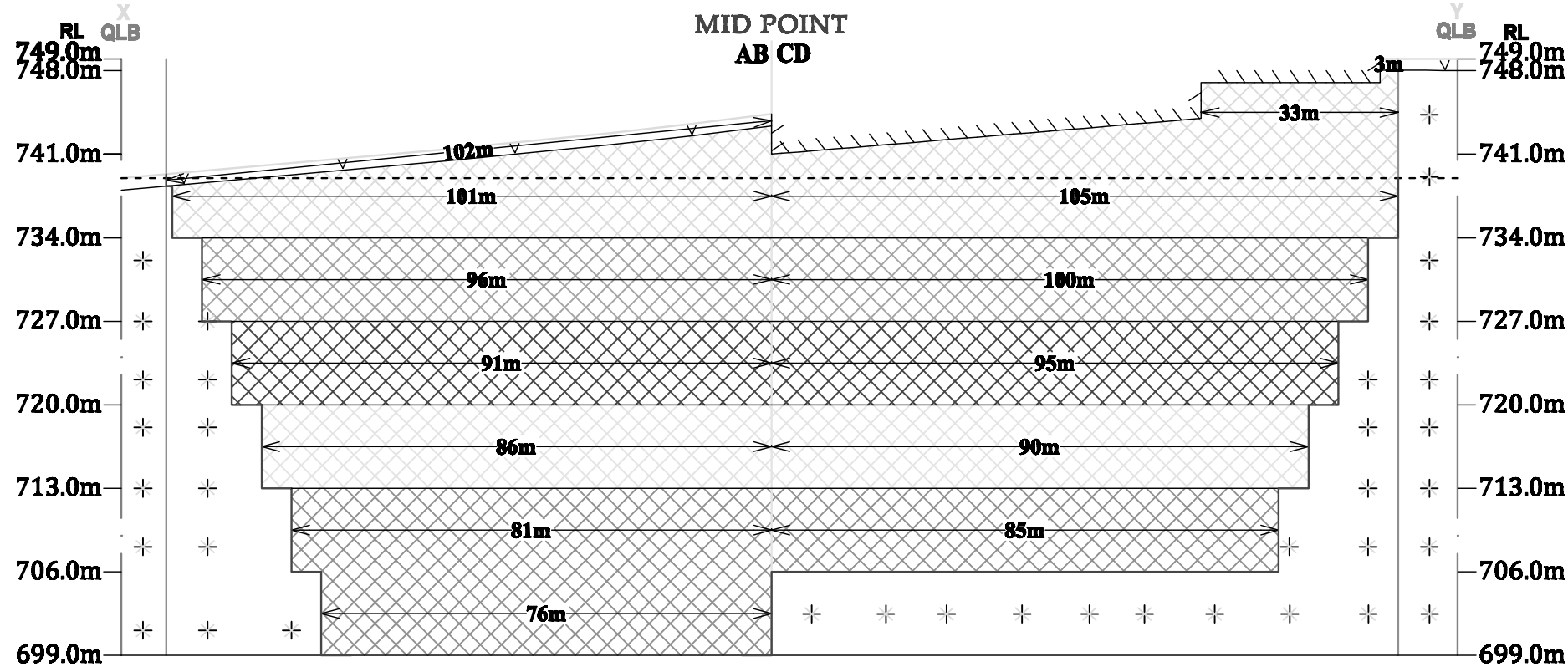
I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,  
 QUALIFIED PERSON

PILLAR NO	LATITUDE	LONGITUDE
1	12° 31' 40.10" N	77° 57' 36.33" E
2	12° 31' 41.44" N	77° 57' 33.09" E
3	12° 31' 43.02" N	77° 57' 33.91" E
4	12° 31' 44.50" N	77° 57' 34.83" E
5	12° 31' 43.22" N	77° 57' 38.78" E
6	12° 31' 42.86" N	77° 57' 41.79" E
7	12° 31' 39.41" N	77° 57' 40.52" E
8	12° 31' 40.76" N	77° 57' 36.86" E

10-11-2022 To 09-11-2023	PROPOSED EXCAVATION	
10-11-2023 To 09-11-2024	PROPOSED EXCAVATION	
10-11-2024 To 09-11-2025	PROPOSED EXCAVATION	
10-11-2025 To 09-11-2026	PROPOSED EXCAVATION	
10-11-2026 To 09-11-2027	PROPOSED EXCAVATION	

**SECTION ALONG WITH X-Y**



- I - Year PROPOSED EXCAVATION
- II - Year PROPOSED EXCAVATION
- III - Year PROPOSED EXCAVATION
- IV - Year PROPOSED EXCAVATION
- V - Year PROPOSED EXCAVATION

**PLATE NO:IV-A**

**LESSEE ADDRESS:**

THIRU.P.VENKATA REDDY,  
S/o.PILLA REDDY,  
KUKKALAPALLI VILLAGE,  
KAMMANDODDI POST,  
SHOOLAGIRI TALUK,  
KRISHNAGIRI DISTRICT - 635 109.

**INDEX**

- QUARRY LEASE BOUNDARY
- 7.5m & 10.0m SAFETY DISTANCE
- TOP SOIL
- ROUGH STONE
- QUARRY PIT
- ULTIMATE PIT SLOPE
- PROPOSED WATER STORAGE

**LOCATION OF QUARRY**

EXTENT : 2.38.5 Hect  
S.F.NO : 1267/2,1268/2 & 1268/3,  
VILLAGE : KAMMANDODDI,  
TALUK : SHOOLAGIRI,  
DISTRICT : KRISHNAGIRI.

**YEARWISE DEVELOPMENT AND PRODUCTION SECTIONS**

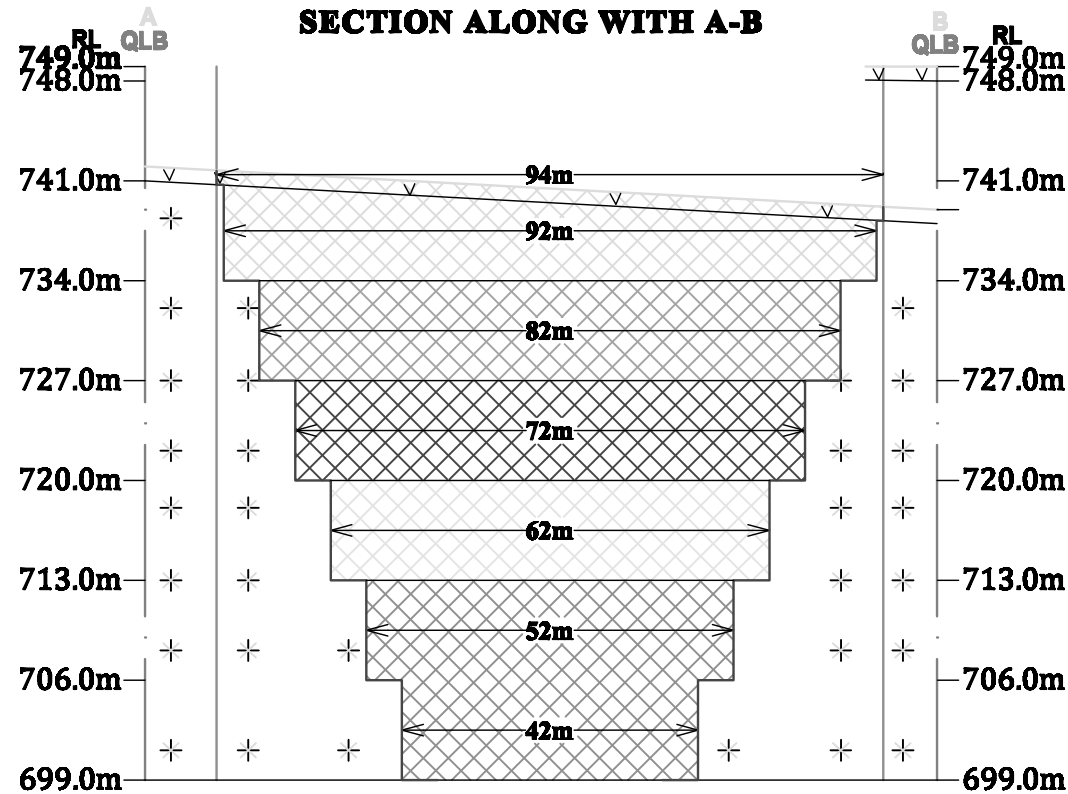
SCALE: HOR-1:1000  
VER-1:500

**PREPARED BY:**

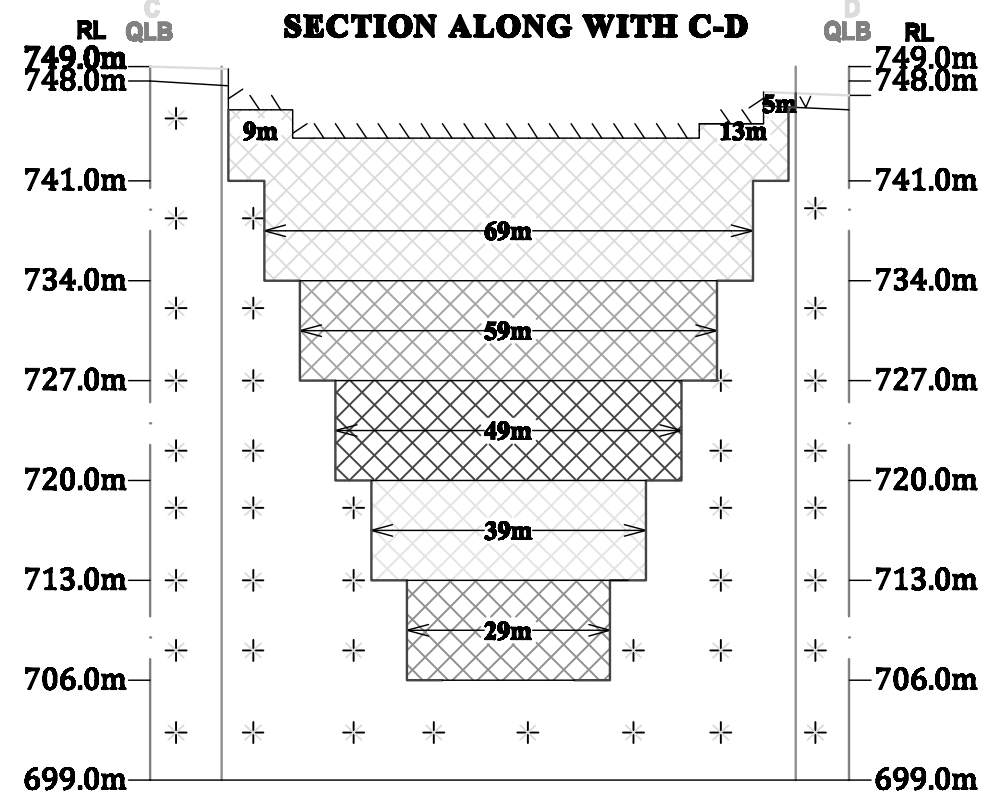
I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,  
QUALIFIED PERSON

**SECTION ALONG WITH A-B**



**SECTION ALONG WITH C-D**





YEARWISE DEVELOPMENT & PRODUCTION RESERVES									
YEAR	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M <sup>3</sup>	Recoverable Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m <sup>3</sup>
10-11-2022 to 09-11-2023	XY-AB	I	102	94	1				9588
		II	101	92	7	65044	61792	3252	
	XY-CD	I	3	5	1				15
		II	33	22	7	5082	4828	254	
		III	105	69	7	50715	48179	2536	
<b>Total=</b>						<b>120841</b>	<b>114799</b>	<b>6042</b>	<b>9603</b>
10-11-2023 to 09-11-2024	XY-AB	III	96	82	7	55104	52349	2755	
		IV	100	59	7	41300	39235	2065	
	<b>Total=</b>						<b>96404</b>	<b>91584</b>	<b>4820</b>
10-11-2024 to 09-11-2025	XY-AB	IV	91	72	7	45864	43571	2293	
		XY-CD	V	95	49	7	32585	30956	1629
	<b>Total=</b>						<b>78449</b>	<b>74527</b>	<b>3922</b>
10-11-2025 to 09-11-2026	XY-AB	V	86	62	7	37324	35458	1866	
		XY-CD	VI	90	39	7	24570	23342	1228
	<b>Total=</b>						<b>61894</b>	<b>58800</b>	<b>3094</b>
10-11-2026 to 09-11-2027	XY-AB	VI	81	52	7	29484	28010	1474	
		VII	76	42	7	22344	21227	1117	
	XY-CD	VII	85	29	7	17255	16392	863	
	<b>Total=</b>						<b>69083</b>	<b>65629</b>	<b>3454</b>
<b>Grand Total=</b>						<b>426671</b>	<b>405339</b>	<b>21332</b>	<b>9603</b>

PREPARED BY:

S.DHANASEKAR,M.Sc.,  
QUALIFIED PERSON

**PLATE NO:VII**

**LESSEE ADDRESS:**

THIRU.P.VENKATA REDDY,  
S/o.PILLA REDDY,  
KUKKALAPALLI VILLAGE,  
KAMMANDODDI POST,  
SHOOLAGIRI TALUK,  
KRISHNAGIRI DISTRICT - 635 109.

**INDEX**

QUARRY LEASE BOUNDARY	
7.5m & 10.0m SAFETY DISTANCE	
TEMPORARY BENCH MARK	
TOP SOIL	
ROUGH STONE	
QUARRY PIT	
CONTOUR LINE	
QUARRY ROAD	
PROPOSED MINE WASTE DUMP	
PROPOSED TOP SOIL DUMP	
FENCING	
PARAPET WALL	
ULTIMATE PIT LIMIT	
PROPOSED WATER STORAGE	

**LOCATION OF QUARRY**

EXTENT : 2.38.5 Hect  
S.F.NO : 1267/2,1268/2 & 1268/3,  
VILLAGE : KAMMANDODDI,  
TALUK : SHOOLAGIRI,  
DISTRICT : KRISHNAGIRI.

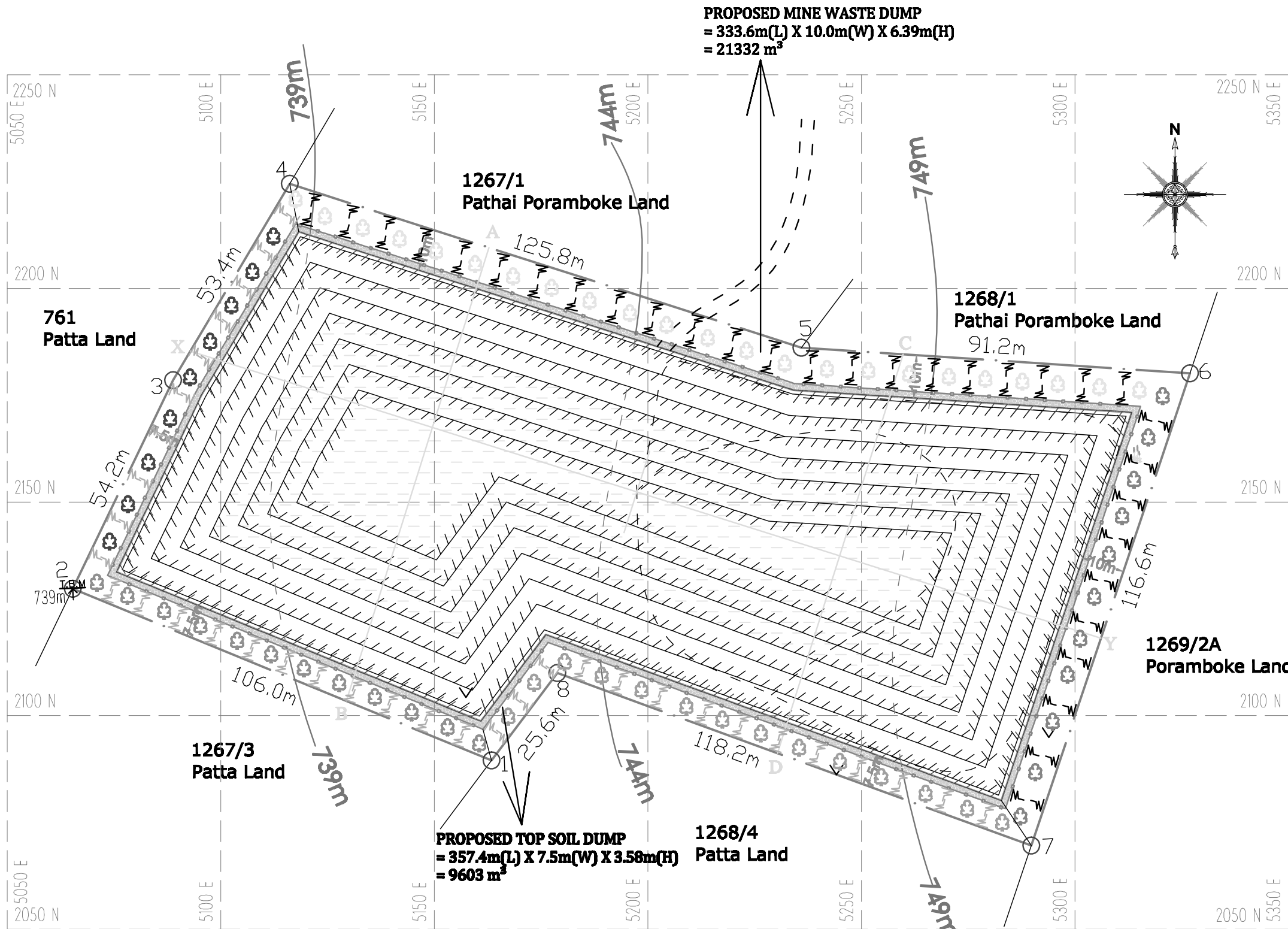
**CONCEPTUAL & FINAL  
MINE CLOSURE PLAN**

**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.,  
QUALIFIED PERSON



**PROPOSED MINE WASTE DUMP**  
= 333.6m(L) X 10.0m(W) X 6.39m(H)  
= 21332 m<sup>3</sup>

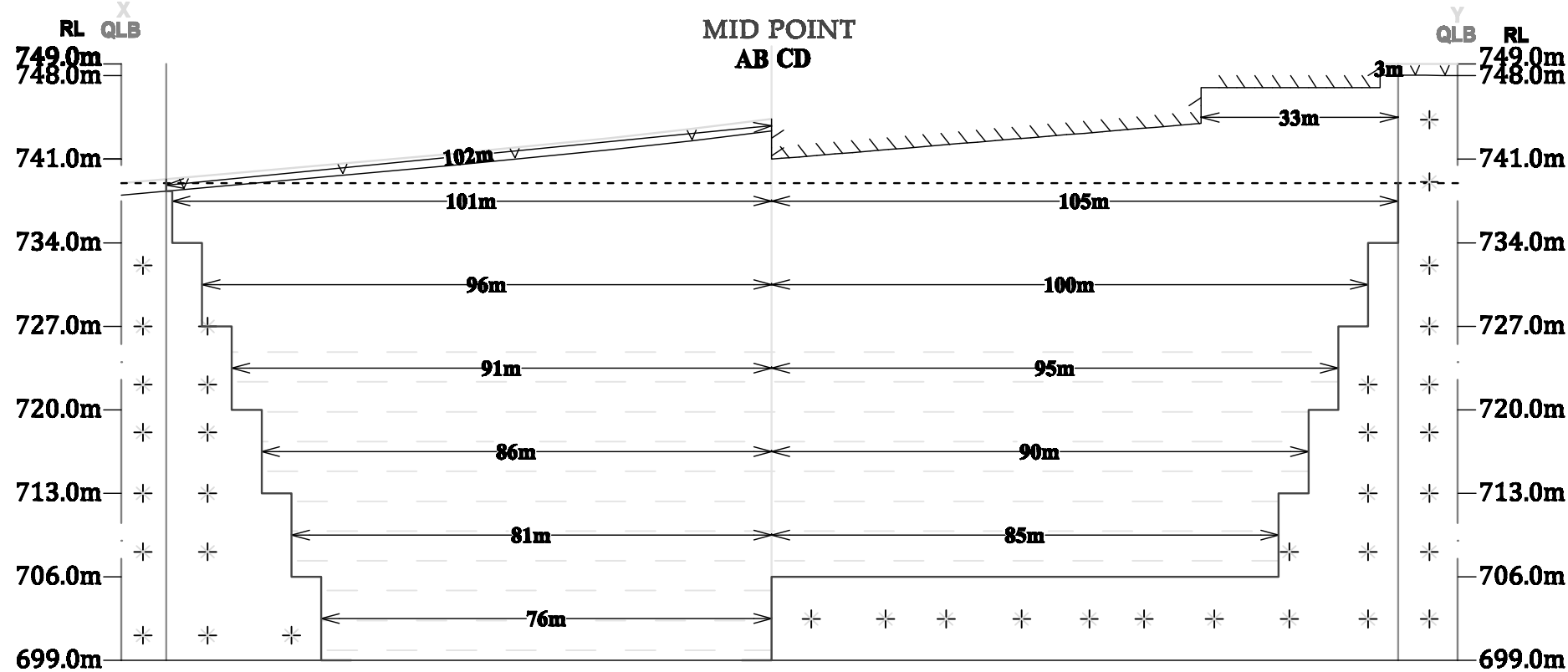
**PROPOSED TOP SOIL DUMP**  
= 357.4m(L) X 7.5m(W) X 3.58m(H)  
= 9603 m<sup>3</sup>

**ULTIMATE PIT LIMIT DIMENSION**  
= 205.0m(L) X 86.0m(W) X 43.0m(D)

PILLAR NO	LATITUDE	LONGITUDE
1	12° 31' 40.10" N	77° 57' 36.33" E
2	12° 31' 41.44" N	77° 57' 33.09" E
3	12° 31' 43.02" N	77° 57' 33.93" E
4	12° 31' 44.50" N	77° 57' 34.83" E
5	12° 31' 43.22" N	77° 57' 38.78" E
6	12° 31' 42.86" N	77° 57' 41.79" E
7	12° 31' 39.41" N	77° 57' 40.52" E
8	12° 31' 40.76" N	77° 57' 36.86" E

10-11-2022 To 09-11-2023	PROPOSED PLANTATION	
10-11-2023 To 09-11-2024	PROPOSED PLANTATION	
10-11-2024 To 09-11-2025	PROPOSED PLANTATION	
10-11-2025 To 09-11-2026	PROPOSED PLANTATION	
10-11-2026 To 09-11-2027	PROPOSED PLANTATION	

**SECTION ALONG WITH X-Y**



ULTIMATE PIT LIMIT DIMENSION  
= 205.0m(L) X 86.0m(W) X 43.0m(D)

PLATE NO:VII-A

LESSEE ADDRESS:

THIRU.P.VENKATA REDDY,  
S/o.PILLA REDDY,  
KUKKALAPALLI VILLAGE,  
KAMMANDODDI POST,  
SHOOLAGIRI TALUK,  
KRISHNAGIRI DISTRICT - 635 109.

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QUARRY LEASE BOUNDARY	
7.5m & 10.0m SAFETY DISTANCE	
TOP SOIL	
ROUGH STONE	
QUARRY PIT	
ULTIMATE PIT SLOPE	
PROPOSED WATER STORAGE	

**LOCATION OF QUARRY**

EXTENT : 2.38.5 Hect  
S.F.NO : 1267/2,1268/2 & 1268/3,  
VILLAGE : KAMMANDODDI,  
TALUK : SHOOLAGIRI,  
DISTRICT : KRISHNAGIRI.

**CONCEPTUAL & FINAL  
MINE CLOSURE SECTIONS**

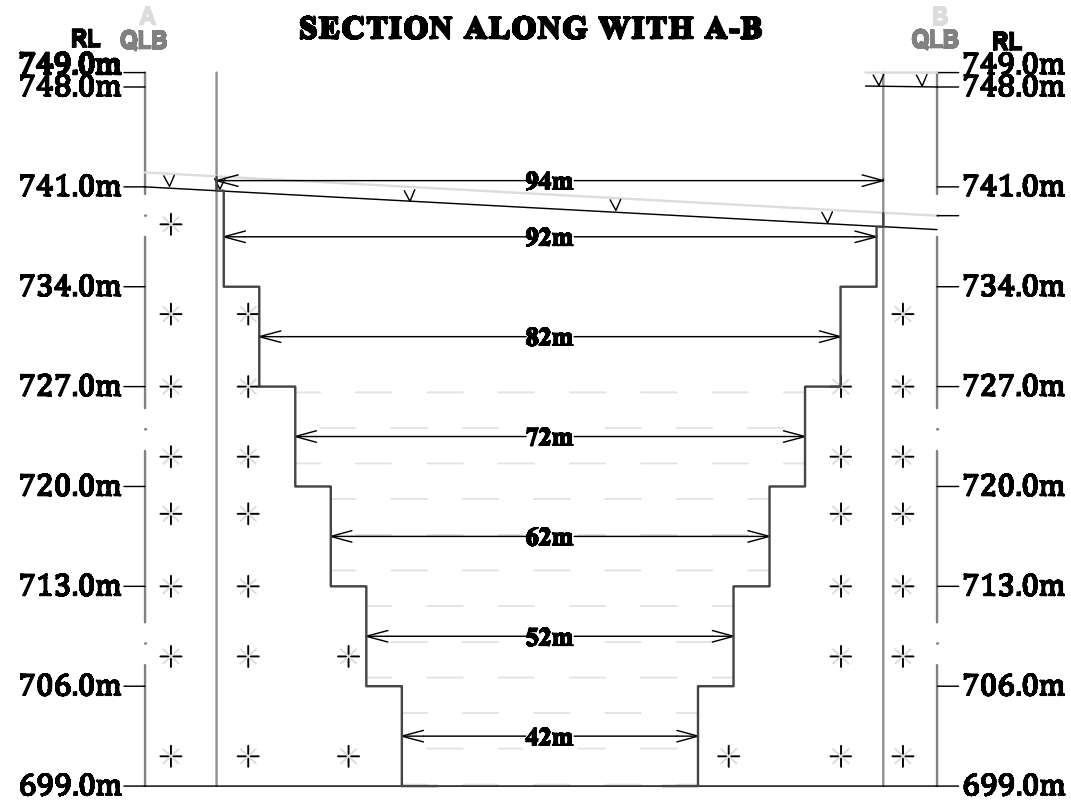
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VER-1:500

**PREPARED BY:**

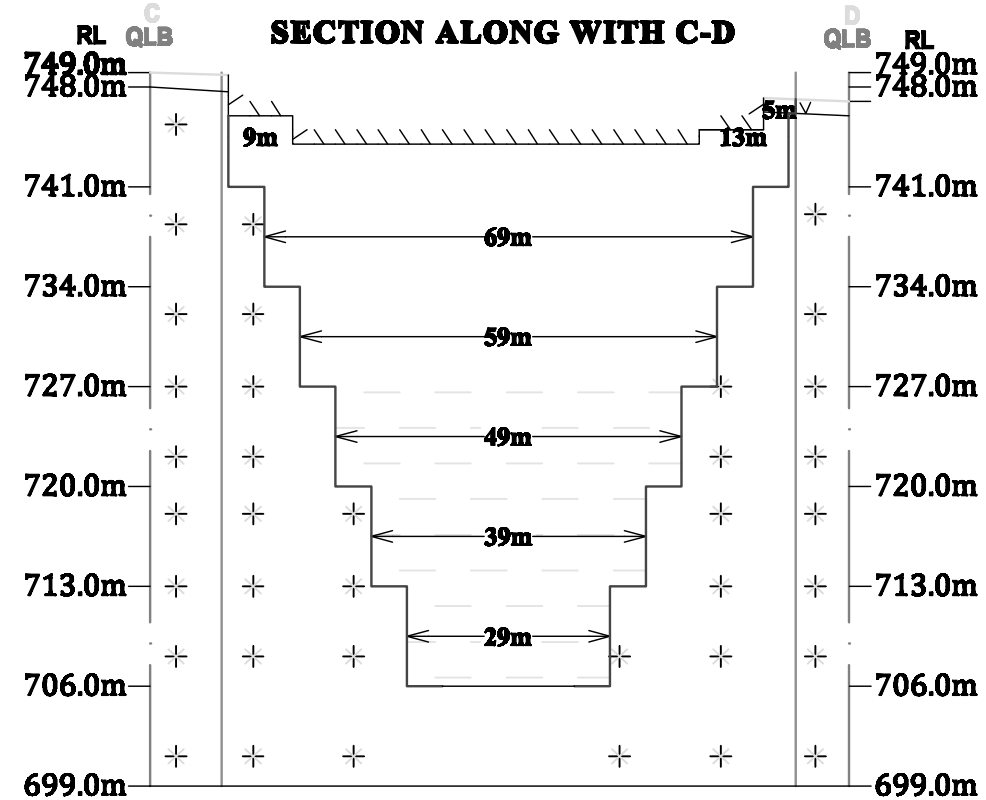
I DO HEREBY CERTIFY THAT THE PLATE  
HAS BEEN CHECKED BY ME AND IS CORRECT  
TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,  
QUALIFIED PERSON

**SECTION ALONG WITH A-B**



**SECTION ALONG WITH C-D**



<b>MINEABLE RESERVES</b>								
<b>Section</b>	<b>Bench</b>	<b>Length in (m)</b>	<b>Width in (m)</b>	<b>Depth in (m)</b>	<b>Volume In M<sup>3</sup></b>	<b>Mineable Reserves in m3 @ 95%</b>	<b>Mine waste in m3 @ 5%</b>	<b>Top Soil in m<sup>3</sup></b>
XY-AB	I	102	94	1				9588
	II	101	92	7	65044	61792	3252	
	III	96	82	7	55104	52349	2755	
	IV	91	72	7	45864	43571	2293	
	V	86	62	7	37324	35458	1866	
	VI	81	52	7	29484	28010	1474	
	VII	76	42	7	22344	21227	1117	
<b>Total=</b>					<b>255164</b>	<b>242407</b>	<b>12757</b>	<b>9588</b>
XY-CD	I	3	5	1				15
	II	33	22	7	5082	4828	254	
	III	105	69	7	50715	48179	2536	
	IV	100	59	7	41300	39235	2065	
	V	95	49	7	32585	30956	1629	
	VI	90	39	7	24570	23342	1228	
	VII	85	29	7	17255	16392	863	
<b>Total=</b>					<b>171507</b>	<b>162932</b>	<b>8575</b>	<b>15</b>
<b>Grand Total=</b>					<b>426671</b>	<b>405339</b>	<b>21332</b>	<b>9603</b>

PREPARED BY:

S.DHANASEKAR,M.Sc.,  
QUALIFIED PERSON

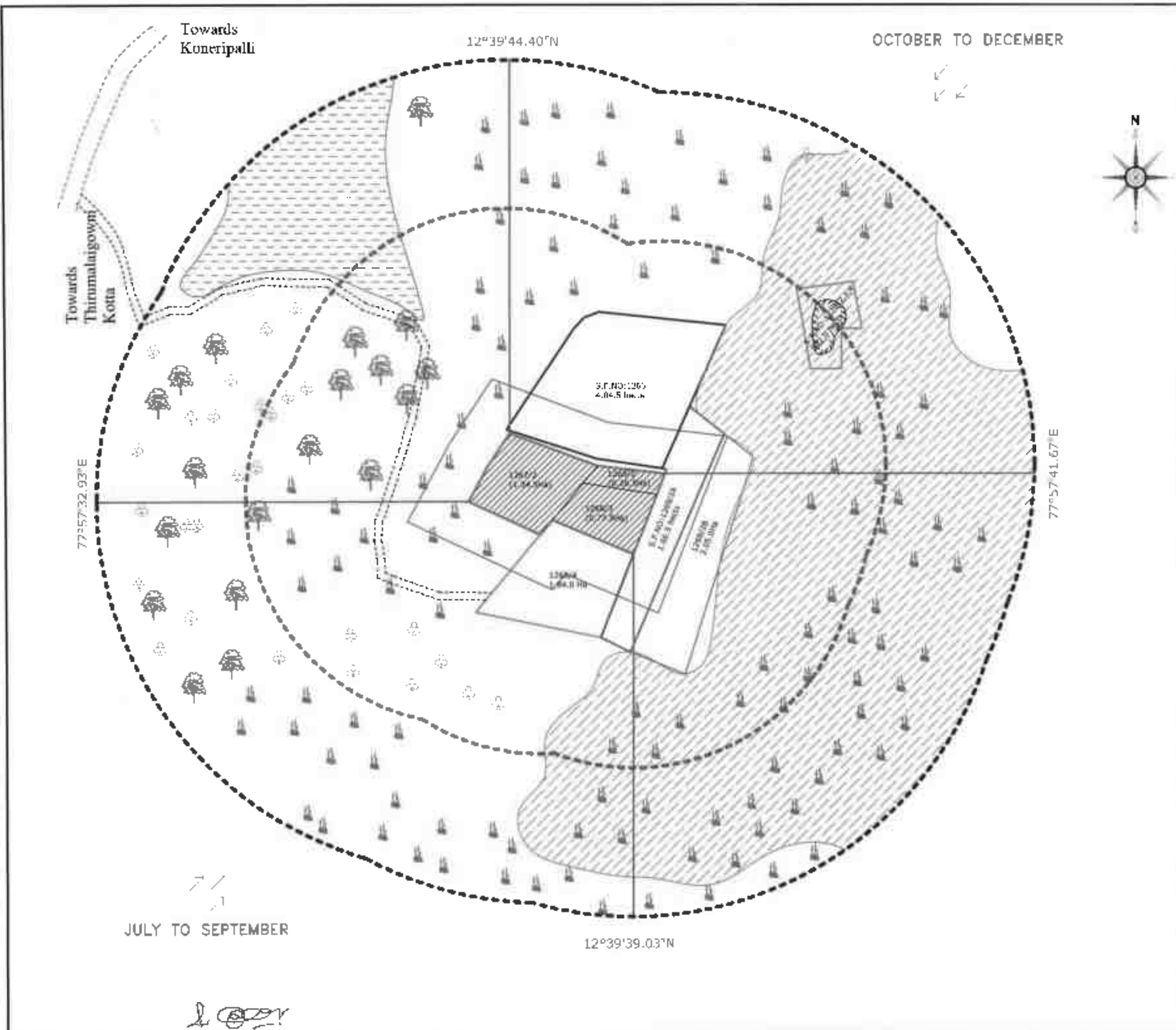


PLATE NO:VI

LESSEE ADDRESS:  
 THIRU.P.VENKATA REDDY,  
 S/o.PILLA REDDY,  
 KUKKALAPALLI VILLAGE,  
 KAMMANDODDI POST,  
 SHOOLAGIRI TALUK,  
 KRISHNAGIRI DISTRICT - 635 109.



**INDEX**

Q.L. BOUNDARY	
500M RADIUS	
300M RADIUS	
60M RADIUS	
VILLAGE ROAD	
QUARRY ROAD	
TREES	
HILLOCK	
DRY AGRICULTURAL LAND	
WIND DIRECTION	
ADJACENT QUARRY	
LAKE	

**LOCATION OF QUARRY**

EXTENT : 2.38.5 Hect  
 S.F.NO : 1267/2,1268/2 & 1268/3,  
 VILLAGE : KAMMANDODDI,  
 TALUK : SHOOLAGIRI,  
 DISTRICT : KRISHNAGIRI.

**ENVIRONMENT 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. DILAN SEKAR, M.Sc.,  
 QUALIFIED PERSON

**ANNEXURE-VII**  
**VAO CERTIFICATE**



ಶಿವಮೊಗ್ಗ ಜಿಲ್ಲೆ, ಕರಾವಳಿ ತಾಲ್ಲೂಕು

ಶಿವಮೊಗ್ಗ ಜಿಲ್ಲೆ, ಕರಾವಳಿ ತಾಲ್ಲೂಕು

ಶಿವಮೊಗ್ಗ ಜಿಲ್ಲೆ, ಕರಾವಳಿ ತಾಲ್ಲೂಕು

1268/3 ಅಂಚೆ ಸಂಖ್ಯೆ 2.38.5

ಶಿವಮೊಗ್ಗ ಜಿಲ್ಲೆ, ಕರಾವಳಿ ತಾಲ್ಲೂಕು

ಶಿವಮೊಗ್ಗ ಜಿಲ್ಲೆ, ಕರಾವಳಿ ತಾಲ್ಲೂಕು

ಶಿವಮೊಗ್ಗ ಜಿಲ್ಲೆ, ಕರಾವಳಿ ತಾಲ್ಲೂಕು

ಶಿವಮೊಗ್ಗ ಜಿಲ್ಲೆ, ಕರಾವಳಿ ತಾಲ್ಲೂಕು

ಶಿವಮೊಗ್ಗ ಜಿಲ್ಲೆ, ಕರಾವಳಿ ತಾಲ್ಲೂಕು

ಶಿವಮೊಗ್ಗ ಜಿಲ್ಲೆ, ಕರಾವಳಿ ತಾಲ್ಲೂಕು

ಶಿವಮೊಗ್ಗ ಜಿಲ್ಲೆ, ಕರಾವಳಿ ತಾಲ್ಲೂಕು

ಶಿವಮೊಗ್ಗ ಜಿಲ್ಲೆ, ಕರಾವಳಿ ತಾಲ್ಲೂಕು

ಶಿವಮೊಗ್ಗ ಜಿಲ್ಲೆ, ಕರಾವಳಿ ತಾಲ್ಲೂಕು

ಶಿವಮೊಗ್ಗ ಜಿಲ್ಲೆ, ಕರಾವಳಿ ತಾಲ್ಲೂಕು

Village Administration Office

No. 126, Kamangudi,

Sholagiri Tl. Krishnaagiri Dk



**Thiru. P. Venkatarreddy**, Roughstone quarry in the S.F. Nos.1267/2, 1268/2 & 1268/3 over an extent of 2.38.5 ha. in Kammandoddi Village, Shoolagiri Taluk, Krishnagiri District.

**GENERAL VIEW OF THE QUARRY LEASE AREA**



*P. Venkatarreddy*

**P. VENKATAREDDY,**  
(Deponent)

*[Signature]*  
Village Incharge Officer  
No. 123, Kammandoddi,  
Shoolagiri Taluk, Krishnagiri Dt.

**ANNEXURE-VIII AFFIDAVIT AND  
CER DETAILS**





தமிழ்நாடு தமில்நாடு TAMILNADU 25.03.2022/050 BD 280513



P. Venkatarreddy  
Krishnagiri

M. K. [Signature]  
சுற்றுச்சூழல் அபிவிருத்தி  
சட்டம், 1/2003  
கப்பாமைசிய நகர் விநியோகம்,  
காமநகரம், மேலம்-5 தமிழ்நாடு

AFFIDAVIT TO SEIAA, TAMIL NADU

P. Venkata Reddy, S/o. G. Pilla Reddy residing at Kukkalapalli village, Kammandoddi Post, Shoolagiri Taluk, Krishnagiri-635 109. do hereby solemnly declare and sincerely affirm that, I have applied for getting environment clearance to SEIAA, Tamil Nadu for quarry lease for Rough Stone quarry at Survey No.1267/2, 1268/2 &1268/3 over an area of 2.38.5 Ha in Kammandoddi village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu.

1. I swear to state and confirm that within 10km area of the quarry site, i have applied for environmental clearance, none of the following is situated
  - a. Protected areas notified under the wild life (Protection) Act. 1972 (NBWL).
  - b. Critically polluted areas as notified by the central pollution control board constituted under water (Prevention and control of Pollution) Act 1974.
  - c. Eco sensitive area as notified.
  - d. Interstate boundaries and international boundaries within 10km radius from the boundary of the proposed site.



[Signature]

2. I will complete the following Corporate Environment Responsibility (CER) activities before commencement of the quarrying activities.

CER Activity	Project cost (Rs)	CER cost (Rs)
Carrying out various developmental works in the nearby region based on the need of the locals.	Rs.70,90,000/-	Rs.5,00,000/-
Total cost Allocation	Rs.70,90,000/-	Rs.5,00,000/-

3. Details of quarry within 500m radius from the applied area:

S.No	Name and address of the lessee	Village & Taluk	SF.No. & Extent in Hectare	G.O. No. & date	Lease Status
<b>Existing Quarries</b>					
1	Thiru.P.Venkata Reddy, S/o. G.Pilla Reddy, Kukkalapalli Village, Kamandoddi, Shoolagiri Taluk, Krishnagiri District.	Shoolagiri Taluk Kamandoddi village	1267/2, 1268/2, 1268/3 Ext.2.36.5 Ha.	Roc.No.721/2015/ Mines dt:30.10.2017	10.11.2017 To 09.11.2022 (Instant Proposal)
2	Thiru. Rajappa, Kamandoddi, Shoolagiri Taluk, Krishnagiri District.	Shoolagiri Taluk Kamandoddi village	1266 Ext.1.04.5 Ha.	Roc.No.102/2016/ Mines dt:29.02.2016	13.10.2017 to 12.10.2027
3	Thiru. Surandiren Kamandoddi, Shoolagiri Taluk, Krishnagiri District.	Shoolagiri Taluk Kamandoddi village	1269/2A Ext.1.66.5	Roc.No.103/2016/ Mines dt:29.02.2016	13.10.2017 to 12.07.2022
4	Tmt.V.Renuka, Kamandoddi, Shoolagiri Taluk, Krishnagiri District.	Shoolagiri Taluk Kamandoddi village	1269/2B Ext.2.05.0	Roc.No.736/2016/ Mines dt:11.07.2017	13.07.2017 To 12.07.2022.
5	Thiru.S.Madhu, S/o. Srinivasan, No.12, Eden garden, Thally Road, Hosur Taluk, Krishnagiri.	Shoolagiri Taluk Kamandoddi village	1151 etc Ext.1.27.0	Roc.No.1088/2019/ Mines dt:06.12.2019	06.12.2019 to 05.12.2029
6	Thiru.G.Ashoka, S/o. Gunnanappa, No.31/5, 1st Main 2nd cross Nehru Nagar, Hosur Taluk, Krishnagiri.	Shoolagiri Taluk Kamandoddi village	754 & 760 (P-3), Ext.3.66.0 Ha	Roc.No.199/2018/ Mines dt:17.02.2022	17.02.2022 To 16.02.2032



17/02/2022

Details of Expired / Old Quarries					
S.No	Name and address of the lessee	Village & Taluk	SF.No. & Extent in Hectare	G.O. No. & date	Lease Status
5	Thiru. Subramani	Shoolagiri Taluk Kamandoddi village	1278/2, 1278/3,4 Ext.0.820 Ha	Roc.No.1135/2003/ Mines dt:02.08.2003	02.06.2003 To 01.06.2008 (Lease expired)

Detail of Proposed Quarries					
S.No	Name and address of the lessee	Village & Taluk	SF.No & Extent in Hectare	G.O. No. & date	Lease Status
1	Thiru. P. Narayanappa, S/o. Chinnaguruvappa Piltaya Kothur village, Shoolagiri Taluk, Krishnagiri	Shoolagiri Taluk Kamandoddi village	754 & 760 (P-1) Ext.1.80.0 Ha.	Roc.No.197/2018/ Mines dt:08.03.2018	<b>Ec Pending</b>
2	Thiru. K. Govindhappa, S/o. Krishnappa. No.79 Sipcot Housing Colony, Dharga Hosur Taluk, Krishnagiri.	Shoolagiri Taluk Kamandoddi village	754 & 760 (P-2) Ext.2.10.0 Ha	Roc.No.198/2018/ Mines dt:08.03.2018	<b>Ec Pending</b>
3	Thiru. P. Mallikarjun, S/o. Y. Partha Sarathy. No.12, Naga Nayakkanahalli, Kaaaba Hobli, Marsur Post, Anekkal Taluk, Bengaluru	Shoolagiri Taluk Kamandoddi village	754 & 760 (P-4) Ext.3.50.0 Ha	Roc.No.200/2018/ Mines dt:09.03.2018	<b>SEIAA - EC obtained</b>
4	Thiru. V.Karunanithi, S/o. Vellaya Gounder, No.127A, Moleiyannur, Pappireddipatti Taluk, Dharmapuri.	Shoolagiri Taluk Kamandoddi village	754 & 760 (P-5) Ext.4.30.0 Ha	Roc.No.201/2018/ Mines dt:09.03.2018	<b>SEIAA - EC obtained</b>
5	M/s. Royal Blue Metals, R.N.207, Chinnammal Building, No.102-A, Peramanur Main Four Roads, Salem.	Shoolagiri Taluk Kamandoddi village	1151, 1155, 1212 to 1219, 1222,1225 & 1226/A (P-1) Ext.2.70.0 Ha	Roc.No.202/2018/ Mines dt:09.03.2018	<b>SEIAA - EC obtained</b>
6	M/s. Royal Blue Metals, R.N.207, Chinnammal Building, No.102-A, Peramanur Main Four Roads, Salem.	Shoolagiri Taluk Kamandoddi village	1151, 1155, 1212 to 1219, 1222,1225 & 1226/A (P-2) Ext.2.87.0 Ha	Roc.No.203/2018/ Mines dt:09.03.2018	<b>SEIAA - EC Obtained</b>



*(Handwritten signature)*

7	Thiru. K.Murugesu, S/o. Krishnappa, No.492, Kamandoddi village, Shoolagiri Taluk, Krishnagiri.	Shoolagiri Taluk Kamandoddi village	1151, 1155, 1212 to 1219, 1222,1225 & 1226/A (P-3) Ext.2.82.0 Ha	Rec.No 204/2018/ Mines dt:09.03.2018	Ec Pending
8	Thiru.S.R.Sambangi, S/o. Rajappa, No.1/129, Sanamavu village, Shoolagiri Taluk, Krishnagiri.	Shoolagiri Taluk Kamandoddi village	1151, 1155, 1212 to 1219, 1222,1225 & 1228/A (P-4) Ext.2.23 0 Ha	Rec.No.205/2018/ Mines dt:09.03.2018	Ec Pending


4. There will not be hindrance or disturbance to the people living no enrooted/ nearby my quarry site while transporting the mineral and due to quarrying activities.
5. There is no approved habitation within 300m radius from the periphery of my applied quarry.
6. I swear that afforestation will be carried out during the course of quarrying operation and maintained.
7. The required insurance will be taken in the name of the laborers working in my quarry site.
8. The existing road from the main road to quarry is in good condition and the same will be maintained and utilized for Transportation of Rough Stone.
9. I will not engage any child labor in my quarry site and I am aware that engaging child labor is punishable under the law.
10. All types of safety / protective equipment will be provided to all the laborers working in my quarry.
11. No permanent structures, temple etc., are located within 500m radius from the periphery of my quarry.

I ensure to do the social and Environment commitment as mentioned in the Mining plan to the best of my knowledge.



**P.Venkata Reddy**  
(Deponent)



  
Call:(0)8443286346  
M.SARAVANAKUMAR,B.Sc.,B.L.,  
ADVOCATE & NOTARY,  
GOVT. OF INDIA  
NORTH ARCOT DISTRICT,  
1st Class, Near Sansa College,  
Junction Main Road, SALEM-596 003.

30/5/2018

**ANNEXURE-IX EXISTING PIT  
DETAILS**





From

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

To

Thiru.P.VenkatReddy,  
S/o.G.Pilla Reddy,  
Kukkalapalli Village,  
Kammandoddi Post,  
Shoolagiri Taluk,  
Krishnagiri District.

Roc.No.1123/2021/Mines dated: 19.05.2022.

Sir,

Sub: Mines and Minerals – Minor Mineral – Rough Stone –  
Krishnagiri District – Shoolagiri Taluk – Kammandoddi  
Village – Patta land in S.F.Nos.1267/2(1.34.5), 1268/2  
(0.26.5), 1268/3 (0.77.5) – Over an extent of 2.38.5  
Hects – Rough Stone quarry lease granted to  
Thiru.P.VenkatReddy – Quarry pit dimension details  
requested – Furnished – reg.

Ref: 1 The District Collector Krishnagiri Roc.No.721/2015/  
Mines-2 dated: 30.10.2017  
2 Thiru.P.VenkatReddy,S/o.G.PillaReddy, Kukkalapalli  
Village, Kammandoddi Post, Shoolagiri Taluk,  
Krishnagiri District letter dated :13.04.2022.

Kind attention is invited to the reference cited above.

2. Thiru.P.Venkat Reddy had been applied for quarry lease for  
the Rough Stone over an extent of 2.38.5 Hect in Patta land in S.F.No.  
1267/2 (1.34.5), 1268/2 (0.26.5), 1268/3 (0.77.5) of Kammandoddi  
Village Shoolagiri Taluk, Krishnagiri District for a period of 05 years  
under the provisions of Rule 19(1) and 20 of Tamil Nadu Minor Mineral  
Concession Rule 1959.

3. The Scheme of Mining for the next five years had been  
approved vide Assistant Director (i/c) vide letter dated:23.04.2021.

4. Thiru.P.VenkatReddy in his representation vide letter dated  
13.04.2022 has requested the pit dimension of the subject quarry to  
furnish the same before SEIAA in order to get Environmental  
Clearance.

5. In this regard, as per the Scheme of mining plan approved by the Assistant Director of Geology and Mining, Krishnagiri vide dated:23.04.2021 submitted by the applicant, it reveals that,

The average dimension of pits is below.

Length (m)	Width (m)	Depth (m)
102.0 mts	75.0 mts	5.0 mts (average)

*S. S. S.*  
15.05.22  
Deputy Director,  
Dept of Geology and Mining,  
Krishnagiri.

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

*BSS*  
190622

**ANNEXURE-IX NABET  
CERTIFICATE**





## 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.

