

APRIL

2023

**Executive Summary for Conducting Public Hearing  
FOR**

**“Thiru.K.Gnanasekaran Rough Stone and Earth  
Quarry over a total extent of 2.33.5 Ha”**

**At**

**S.F.No. 29/2, 29/3, 30/4, 30/9, 30/12 & 30/13 of  
Thollamur Village, Vanur Taluk, Villupuram District,  
Tamilnadu State**

**Project Proponent:**

**Thiru.K.Gnanasekaran,  
S/o. Kannadi Gounder,  
Karasanur Village,  
Vanur Taluk,  
Villupuram District – 605 109**

**Project termed under schedule 1(a) Category B<sub>1</sub>**

**Prepared By:**

**Ecotech Labs Pvt. Ltd.**



**NABET Accredited EIA Consultant**

**48, 2<sup>nd</sup> Main Road, Ram Nagar South Extension,  
Pallikaranai, Chennai -600100**

## EXECUTIVE SUMMARY

### 1. Project Background:

The Proposed project total extent area is 2.33.5 Ha, Patta land in Thollamur Village of Vanur Taluk, Villupuram District. The category of project is B1, It is an Existing Rough stone and Earth quarry in Thollamur village. The area is situated on Plain topography gently sloping towards South Eastern side covered with Rough Stone which does not sustain any type of vegetation.

The quarry operation is proposed to carry out with open cast mechanized mining with 5.0 meter vertical bench with a bench width of 5.0 meter. The Quarry operation involves shallow hand jack hammer drilling, mild explosives in blasting, excavation, Loading and transportation of Rough Stone to the needy crushers.

The quarry operation is proposed up to depth for 22 m (2.0 m Earth + 20 m Rough Stone). The Total Geological reserve is about 8,17,250 m<sup>3</sup> of Rough Stone and 46,700 m<sup>3</sup> of Earth. The Mineable Reserves of Rough stone is 65,935 m<sup>3</sup> and Earth is 18,652 m<sup>3</sup>. The yearwise production/recoverable resources of rough stone for 5 years are 65,935 m<sup>3</sup> and Earth is 18,652 m<sup>3</sup>.

Mining Plan was approved by The Assistant Director, Dept. of Geology & Mining, Villupuram vide Rc No. B/G&M/277/2018 dated 26.12.2019. The project area does not fall in Hill Area Conservation Authority region. There is no interstate boundary, CRZ zone, Western Ghats, Wildlife sanctuaries as per Wild life protection Act 1972, within the radius of 15 Km. Oussudu Lake Bird Sanctuary is located at a distance of 11.84 kms, SE from the project site and Kazhuveli Wetland Bird Sanctuary is located at a distance of 15.45 kms, NE from the project site. National Fossil/Petrified Wood Park is located at a distance of 4.46 kms, SW from the project site, which is a National Geo-heritage Monument maintained by Geological Survey of India.

## 2. Nature & Size of the Project

The Existing Rough Stone and Earth Quarry over an extent of 2.33.5 Hectares land is located at Thollamur Village of Vanur Taluk, Villupuram District.

Mineral intends to quarry	: Rough stone and Earth
District	: Villupuram
Taluk	: Vanur
Village	: Thollamur
S. F. Nos.	: 29/2, 29/3, 30/4, 30/9, 30/12 & 30/13
Extent	: 2.33.5 Hectares

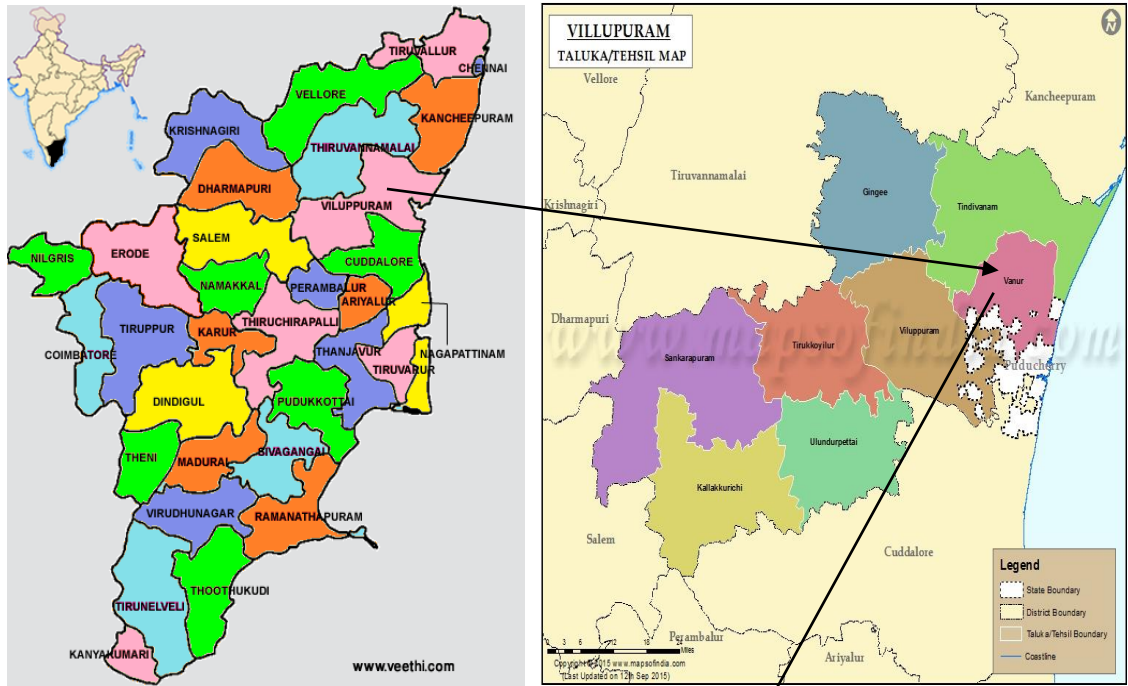
**Table 1: Brief Description of the Project**

S. No	Particulars	Details
1	Latitude	12° 03' 20.03" N to 12° 03' 27.36" N
2	Longitude	79° 40' 16.29" E to 79° 40' 23.75" E
3	Site Elevation above MSL	65 m from MSL
4	Topography	Plain
5	Land use of the site	Patta land
6	Extent of lease area	2.33.5 Ha
7	Nearest highway	<ul style="list-style-type: none"> <li>➤ NH-32 : Chennai to Nagapattinam Highway is about 13.37 Kms on E of the area</li> <li>➤ SH-136 Mailam to Puducherry Road is about 0.94 Kms on N of the area</li> </ul>
8	Nearest railway station	<ul style="list-style-type: none"> <li>➤ Vikravandi Railway Station – 14 km, W</li> <li>➤ Villupuram Junction – 22.50 km, SW</li> </ul>
9	Nearest airport	<ul style="list-style-type: none"> <li>➤ Puducherry Domestic Airport – 18.35 km – SE</li> <li>➤ Chennai International Airport – 115.33 km - NE</li> </ul>
10	Nearest town / city	<ul style="list-style-type: none"> <li>➤ Town - Vikravandi - 13.63 km - SW</li> <li>➤ City - Villupuram - 22.62 km - SW</li> <li>➤ District - Villupuram - 22.62 km – SW</li> </ul>
11	Rivers / Canal	<ul style="list-style-type: none"> <li>➤ Sankarabarani River – 4.30 kms, S</li> <li>➤ Veedur Dam – 9.41 kms, W</li> </ul>
12	Lake	<ul style="list-style-type: none"> <li>• Kunnam Lake – 2.80 kms, N</li> <li>• Katrambakkam Lake – 8.53 kms, NE</li> <li>• Pulichapallam Lake – 9.55 kms, E</li> <li>• Purana Singa Palayam Lake – 11.17 kms, S</li> <li>• Oussudu Lake – 12.16 kms, SE</li> <li>• Avudayarpatu Lake – 11.75 kms, SW</li> </ul>

		<ul style="list-style-type: none"> <li>• Kodur Lake – 12.45 kms, NE</li> <li>• Omandur Lake – 12.25 kms, NW</li> <li>• Annamputhur Lake – 12.80 kms, NW</li> <li>• Nallavur Lake – 13 kms, NE</li> <li>• Kazhuvveli Lake – 14.25 kms, NE</li> </ul>
13	Hills / valleys	Nil in 15 km radius
14	Archaeologically places/Monuments	<ul style="list-style-type: none"> <li>• National Petrified/Fossil Wood Park, Thiruvakkarai – 4.30 kms, SW</li> </ul>
15	National parks / Wildlife Sanctuaries	<ul style="list-style-type: none"> <li>• Oussudu Lake Bird Sanctuary – 11.84 kms, SE</li> <li>• Kazhuvveli Wetland Bird Sanctuary – 15.45 kms, NE</li> </ul>
16	Reserved / Protected Forests	<ul style="list-style-type: none"> <li>• Kongarampoondi R.F – 13.95 Kms, SW</li> <li>• Melkondai R.F – 13.71 Kms, SW</li> <li>• Sadhana Forest – 14 Kms, SE</li> <li>• Nine Palms Forest – 14.45 Kms, E</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 and Earth extracted will be transported to be Stone crusher of Villupuram District.
- ❖ 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**



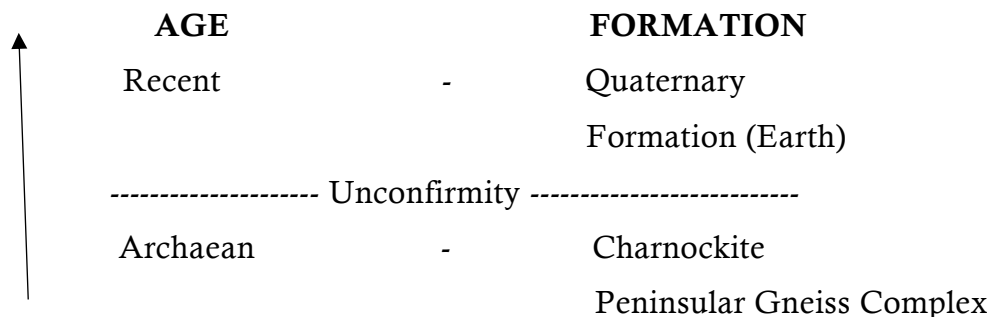


**Figure 2: Google Image of the Project Site**

#### 4. Charnockite

The greater part of the district is covered by rocks belonging to Archaean age comprising the Charnockite group, the Migmatite complex, Sathyamangalam group and the Bhavani group and the alkali complex of Proterozoic age. West of Kallakurichi (Southwestern part of the district), the area comprises the Charnockite Group of rocks, viz., Charnockite, pyroxene-granulite and garnetiferous gabbro. West of Tirukoilur (Central part of the district) and east of the Charnockite terrain (i.e., Kallakurichi area) the Migmatite complex is made up of Hornblende-Biotite gneiss. Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite body N30°E – S30°W with dipping towards SE60°.

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



#### 5. Geological Resources

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

**Table 2. Geological resources**

The total Geological resources are calculated by area method. The calculation of the geological resources is given below.

Total Extent of the area = 2.33.5 Ha  
 = 2.33.5 x 10,000 = 23350 sq.m

Earth = 2 m below ground level  
 = 23350 sq.m x 2 m depth  
 = 46,700 m<sup>3</sup> of Earth formation

Rough Stone formation = 35 m below ground level  
 = 23350 sq.m x 35 m depth  
 = 8,17,250 m<sup>3</sup> of Rough Stone

Total Geological Resources of Earth formation = 46,700 m<sup>3</sup>

Total Geological Resources of Rough stone = 8,17,250 m<sup>3</sup>

**Table 3. Yearwise Production Plan**

YEARWISE PRODUCTION RESERVES								
Year	section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume m <sup>3</sup>	Earth m <sup>3</sup>	Mineable Reserves in m <sup>3</sup>
1	XY-AB	I	45	73	2	6570	6570	
		II	41	65	5	13325		13325
	<b>TOTAL</b>						<b>6570</b>	<b>13325</b>
2	XY-AB	I	29	73	2	4234	4234	
		II	25	65	5	8125		8125
	X1Y1-CD	I	40	36	2	2880	2880	
		II	36	28	5	5040		5040
	<b>TOTAL</b>						<b>7114</b>	<b>13165</b>
3	X1Y1-CD	I	69	36	2	4968	4968	
		II	66	28	5	9240		9240
		III	56	14	5	3920		3920

	<b>TOTAL</b>						<b>4968</b>	<b>13160</b>
4	X1Y1-CD	III	32	14	5	2240		2240
	XY-AB	III	43	51	5	10965		10965
	<b>TOTAL</b>							<b>13205</b>
5	XY-AB	III	10	51	5	2550		2550
		IV	39	38	5	7410		7410
		V	26	24	5	3120		3120
	<b>TOTAL</b>							<b>13080</b>
<b>GRAND TOTAL</b>						<b>18652</b>	<b>65935</b>	

## 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 with slope of 80°. The Quarry operation involves shallow hand jack hammer drilling, mild explosives in blasting, excavation, loading and transportation of rough stone to the needy crusher.

### Process Description

- The reserves and resource are arrived based upon the Geological investigation
- Removal of Earth by Excavators and directly Loaded into Tippers.
- Removal of Rough Stone by Excavators by Drilling and Blasting.
- Shallow Drilling With Jackhammer of 30-35 mm 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 2.0 KLD. Domestic water will be sourced from nearby Thollamur Village and other water will be source from nearby road tankers supply.

**Table 4. Water Balance**

Purpose	Quantity	Source
Domestic and Drinking Water	1.0 KLD	Packaged Drinking water vendors available in Thollamur which is about 0.76 Km South East of the area
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>	

## 8. Manpower

Total manpower required for the project is approximately 18 persons. Workers will be from nearby villages.

**Table 5. Man Power Requirement**

1.	Skilled	Hand Jack Hammer Operator	8 No.
		Excavator Operator	1 No.
		Mate/Blaster	1 No.
2.	Semi – skilled	Tipper Driver	2 Nos
3.	Unskilled	Helper	2 Nos
		Cleaners & Co-operator	3 Nos
		Security	1 No
4.	Mines Manager/Mines Foreman		1 No.
	<b>Total</b>		<b>19 Nos.</b>

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	3.42 kg/day	Municipal bin including food waste
2	Inorganic	5.13 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	Name of the Mineral	Taluk & Village	S.F.Nos.	Extent in Hect.	Lease Period
1.	K.Gnanasekaran S/o. Kannadi Counder, Mettu Street, Karasanur Village, Vanur Taluk, Villupuram District	Rough Stone	Vanur & Thollamur	12/4 12/5A	0.59.5 0.65.0 <b>Total</b> <b>1.24.5</b>	24.09.2017 to 23.09.2022
2	V. Sadayappan, No.18, Amal Nagar, West Tambaram, Chennai- 600045	Rough Stone & Gravel	Vanur & Thollamur	1/3A 12/3 12/5B1	0.58.0 0.60.5 2.38.5 <b>Total</b> <b>3.57.0</b>	16.08.2018 to 15.08.2023
3	G. Raja, S/o. Gopal, Sivaraj Street, Thiruneermalai, Chennai	Rough Stone & Gravel	Vanur & Thollamur	26/1	2.42.5	16.08.2018 to 15.08.2023
4	R. Muralidharan, Manager, Om Sakthi Constructions, Thollamur Village, Vanur Taluk	Rough Stone & Gravel	Vanur & Thollamur	38/2A 35/1C 39/1B	0.96.0 0.10.0 1.00.0 <b>Total</b> <b>2.06.0</b>	16.08.2018 to 15.08.2023
5	K. Balamurugan, S/o. Kuppusamy, Karasanur & Post, Vanur Taluk	Rough Stone & Gravel	Vanur & Thollamur	11/4A2 15/2 15/3A 15/3B 15/4	0.16.0 0.44.0 0.50.0 0.56.0 0.46.0 <b>Total</b> <b>2.12.0</b>	27.08.2018 to 26.08.2023

## 2) Proposed Quarries

S. No.	Name of the Lessee/Permit Holder	Name of the Mineral	Taluk & Village	S.F.Nos.	Extent in Hect.
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1.	S.V.Venkatesh, Sri Santhosh Blue Metals, No.173, Sarkar Thopu, Tindivanam, Villupuram District	Rough Stone & Gravel	Vanur & Thollamur	8/1B 8/2	0.61.5 1.44.5 <b>Total</b> <b>2.06.0</b>
2	K. Gnanasekaran S/o. Kannadi Counder, Mettu Street, Karasanur Village, Vanur Taluk, Villupuram District	Rough Stone & Gravel	Vanur & Thollamur	29/2 29/3 30/4 30/9 30/12 30/13	0.51.0 0.06.0 0.29.5 0.28.5 0.58.0 0.60.5 <b>Total</b> <b>2.33.5</b>
3	V. Ramesh, S/o. J. Venkatapathy, No.5, Thangaraj Street, HLL Colony, Pammal, Chennai-75	Rough Stone & Gravel	Vanur & Thollamur	16/11 16/12 17/1 18/3B	0.45.0 0.74.5 1.63.5 0.70.0 <b>Total</b> <b>3.53.0</b>
4	G. Arjunan S/o. Govindasamy, No.63, Throupathi Amman Koil Street, Thiruvakkarai Village, Vanur Taluk	Rough Stone & Gravel	Vanur & Thollamur	11/5A 11/6 11/7 16/2 16/4 16/5 16/6 16/7 16/8B 16/9 16/10	0.14.0 0.17.0 0.19.0 0.11.0 0.15.0 0.12.0 0.16.0 0.24.0 0.23.0 0.08.5 1.62.0 Total <b>3.21.5</b>

5.	I. Justin Prabu, S/o. V. Iyyadurai, 1/56, D9, Church Street, Christopher Nagar, Peruvilai, Kanniyakumari District	Rough Stone & Gravel	Vanur & Karasanur	43/4A	0.35.5
				43/4B	0.35.0
				43/4C	0.71.0
				43/5	1.27.0
				43/6	0.63.0
				44/6	<b>Total</b>
					<b>3.67.0</b>

### 3) Abandoned Quarries

S. No.	Name of the Lessee/Permit Holder	Name of the Mineral	Taluk & Village	S.F.Nos.	Extent in Hect.	Lease Period
1.	R. Alagurajan, S/o. Ramaswamy, No.41, Erikaran Street, Nerkundram, Chennai-107	Rough Stone	Vanur & Thollamur	35/1B 35/2A2 (P) 35/2B (P)	1.04.0 0.19.5/0.48.0 0.23.0/0.48.0 <b>Total 1.46.5</b>	25.03.2015 to 24.03.2020
2	K. Dharmalingam, S/o. Kannaiyan, 2/6, Kalaignar Street, Erumaiyur, Chennai-44.	Rough Stone	Vanur & Thollamur	12/5B	2.52.0	20.04.2013 to 19.04.2018
3	S. Nanthini, W/o. Sankar, No.14, 3 <sup>rd</sup> Street, Jayapuram, Tindivanam Taluk	Rough Stone	Vanur & Thollamur	11/5A 11/6 11/7 16/2 16/3 16/4 16/5 16/6 16/7 16/8B	0.14.0 0.17.0 0.19.0 0.11.0 0.11.0 0.15.0 .0.12.0 0.16.0 0.24.0 0.23.0	31.12.2015 to 30.12.2020

				16/9 16/10	0.08.5 1.62.0 <b>Total 3.32.5</b>	
4	C. Ganesan, S/o. Chinnaiya Gounder, 168, Mettu Street, Karasanur Village, V.Parangani Post, Vanur Taluk	Rough Stone	Vanur & Thollamur  Nemili	13/3 14/7 15/1 118/1 118/2 118/3 118/4A	1.50.0 0.39.5 0.48.5 0.56.0 0.18.5 0.71.0 0.44.0 <b>Total 4.27.5</b>	22.08.2016 to 21.08.2021
5	V. Sankar, S/o. Vivekanandan, 14, Jayapuram Colony, Tindivanam Town & Taluk, Villupuram District	Rough Stone	Vanur & Thollamur	2/1 2/2 2/3 2/4 2/5 3/1 3/2 3/3 3/4 3/5 3/6 3/7	0.45.5 0.22.0 0.22.0 0.23.5 0.25.0 0.32.5 0.33.5 0.81.0 0.20.0 0.22.5 0.21.0 0.18.0 <b>Total 3.66.5</b>	20.09.2016 to 19.09.2021
6	D. Sundaramurthy, Santhosh Blue Metals, Thollamur Village, Eraiur Post, Vanur Taluk	Rough Stone	Vanur, Thollamur	35/2A1 & 9/3	1.06.0 0.33.5 <b>Total 1.39.5</b>	26.04.2013 to 25.04.2018
7	V. Elumalai, S/o. N. Varadappa Chettiar, Old No. 132, New No. 477, Jawaharlal	Rough Stone	Vanur, Nemili	117/2 117/3 117/4 117/5	0.19.0 0.20.0 0.49.0 0.23.0	18.06.2012 to 17.06.2017

	Nehruji Road, Viluppuram - 605602				<b>Total 1.11.0</b>	
8	S. Irusappa Gounder, S/o. Srinevasa Gounder, Karasanur Village, Vanur Taluk	Rough Stone	Vanur, Thollamur	4/1 4/2A 4/2B 4/2C 6/2B	0.40.0 0.04.5 0.10.0 0.80.5 0.61.0 <b>Total 1.96.0</b>	01.09.2008 to 31.08.2013
9	R. Periyasamy, S/o. Rangasamy, Karasanur Village, V. Parangini Post, Vanur Taluk	Rough Stone	Vanur, Thollamur	1/3B	1.52.0	01.09.2008 to 31.08.2013
10	K. Gnanasekaran, S/o. Kannadi Gounder, Mettu Street, Karasanur Village, Vanur Taluk, Villupuram District	Rough Stone	Vanur, Thollamur	29/1 29/2 29/3 30/4 30/9 30/12 30/13	0.34.5 0.51.0 0.06.0 0.29.5 0.28.5 0.58.0 0.60.5 <b>Total 2.68.0</b>	28.02.2008 to 24.02.2013
11	V. Kannan, Thollamur Village, Vanur Taluk	Rough Stone	Vanur, Thollamur	5 11/3	1.42.5 3.13.0 <b>Total 4.55.5</b>	12.05.2003 to 11.05.2008

The Total extent of the Existing / Lease expired / Proposed quarries are 54.7.0 Ha

## 10. Land Requirement

The total extent area of the project is 2.33.5 Ha, Patta land in Thollamur Village of Vanur Taluk, Villupuram District.

**Table 8 Land Use Breakup**



Sl. No.	Description	Present Area (Ha.)	Area in use during the quarrying period (Ha.)
01.	Area under Quarrying	0.13.2	1.03.5
02.	Infrastructure	Nil	0.01.0
03.	Roads	0.01.0	0.02.0
04.	Green Belt	Nil	0.25.5
05.	Unutilized Area	2.19.3	1.01.5
	<b>TOTAL</b>	<b>2.33.5 Ha</b>	<b>2.33.5 Ha</b>

### 11. Human Settlement

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

**Table 9 Habitation**

S.No	Direction	Village	Distance in kms	Population
1	North	Karasanur	1.40 Kms	2862
2	South East	Thollamur	0.76 Kms	1419
3	West	Eraiyur	1.45 Kms	3257
4	North East	Parangani	2.10 Kms	3393

### 12. Power Requirement

The Rough Stone and Earth 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 and **10 Litre** diesel per hour for excavator for mining and loading for Earth.

### 13. Scope of the Baseline Study

This 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 : 18<sup>0</sup> C to 26<sup>0</sup> C
- ii) Average Maximum Temperature. : 30<sup>0</sup> C to 40<sup>0</sup> C
- iii) Average Annual Rainfall of the area : 985 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 (PM<sub>10</sub>), Sulphur Dioxide (SO<sub>2</sub>), Nitrogen Dioxide (NO<sub>2</sub>) were monitored and the results are summarized below.

The baseline levels of PM<sub>10</sub> (56-45 µg/m<sup>3</sup>), PM<sub>2.5</sub> (26-20 µg/m<sup>3</sup>), SO<sub>2</sub> (10-8 µg/m<sup>3</sup>), NO<sub>2</sub> (22-18 µg/m<sup>3</sup>), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from June to August 2022.

### **13.3 Noise Environment**

The maximum Day noise and Night noise were found to be 61 dB(A) and 48 dB(A) respectively in Government High School, Kunnam. The minimum Day Noise and Night noise were 42 dB(A) and 35 dB(A) respectively which was observed in Santa Clara Convent Girls Higher Secondary School, Muttarampattu. The observed values are all well within the Standards prescribed by CPCB.

### **13.4 Water Environment**

- The average pH ranges from 7.57 – 7.97.
- TDS value varied from 118 mg/l to 1237 mg/l
- Hardness varied from 83.6 to 812 mg/l

- Chloride varied from 29.3 to 357 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 6.99 to 7.86 with organic matter 0.21 to 0.45 %. 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 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, Vilvam, Panai, etc will be planted along the lease boundary and avenues as well as over Non-active dumps at a rate of 240 trees per annum with interval 5m.
4. The rate of survival expected to be 80% in this area

**Table.10 Plantation/ Afforestation Program**

<b>Name of species proposed</b>	<b>Survival</b>	<b>No of species</b>
Neem, Vilvam, Vaagai, Eachai, Naval, Mantharai, Magizha Maram, Vila Maram, Poo Marudhu, Panai, Marudha maram, Thandri, Sengondrai, Poovarasu, Pungam, Sandhana Vembu, Uva, Uzha, Illuppai, Sarakondrai, Puthranjivi, etc.,	80%	1200
<b>Total</b>		<b>1200</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 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 1,27,88,227/-** 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 (Rs.)</b>
1	Fixed Asset Cost	15,82,800/-
2	Operational Cost	15,00,000 /-
3.	EMP Cost	97,05,427/-
	<b>Total</b>	<b>1,27,88,227/-</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 value (Rs)</b>
1.	Government Higher Sec. School, Karasanur – 1.50 km, N ➤ Painting of Classroom, Compound Walls and Entire School Campus ➤ R.O.Water Purifier ➤ Smart Class facility (Projector Attached) ➤ Environmental books for library (in Tamil language), ➤ Greenbelt facilities in and around the campus ➤ Hygienic Toilet Facilities	5,00,000/-
<b>Total</b>		<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.