

**October 2023**

## **Executive Summary**

**Sekhar Mines, Varavanai Limestone Quarry - 1.90.5 Ha**

**For**

**PUBLIC HEARING**

**At**

**S.F.Nos. 833/4B, 836 (P), 843/2 of Varavanai Village, Kulithalai Taluk  
(presently Kadavur Taluk as per G.O(Ms)NO; 484  
Revenue (RA 1(1))Department Dated:18.12.2009),  
Karur District, Tamil Nadu State**

## **PROJECT PROPONENT**

**Thiru. S. Sekhar,  
Proprietor of Sekhar Mines No.73, Raja Colony, Collector Office  
Road, Cantonment,  
Trichy District - 620 001.**

**EIA Notification 2006 Schedule 1(a) Category B1 (Cluster) (Violation)**

### **Prepared By:**

**Ecotech Labs Pvt. Ltd.**



**NABET Accredited EIA Consultant**

**No.48, 2<sup>nd</sup> Main Road,  
Ram Nagar South Extension,  
Pallikaranai, Chennai-600100**

## EXECUTIVE SUMMARY

### 1. Project Background

Varavanai Limestone Quarry is owned by Thiru. S. Sekhar, owner of Sekhar Mines, Trichy, Tamil Nadu. Sekhar Mines has already obtained for grant of Mining lease to Varavanai Limestone Quarry over an area of 1.90.5 Ha at S.F.No. 833/4B, 836 (P), 843/2 of Varavanai Village, Kulithalai Taluk (presently Kadavur Taluk), Karur District, Tamil Nadu for a period of 20 years.

The Mining Plan for fresh grant of lease was approved by Indian Bureau of Mines in letter No.TN/TCR/MP/LST-546-MDS dated 30.12.1991 before the grant of Mining Lease. The Mining lease was granted for twenty years under G.O. Ms. No. 162 Industries (MMA-2) Department dated 14.06.1994. The lease deed was executed on 10.08.1994 and the mining operation commenced on 20.04.1996. The lease granted for 20 years expired on 09.08.2014.

The 1st scheme of mining lease was granted by Indian Bureau of Mines vide Letter No.TN/KR/LST/MS-93-MDS, dated 18.02.2001. Further, the 2nd scheme of the mining lease was approved by Indian Bureau of Mines vide letter no. TN/KRR/LST/MS-716-MDS dated 31.08.2012. The 3rd Scheme of mining was approved by Indian Bureau of Mines vide letter no. TN/DGL/LST/MS-1372-MDS dated 13.06.2016, valid up to 31.03.2019.

As per the Mines and Mineral (Development and Regulation) (MMDR) Amendment Act 2015, the validity of the Mining Lease is extended upto 09.08.2044 (effective from 10.08.2014 to 09.08.2044).

Later, as per MoEF&CC Notification S.O.804 (E) dated 14.03.2017, the project is considered as violation, mine without obtaining prior EC. The mine was not operational from 11.02.2016. Thiru. S. Sekhar, owner of Sekhar Mines applied for Environmental Clearance. The project has been accorded with Terms of Reference from SEIAA, Tamil Nadu vide Letter. No. SEIAA-TN/F.No.6557/SEAC/TOR-1168/2018 dated 30.05.2022.

The lease area for quarry lease is almost flat terrain which does not sustain any type of vegetation. The quarry operation is proposed to carry out with open cast manual method of mining with help of spades, baskets and jack hammer, drilling. No heavy earth moving machinery is proposed for limestone mining. After hand sorting, the mined-out Limestone is directly transported to the Refractory and chemical based industries plant.

The quarry operation is proposed up to depth of 13 m below ground level. The Total Geological reserve is 1,34,605 tonnes and recoverable reserves are estimated as 80,763 tonnes. The Mineable Reserves is 49,041 tonnes and recoverable reserves are estimated as 29,425 tonnes to be mined out for Three Years.

The 3<sup>rd</sup> Scheme of Mining was approved by the Indian Bureau of Mines vide letter No. TN/DGL/LST/MS-1371.MDS dated 13.06.2016. 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 15 km.

## 2. Nature & Size of the Project

The Limestone quarry over an extent of 1.90.5 Hectares land is located Varavanai Village of Kulithalai Taluk (presently Kadavur Taluk), Karur District.

Mineral intends to quarry	: Limestone
District	: Karur
Taluk	: Kulithalai Taluk (presently Kadavur Taluk)
Village	: Varavanai village
S.F.Nos	: 833/4B, 836 (P), 843/2
Extent	: 1.90.5 hectares

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

S. No	Particulars	Details
1	Latitude	N 10° 45' 10.63"
2	Longitude	E 78° 13' 49.84"
3	Site Elevation above MSL	≈ 192 m from above MSL
4	Topography	Flat terrain
5	Land use of the site	Own patta land and non-agricultural land
6	Extent of lease area	1.90.5 Ha
7	Nearest highway	SH 199 (Vaiyampatty- Karur Road) – 0.60 km SW
8	Nearest railway station	Palaiyam Railway Station - 11.52 km, SW

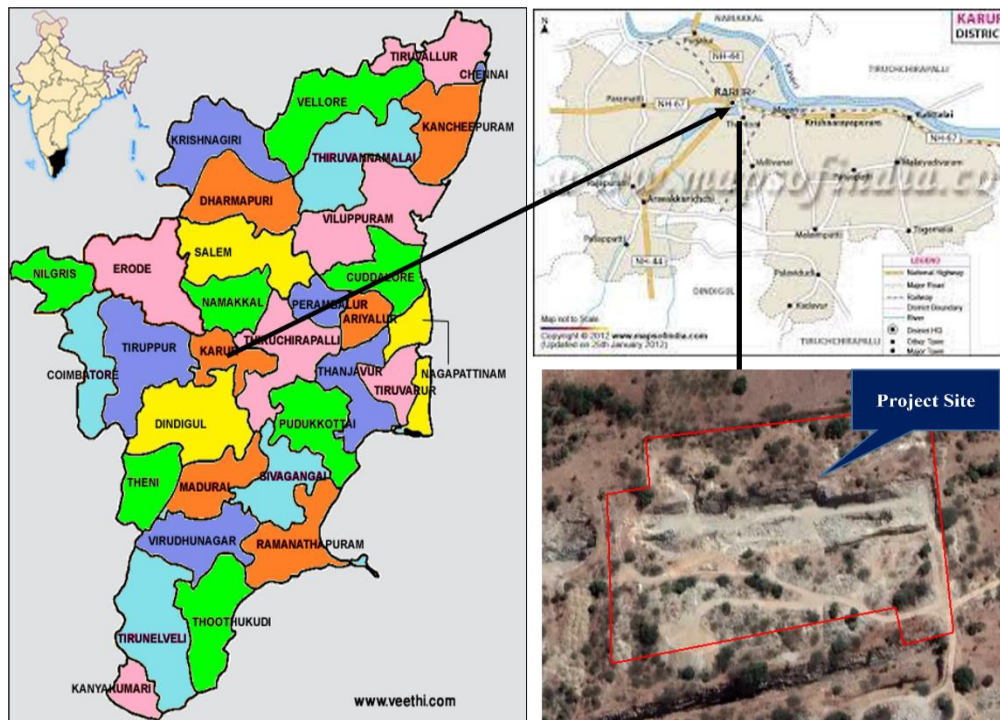
9	Nearest airport	Tiruchirappalli International Airport - 52.26 km, E
10	Nearest town / city	Karur - 28.34 km, NW
11	Rivers / Canal	Nil
12	Lakes/Dams	<ul style="list-style-type: none"> <li>• Mamathupatti Kanmai- 0.43 km SE</li> <li>• Varavanai Kanmai - 0.69 km SW</li> <li>• Mariyamman Kulam - 1.80 km NE</li> <li>• Karunam Kulam - 2.71 km NW</li> <li>• P. UdayapattiKulam - 3.34 km NE</li> <li>• TharagampattiKulam - 3.79 km S</li> <li>• OttaKulam - 5.22 km NW</li> <li>• Poovaeekulam - 5.68 km NW</li> <li>• Perumaan Kulam-5.97 km NE</li> <li>• MavathurKulam - 6.39 km SE</li> <li>• Panjapatty Lake - 9.17 km NE</li> <li>• VellianaiKulam - 11.71 km NW</li> <li>• KaraiKulam-13.19 km NE</li> <li>• PothuravuthanpattyKulam - 14.40 km NE</li> </ul>
13	Hills / valleys	Nil within 15 km radius
14	Archaeologically places	Nil within 15 km radius
15	National parks /Wildlife sanctuaries	Kadavur Slender Loris Sanctuary - 12.76 km SW
16	Reserved / Protected Forests	<ul style="list-style-type: none"> <li>• Vaiyamalaippalayam RF - 8.36 km SE</li> <li>• MungilKaradu RF - 11.92 km SW</li> <li>• Veeramalai RF - 13.11 km SE</li> </ul>
17	Seismicity	Proposed Lease area come under Seismic zone-II (low risk area)

### 3. Need for the Project

- ❖ India is the second largest producer of cement in the world. India has a lot of potential for development in the infrastructure and construction sector and the cement sector is expected to largely benefit from it. Some of the recent initiatives, such as development of 98 smart cities, is expected to provide a major boost to the sector.
- ❖ Aided by suitable Government foreign policies, several foreign players such as Lafarge-Holcim, Heidelberg Cement, and Vicat have invested in the country in the recent past. A significant factor which aids the growth of this sector is the ready availability of raw

materials for making cement, such as limestone and coal. Higher government spending on infrastructure and housing will be a key growth driver for the industry.

- ❖ The government has placed significant emphasis on infrastructure development with the aim of making 100 smart cities. The said project plays a significant role in the domestic as well as infrastructural market. Limestone is a key raw material in the manufacturing process of Cement.



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



**Figure 2: Google Image of the Project Site**

#### 4. Charnokite

Limestone is a key raw material in the manufacturing process of Cement.

#### 5. Geological Resources

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

**Table 2. Resources Estimation**

Classification	Section	Bench	L (m)	W (m)	D (m)	Volume CUM	Bulk Den Sity	Total Reserves (t)	Mineral Reject 40%(t)	Recoverable Reserve 60% (t)	Grade	UNFC Code
Mineral Locked up in benches	XY-A1B1	IV	5	1	2.5	13	2.6	10273	4109	6164	CEMENT & REFRACTORY	222
		V	10	1	2.5	25						
	XY-A2B2	VI	14	28	2.0	784						
		IV	6	42	2.5	630						
		V	11	42	2.5	1155						
		VI	16	42	2.0	1344						
					<u>3951</u>							
Mineral locked up in 7.5m boundary barrier			1450sq.m (29x50.0m) 2535.5sq.m (338x7.5m)		12.0	47820	2.6	124332	49733	74599	CEMENT & REFRACTORY	222
<b>TOTAL</b>								<b>134605</b>	<b>53842</b>	<b>80763</b>		

Total Resources : 1,34,605 tonnes

Recoverable Resources : 8,07,63 tonnes

**Table 3. Reserves Estimation**

Section	Bench	L (m)	W (m)	D (m)	Volume CUM	Bulk Den-Sity	Over Burden (t)	Side Burden (t)	Total Reserve (t)	Mineral Reject 40%(t)	Recoverable Reserve 60% (t)	Total Waste (t)	UNFC Code
<b>OVERBURDEN</b>													
XY-A1B1	I	60	1	1.0	60								
XY-A2B2	I	50	1	1.0	50								
					<u>110</u>	2.0	220	-	-	-	-	220	
<b>SIDEBURDEN</b>													
XY-A1B1	II	30	1	2.5	75								
	III	20	1	2.5	50								
	IV	14	1	2.5	35								
	V	7	1	2.5	18								
	VI	1	1	2.0	2								
XY-A2B2	II	30	1	2.5	75								
	III	34	10	2.5	850								
	IV	23	38	2.5	2185								
	V	12	81	2.5	2430								
	VI	2	86	2.0	344	2.5	-	-	-	-	-	15160	
					<u>6064</u>								
<b>LIMESTONE</b>													
XY-A1B1	II	34	1	2.5	85								
	III	34	1	2.5	85								
	IV	46	1	2.5	115								
	V	41	1	2.5	103								
	VI	37	28	2.0	2072								

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
XY-A2B2	II	1	23	2.5	58								
	III	10	24	2.5	600								
	IV	38	42	2.5	3990								
	V	81	42	2.5	8505								
	VI	86	42	2.0	7224								
					<u>22837</u>	2.0	-	-	59376	23750	35626	39130	111
<b>Total</b>							<b>220</b>	<b>15160</b>	<b>59376</b>	<b>23750</b>	<b>35626</b>	<b>39130</b>	

**Table 4. Year wise tentative excavation**

Year	Pit No.	Total Tentative Excavation (Tons)	Top soil (Tons)	OB (Tons)	Side burden (Tons)	ROM (tons)		Total Waste (Tons)	ROM/Waste ratio
						Ore (Limestone@60% of ROM) (Tons)	Mineral Reject (@ 40% of ROM) (Tons)		
1	2	3	4	5	6	7	8	9	10
2016-17	I	13793	-	120	4763	8276	5517	5517	1:1.28
2017-18	I	21588	-	-	3545	12953	8635	8635	1:1.28

2018-19	I	13660	-	-	355	8196	5464	5464	1:1.28
<b>TOTAL in Tons</b>		<b>49041</b>	<b>-</b>	<b>120</b>	<b>8663</b>	<b>29425</b>	<b>19616</b>	<b>19616</b>	<b>1:0.97</b>

## 6. Mining

### *Opencast mining*

The mine will be worked with opencast manual method of mining ("B" category of small mine). Mining will be by simple open cast manual methods, with help of spades, baskets and jack hammer, drilling and blasting. There is no secondary blasting in the mine. No heavy earth moving machineries are proposed for limestone mining. After hand sorting, the mined out Limestone is directly transported to the Refractory and chemical based industries plant through 10 MT capacity tippers.

## 7. Water Requirement

Total water requirement for the mining project is 1.7 KLD. The 90% water will be required for the suspension of dust and green belt development domestic water will be sourced from nearby Village and other water will be source from nearby road tankers supply.

**Table 5. Water Balance**

<b>Purpose</b>	<b>Quantity</b>	<b>Sources</b>
Drinking Water	0.7 KLD	Packaged Drinking water vendors available in nearby village
Green belt	0.5KLD	Other domestic activities through road tankers
Dust suppression	0.5KLD	From road tankers supply
<b>Total</b>	<b>1.7 KLD</b>	

## 8. Man Power

Total manpower required for the project is approximately 15 persons. Workers will be from nearby villages.



**Table 6. Man Power Requirement**

<b>Supervisory :</b>	<b>No. of Employees</b>
Manager (Foreman)	1 no
Part time mining Engineer	1 no
Clerk	1 no
<b>Labours:</b>	
Highly skilled	-
Skilled	2 no.s
Semi -Skilled	-
Unskilled	10 no.s
<b>Total</b>	<b>15 no.s</b>

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

### 9. 500m Radius Cluster Mine

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

<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.S.Sekhar No.73, Raja Colony Collector office road, Trichy	Varavanai village Kulithalai Taluk	833/4B, 836(P), 843/2	1.90.5	10.08.1994- 09.08.2014 (Deemed extension)
2	Thiru.S.Sekhar No.73, Raja Colony Collector office road, Trichy	Varavanai village Kulithalai Taluk	835/3, 836(P), 837/1B	2.25.0	18.11.1995- 17.11.2015 (Deemed extension)
3.	Salem Chemicals 14/22, Agraharam, Sevaipeetai,Salem	Varavanai village Kulithalai Taluk	833/1B2, 833/4A2	2.34.5	05.02.1998- 04.02.2018

4.	N.Krishnsamoorthi 159/136, Siruvakondanoor, Salem	Varavanai village Kulithalai Taluk	824/1B(PART), 824/2(PART), 824/3(PART), 825/1B(PART), 825/2B,825/3B	4.15.8	21.10.2005- 20.10.2025
5.	Thiru.Ilayaperumal	Varavanai village Kulithalai Taluk	847/3A2,847/3B, 847/3C,847/3D, 847/3E2,850/1	1.29.0	29.10.1997- 28.10.2017
<b>Total</b>				<b>11.94.8</b>	

## 10. Land Requirement

The total extent area of the Existing project is 1.90.5 Ha, Own patta land in Varavanai Village of Kulithalai Taluk (presently Kadavur Taluk), Karur District.

**Table 8. Land Use Breakup**

S.No.	Description	Present Area (Ha)	Area to be reclaimed & rehabilitated at the end of present MP/MS period(Ha)	Area to be reclaimed & rehabilitated at the end of life of mine (Ha)
1.	Mining (Quarry)	0.79.0	0.19.0	0.93.0
2.	Waste dump	0.40.0	0.14.0	0.14.0
3.	Office-Infrastructure	-	0.01.0	0.01.0
4.	Mineral Stack/ Processing Yard	-	-	-
5.	Sub-grade Mineral stacks	-	-	-
6.	Mine Roads	0.12.0	0.01.0	0.01.0
7.	Area under Plantation	0.01.0	0.13.0	0.20.0
8.	Unutilized Area	0.59.5	0.42.5	0.61.5
<b>Total</b>		<b>1.90.5</b>	<b>1.90.5</b>	<b>1.90.5</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>Name of Hamlet</b>	<b>Population</b>	<b>Distance from the area</b>	<b>Distance (km)</b>
Pannapatti	750	North	4.0 km
Varavanai	600	South	3.0 km
Kalaiyappatti	750	West	5.0 km
Vellappatti	500	East	5.5 km

## 12. Power Requirement

The Limestone quarry project does not require huge water and electricity for the project.

## 13. Scope of the Baseline Study

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

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 : 32 °C
- ii) Average Maximum Temperature. : 36 °C

iv) Average Annual Rainfall of the area : 700-800 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 over a period of Pre Monsoon Season. 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 (37-64 µg/m<sup>3</sup>), PM2.5 (14-33 µg/m<sup>3</sup>), SO<sub>2</sub> (5-21 µg/m<sup>3</sup>), NO<sub>2</sub> (10-38 µg/m<sup>3</sup>), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from August 2022 to October 2022.

### **13.3 Noise Environment**

Ambient noise levels were measured at 5 locations around the proposed project site. The maximum Day noise were found to be 57 dB(A) in Indian Overseas Bank, Tharagampatti and the night noise level were found to be 46 dB(A) at Indian Overseas Bank, Tharagampatti. The minimum Day Noise and Night noise were 50 dB(A) and 39 dB(A) respectively in Project Site. The observed values are all well within the Standards prescribed by CPCB.

### **13.4 Water Environment**

- The average pH ranges from 7.11 to 7.61
- TDS value varied from 705 mg/l to 1445 mg/l
- Hardness varied from 376 to 723 mg/l
- Chloride varied from 148 to 436 mg/l

### **13.5 Land Environment**

The analysis results show that soil is neutral in nature as pH value ranges from 6.58 to 7.83 with organic matter 0.63 % to 1.88 %. The concentration of Nitrogen, Phosphorus & Potassium has been found to be in good amount in the soil samples.

### 13.6 Biological Environment

The Mining lease area is mostly dry barren ground . 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.
3. Local trees like, Neem , Pungam, Naval etc will be planted along the lease boundary and avenues as well as over Non-active dumps.
- 4.The rate of survival expected to be 70% in this area.

**Table 10. Plantation/ Afforestation Program**

Name of the Species proposed	Survival	No. of species
Neem, Vilvam, Vaagai, Eachai, Naval, Mantharai, Magizha Maram, Vila Maram, Poo Marudhu, Panai, Marudha maram, Thandri, Sengondrai, Poovarasu, Thethankottai Maram, Pungam	70%	1000
<b>Total</b>		<b>1000</b>

## 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.
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 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. 10,35,080** 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**

S.No	Description	Cost (Rs)
1.	Land Cost	7,00,000
2.	Operational Cost	3,35,080
<b>Total</b>		<b>10,35,080</b>

### **Environmental Management Cost**

- Capital Cost : Rs. 12,01,850/-
- Recurring Cost : Rs. 2,72,460/-
- Total EMP Cost : Rs. 14,74,310/-
- Total EMP Cost for Three Years: Rs. 20,60,780/-

### **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 project cost(Rs in Lakhs)</b>
1.	Provision of Desks, Benches, Computers, Painting of Class rooms in Varavanai Govt. middle School	2,50,000/-
<b>Total</b>		<b>2,50,000/-</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.