

**EXECUTIVE SUMMARY FOR  
PROPOSED ROUGH STONE & GRAVEL QUARRY  
CATEGORY – B1 (CLUSTER)**

TOR Lr.No.SEIAA-TN/F.No.9767/SEAC/ToR-1448/2023 Dated: 09.05.2023

<b>PROPOSED QUARRY LEASE DETAILS</b>	
<b>SURVEY NOS</b>	181/3A2, 181/3B1A1(P), 181/3B1B, 181/3B2, 181/3C1, 181/3C2, 181/3D1 and 181/4
<b>VILLAGE</b>	<b>KEELNAICKENPALAYAM</b>
<b>TALUK</b>	<b>VEMBAKKAM</b>
<b>DISTRICT</b>	<b>TIRUVANNAMALAI</b>
<b>EXTENT</b>	<b>4.10.30 Ha</b>
<b>PROPOSED PRODUCTION QUANTITY FOR FIVE YEARS</b>	<b>4,71,330m<sup>3</sup> OF ROUGH STONE, 57,622m<sup>3</sup> OF WEATHERED ROCK 60,678m<sup>3</sup> OF GRAVEL FORMATION</b>
<b>LAND</b>	<b>CONSENT PATTALAND</b>

(Sector No. 1(a) (Sector no.1 as per NABET)  
Category of the Project: B1 Cluster Mining, Total Cluster Area – 8.91.3 Ha  
Baseline Monitoring Period – March to May 2023

**APPLICANT**

**THIRU A.V. SARATHY  
S/o. C.VARATHAN,  
No:34, R-1, Vellore Main road, Arcot Taluk,  
Vellore District.**

**ORGANIZATION**

**M/S. GLOBAL MINING SOLUTIONS  
(NABET ACCREDITED & ISO 9001 CERTIFIED CONSULTANT)  
PLOT NO. 6, SF NO. 13/2, A2, VS CITY, RC CHETTYPATTY,  
KOTTAMETTUPATTY, OMALUR, SALEM, TAMIL NADU – 636 455  
NABET ACCREDITATION NO – NABET/EIA/2326/IA 0110**

**July -2023**



## **EXECUTIVE SUMMARY**

### **1.0 Introduction**

Environmental Impact Assessment (EIA) as a tool used to identify the environmental, social and economic impacts of a project prior to decision-making. It aims to predict environmental impacts at an early stage in project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the predictions and options to decision-makers.

Thiru.A.V.Sarathy has obtained Precise Area communication letter from the Deputy Director, Department of Geology and Mining, Tiruvannamalai District, to quarry out 4,71,330m<sup>3</sup> of Rough Stone, 57,622m<sup>3</sup> of Weathered rock and 60,678m<sup>3</sup> of Gravel over an extent of 4.10.30Ha located at S.F.Nos. 181/3A2, 181/3B1A1(P), 181/3B1B, 181/3B2, 181/3C1, 181/3C2, 181/3D1 and 181/4 located in Keelnaickenpalayam Village, Vembakkam Taluk, Tiruvannamalai District , Tamil Nadu.

As per EIA notification, 2006 and its subsequent amendments the proposed "**Rough Stone & Gravel Quarry of Thiru.A.V.Sarathy** " cluster is falls under Schedule 1(a) Mining of Minerals. It is further classified under Category B1 due to the overall extent of cluster area is 8.91.3 Ha which is >5 Ha. The ToR for preparation of EIA/EMP was approved vide Lr.No. SEIAA -TN / F.No.9767 / SEAC / ToR-1448/2023 Dated: 09.05.2023. This report has been prepared in line with the approved TOR for production of maximum excavation of 4,71,330m<sup>3</sup> of Rough Stone, 57,622m<sup>3</sup> of Weathered rock and 60,678m<sup>3</sup> of Gravel for a period of five years.

### **1.1 Details of Project Proponent**

Name of the Proponent	: Thiru.A.V.Sarathy
Status of the Proponent	: Individual
Address	Thiru.A.V.Sarathy, S/o.C.Varathan residing at No:34, R-1, Vellore Main road, Arcot Taluk, Vellore District.

## 1.2 Size and Location of the Project

S. No.	Feature	Description
1	Co-ordinates of the project	Latitude : 12°44'13.44"N to 12°44'25.54"N Longitude: 79°41'44.11"E to 79°41'51.88"E
2	Type of land	Private Patta land
3	Extent of lease area	4.10.30Ha
4	Type of lease	Fresh lease
5	Toposheet No.	57-P/10
6	Geological Resource	16,35,960m <sup>3</sup> of Rough Stone, 81,798m <sup>3</sup> of Weathered rock and 81,798m <sup>3</sup> of Gravel
7	Mineable Resource	4,71,330m <sup>3</sup> of Rough Stone, 57,622m <sup>3</sup> of Weathered rock and 60,678 m <sup>3</sup> of Gravel
8	Proposed production quantity for five years	4,71,330m <sup>3</sup> of Rough Stone, 57,622m <sup>3</sup> of Weathered rock and 60,678 m <sup>3</sup> of Gravel
9	Proposed depth of mining	44m BGL

## 1.3 Statutory Details:

This is a fresh Rough Stone & Gravel Quarry project. There is no litigation/court cases pending against this project.

### (a) Precise Area Communication:

The Project Proponent has obtained Precise Area Communication from the Deputy Director, Department of Geology and Mining, Tiruvannamalai, vide Rc.No. 144/Kanimam/2022 dated 21.12.2022.

### (b) Mining Plan Approval Letter:

The project proponent has prepared mining plan under rule L9(I),41 &42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and the same has been approved by the Deputy Director, Dept. of Geology & Mining, Tiruvannamalai vide Rc.No. 144/Kanimam/2022 dated 06.01.2023.

(c) 500m radius quarry features:

The project proponent has obtained an official letter from Deputy Director, Dept. of Geology & Mining, Tiruvannamalai vide Rc.No. 144/Kanimam/2022 dated 06.01.2023.

(d) VAO certification regarding 300 meter features of the project area.

There are no historical places, schools, cemeteries, HT and LT lines, temples, bird sanctuaries, and wildlife sanctuaries within 300 metres of the proposed project area. In this regard, the project proponent has received an official letter from the Village Administrative Officer, Keelnaickenpalayam village, dated 17.09.2022.

(e) Project Proponent undertaking affidavit:

The project proponent has issued an affidavit under MoEF & CC O.M. No. 3-50/2017-IA.III(Pt.) dated 30.05.2018 to comply with the direction of the Hon'ble SC made on 2.08.2017 in W.P. (C) 114 of 2014 in matter of Common Cause vs Union of India & Ors.

(f) Blasting Agreement:

The Project Proponent have agreement with A.R. Enterprises to carry out the blasting operation for the proposed quarry.

(g) Land document of the proposed lease area:

It is patta land jointly registered in the name of Applicant and Thiru.Ruthrasekar vide patta no.452, the applicant has obtained consent from the pattadar,

#### **1.4 Project Description**

The type of the project is opencast semi-mechanized mining method to excavate Rough Stone & Gravel within the proposed Mine Lease area with drilling, blasting, loading and transportation.

#### **1.5 Location details**

This project site is located at S.F.Nos. 181/3A2, 181/3B1A1(P), 181/3B1B, 181/3B2, 181/3C1, 181/3C2, 181/3D1 and 181/4 over an area of 4.10.30 Ha in Keelnaickenpalayam Village, Vembakkam Taluk, Tiruvannamalai District , Tamil

Nadu. The nearest highway is Kanchipuram – Vandavasi road (SH 116) at a distance of 2.7km, S. The nearest railway station is Kanchipuram Railway Station which is located at a distance of 11km, NE from the project site. The nearest airport is Chennai (Meenambakkam) Airport which is located at a distance of 75km, NE

### 1.6 Geological resources

Geological Resources is estimated at 16,35,960m<sup>3</sup> of Rough stone, 81,798m<sup>3</sup> of Weathered Rock and 81,798m<sup>3</sup> of gravel formation and Mineable Reserves is estimated at 4,71,330m<sup>3</sup> of Rough Stone, 57,622m<sup>3</sup> of Weathered Rock and 60,678m<sup>3</sup> of gravel formation and after leaving necessary safety distance from the lease boundary as indicated in the precise area letter and relevant mining laws in force..

Section	Length in (m)	Width in (m)	Depth in (m)	Volume in m <sup>3</sup>	Gravel in m <sup>3</sup>	Weathered Rock in m <sup>3</sup>	Geological Resources of Rough stone in m <sup>3</sup>
XY-AB	92	104	2	19136	19136		
	92	104	2	19136		19136	
	92	104	40	382720			382720
<b>Total</b>					<b>19136</b>	<b>19136</b>	<b>382720</b>
XY-CD	136	146	2	39712	39712		
	136	146	2	39712		39712	
	136	146	40	794240			794240
<b>Total</b>					<b>39712</b>	<b>39712</b>	<b>794240</b>
XY-EF	153	75	2	22950	22950		
	153	75	2	22950		22950	
	153	75	40	459000			459000
<b>Total</b>					<b>22950</b>	<b>22950</b>	<b>459000</b>
<b>Grand Total</b>					<b>81798</b>	<b>81798</b>	<b>1635960</b>

## 1.7 Mineable resources

The mineable reserves calculated by deducting 7.5m and 50m safety distance and bench loss.

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m <sup>3</sup>	Gravel in m <sup>3</sup>	Weathered Rock in m <sup>3</sup>	Mineable Reserves of Rough stone in m <sup>3</sup>
XY-AB	I	84	87	2	14616	14616		
	II	82	83	2	13612		13612	
	III	76	72	5	27360			27360
	IV	69	59	5	20355			20355
	V	63	46	5	14490			14490
	VI	57	33	5	9405			9405
	VII	50	20	5	5000			5000
<b>Total</b>						<b>14616</b>	<b>13612</b>	<b>76610</b>
XY-CD	I	136	129	2	35088	35088		
	II	136	125	2	34000		34000	
	III	136	114	5	77520			77520
	IV	136	101	5	68680			68680
	V	136	88	5	59840			59840
	VI	135	75	5	50625			50625
	VII	129	62	5	39990			39990
	VIII	122	49	5	29890			29890
	IX	109	36	5	19620			19620
	X	96	23	5	11040			11040
<b>Total</b>						<b>35088</b>	<b>34000</b>	<b>357205</b>
XY-EF	I	93	59	2	10974	10974		
	II	91	55	2	10010		10010	
	III	85	44	5	18700			18700
	IV	79	31	5	12245			12245
	V	73	18	5	6570			6570
<b>Total</b>						<b>10974</b>	<b>10010</b>	<b>37515</b>

<b>Grand Total</b>	<b>60678</b>	<b>57622</b>	<b>471330</b>
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### 1.8 Yearwise production resources

The project proponent has proposed to carry out 4,71,330m<sup>3</sup> of Rough Stone, 57,622m<sup>3</sup> of Weathered Rock and 60,678m<sup>3</sup> of gravel at the rate of 100% recovery upto a depth of 27m below ground level for the period of five years.

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m <sup>3</sup>	Gravel in m <sup>3</sup>	Weathered Rock in m <sup>3</sup>	Mineable reserve of Rough stone in m <sup>3</sup>
I	XY-AB	I	84	87	2	14616	14616		
		II	82	83	2	13612		13612	
		III	76	72	5	27360			27360
	XY-CD	I	117	129	2	30186	30186		
		II	117	125	2	29250		29250	
		III	117	114	5	66690			66690
<b>Total</b>							<b>44802</b>	<b>42862</b>	<b>94050</b>
II	XY-CD	I	19	129	2	4902	4902		
		II	19	125	2	4750		4750	
		III	19	114	5	10830			10830
		IV	105	101	5	53025			53025
	XY-EF	I	93	59	2	10974	10974		
		II	91	55	2	10010		10010	
		III	85	44	5	18700			18700
		IV	79	31	5	12245			12245
<b>Total</b>							<b>15876</b>	<b>14760</b>	<b>94800</b>
III	XY-CD	IV	31	101	5	15655			15655
		V	100	88	5	44000			44000
	XY-AB	IV	69	59	5	20355			20355
		V	63	46	5	14490			14490
<b>Total</b>									<b>94500</b>
IV	XY-CD	V	36	88	5	15840			15840
		VI	135	75	5	50625			50625
		VII	22	62	5	6820			6820
	XY-EF	V	73	18	5	6570			6570
		VI	57	33	5	9405			9405
	XY-AB	VII	50	20	5	5000			5000
<b>Total</b>									<b>94260</b>
V	XY-CD	VII	107	62	5	33170			33170
		VIII	122	49	5	29890			29890
		IX	109	36	5	19620			19620

	X	96	23	5	11040			11040
<b>Total</b>								<b>93720</b>
<b>Grand Total</b>						<b>60678</b>	<b>57622</b>	<b>471330</b>

### 1.9 Land use of the project area

The proposed Mine Lease area is dry barren Patta land and the Land use pattern of the project site is given below.

S. No.	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)
1	Quarrying Pit	Nil	3.10.00
2	Infrastructure	Nil	0.02.00
3	Roads	Nil	0.02.00
4	Green Belt	Nil	0.40.00
5	Unutilized	4.10.30	0.56.30
	<b>Total</b>	<b>4.10.30</b>	<b>4.10.30</b>

The ultimate pit dimension at the end of conceptual period is given below.

Pit No.	Length (max) (m)	Width (Avg) (m)	Depth (max) (m)
I	313	99	44

### 1.10 Method of mining

Opencast Semi-mechanized mining with a bench height of 5m and bench width of 5m and 80° Slope is proposed. The quarry operation involves shallow jack hammer drilling, slurry blasting, excavation, loading and transportation of Rough Stone to the needy customers. Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting.

### 1.11 Greenbelt Development

Green belt development plan is proposed for the 5 year period.

S.No.	Year	Species	No. of trees	Spacing	Survival
1	I	Pongamia pinnata,	200	3m x 3m	80%
2	II	Syzigium cumini,	200		
3	III	Albizia lebbeck,	200		
4	IV	Thespesia populnea,	200		
5	V	Bauhinia racemose, Cassia siamea, Azadirachta indica	200		
<b>Total</b>			<b>1000</b>		



## 2.0 Description of the Environment

The project area is located in Vada Keelnaickenpalayam Village, Vembakkam Taluk, Tiruvannamalai District over an extent of 4.10.30Ha. The project area is considered as Core zone and the area in the surrounding 10km radius is considered as Buffer Zone. The meteorological data collected in the study area from March to May 2023 which includes Temperature, Wind speed, Wind direction and Relative humidity. The

S.NO	Parameters	Ambient Air Quality									All Value in $\mu\text{g}/\text{m}^3$		
		PM10			PM2.5			SO2			NO2		
		Locations	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
1	A1-Mine Lease Area	58.5	67.5	76.1	25.6	29.6	33.4	5.7	6.7	7.6	8.8	12.1	15.1
2	A2-Girijapuram	48.2	52.6	57.2	22	24.1	26.2	4.4	5.6	6.9	6.4	8.6	11.3
3	A3- Valavandal	49.5	54.0	58.8	23.2	25.3	27.5	4.3	5.5	6.7	6.5	9.0	12.1
4	A4- Bhagavanthapuram	47.9	52.0	56.8	21.4	23.3	25.5	4.4	5.0	5.9	6.2	8.5	11.3
5	A5- Narasamangalam	50.2	54.7	60.2	23.4	25.6	28.3	4.7	5.7	6.7	6.3	8.9	11.7
6	<b>CPCB NAAQS 2009</b>	<b>100</b>			<b>60</b>			<b>80</b>			<b>80</b>		

predominant wind blow from West. Temperature range was from 20°C (minimum in night) to 45°C (maximum in day).

### 2.1 Ambient Air monitoring Data

Ambient air quality monitoring has been carried out in 5 locations. One in the core zone and remaining four locations are in the buffer zone areas. The concentrations of the monitoring value well within the prescribed government norms. For all the components in the table, the unit are in  $\mu\text{g}/\text{m}^3$

### 2.2 Water Environment

Water samples (bore well samples)

Parameter	SW1	SW2	CPCB Designated Best Use	
			Acceptable Limits	Permissible Limits
Odour	Disagreeable	Agreeable	Agreeable	Agreeable
Turbidity	<1	<1	2	5
pH at 25 °C	7.7	7.9	6.5- 8.5	No Relaxation
Electrical Conductivity	950	980	-	-
Total Dissolved Solids	500	713	500	2000
Total hardness as CaCO <sub>3</sub>	256	382	200	600
Calcium as Ca	61.7	102	75	200

Magnesium as Mg	32.2	40.4	30.0	100
Calcium as CaCO <sub>3</sub>	184	263	-	-
Magnesium as CaCO <sub>3</sub>	86	124	-	-
Total alkalinity as CaCO <sub>3</sub>	222	281	200	600
Chloride as Cl <sup>-</sup>	63	85	250	1000
Free Residual chlorine as Cl <sup>-</sup>	BDL(D.L-0.2)	BDL(D.L-0.2)	0.2	1
Sulphates as SO <sub>4</sub> <sup>2-</sup>	42	61	200	400
Iron as Fe	0.18	0.21	0.3	No Relaxation
Nitrate as NO <sub>3</sub>	21.7	29.3	45	No Relaxation
Fluoride as F	0.48	0.52	1	1.5
Manganese as Mn	BDL(D.L-0.05)	BDL(D.L-0.05)	0.1	0.3

### 2.3 Noise Monitoring

Noise Monitoring were done at 5 different locations and the results are given below.

Monitoring Location	N1	N2	N3	N4	N5
DAY EQUIVALENT	51.3	47.7	48	45.5	49.1
NIGHT EQUIVALENT	40.4	41.0	45.3	41.6	41.7
DAY & NIGHT EQUIVALENT	49.8	46.4	47.3	44.6	47.7
Limits as per MoEF&CC					
Day equivalent - 55 dB (A); Night equivalent - 45 dB (A); Work zone Exposure in 8 hr - 90 dB (A)					

### 2.4 Soil Sampling

Soil samples were collected from 3 locations to assess the soil quality in and around the mines. Soil samples collected using sampling augers and field capacity apparatus

Parameter	Units	S1	S2	S3
PH		6.56	7.05	7.52
EC	µmhos/cm	81.6	96.4	65.2
DRY MATTER	%	96.33	97.25	95.48
WATER CONTENT	%	3.67	2.75	4.52
ORGANIC MATTER	%	0.72	0.75	0.66
SOIL TEXTURE		Loam	Silty Clay Loam	LOAM
Grain Size Distribution				
SAND	%	46.89	20.33	47.64

<b>SILT</b>	%	36.57	40.24	30.26
<b>CLAY</b>	%	16.54	39.43	22.10
<b>PHOSPHORUS</b>	mg/kg	1.56	1.36	0.57
<b>SODIUM</b>	mg/kg	630	675	121
<b>POTASSIUM</b>	mg/kg	425	360	635
<b>KJELDHAL NITROGEN</b>	mg/kg	210	170	180
<b>SULPHUR</b>	%	BDL(D.L - 0.02)	BDL(D.L - 0.02)	BDL(D.L - 0.02)
<b>Water Holding Capacity</b>	%	3.5	3.1	3.6
<b>Porosity</b>	%	17.2	18.2	17.8

### **3.0 Anticipated Environmental Impacts and Mitigation Measures**

In order to maintain the existing environmental scenario of the proposed mine lease area it is mandatorily required to assess the present ecology and environment of the proposed mine lease area and buffer area of the project before starting mining operations.

#### **3.1 Land Environment**

This is a proposed Rough Stone and Gravel Quarry of Thiru.A.V.Sarathy at S.F.Nos. 181/3A2, 181/3B1A1(P), 181/3B1B, 181/3B2, 181/3C1, 181/3C2, 181/3D1 and 181/4 over an extent of 4.10.30 Ha in Va Keelnaickenpalayam Village, Vembakkam Taluk, Tiruvannamalai District , Tamil Nadu. The method of mining is Opencast Semi mechanized with a bench width and height of 5m. It is proposed to excavate to 4,71,330m<sup>3</sup> of Rough Stone, 57,622m<sup>3</sup> of Weathered Rock and 60,678m<sup>3</sup> of gravel upto a depth of 44m BGL for the period of five years. There is no stream/Odai within the mine lease area.

#### **Anticipated Impacts and Mitigation Measures**

The major impact due to this project on land environment is the change in land use. Since this quarry is a small one and the production is less, mining activity will be carried out only up to 44m BGL only. Other than quarrying of minerals, no other change will be done since there is no dumping. To prevent soil erosion during monsoon season, garland drain will be constructed with silt traps. At the mine closure stage, 3.10.0 Ha of lease area will be left as rain water harvesting pond. 0.40.0Ha

will be developed with green belt. For this, plants like Pongamia pinnata, Syzigium cumini, Albizia lebbeck, Thespesia populnea, Bauhinia racemose, Cassia siamea, Azadirachta indica are selected. A total of 1000 trees are planned to be planted. Spacing will be 3m x 3m.

### **3.2 Solid Waste Management**

The waste generation in the form of Solid waste (Municipal Waste) is very negligible. A detailed solid waste management system for the project area is given below and the same will be executed by proper awareness and sign boards. The sign boards will be in two language i.e., Vernacular language (Tamil) and common language (English). The plastic waste generation is very negligible and it will be collected from the source level in specific dustbin and disposed through the municipal bins.

### **3.3 Water Environment**

#### **Impacts on Surface Water Resources**

There is no seasonal or perennial Odai within the M.L area. The drainage pattern of the region is plane to sub-dendritic. Surface run-off water of the M.L. area is drained through proposed drainage and collected in the bottom of the quarry and collected water will be used for same quarry operation as such for plantation & dust suppression.

There is canal passing on northern side of the S.F.No.181/2 for which 50m safety distance maintained from the proposed ML area. Canal – 2.1km (N), Mamandur Tank – 3.7km (W), Palar River – 5.8km (N), Canal – 5.8km (SE), Cheyyar River – 6.4km (SE), Vegavati River – 8.7km (N). Water table is found at a depth of 55m in summer and 58m in rainy seasons.

Since these water bodies are located outside the lease area and there is no discharge of effluent or any untreated water from the mines will be made into these water bodies, there is no major impact. The project proponent will restrict the mining operation only within the lease and no other work will be carried out near the canal or any area outside the mining lease.

#### **Impacts due to water use in Mines**

In the proposed mines water will be mainly used for domestic purpose, dust suppression & plantation. Total water requirement for the project is 3.5 KLD which

will be sourced from outside agencies. Negligible sewage of 0.3 KLD will be generated, for which a septic tank with soak pit will be set up.

### **Impacts on Ground Water**

The mining activity is not likely to intersect ground water as the ground water table occurs at 55 BGL in summer season and in Rainy season at 58 BGL. The mining will go up to the maximum depth of 44 BGL. So there will be no chance of intersecting the ground water table by the mining activity. So the impact of mining on the ground water is not envisaged.

### **Mitigation Measures**

Entire lease area will be provided with proper garland drains. Check wears will be provided to prevent solids from wash off. Construction of garland drains around freshly excavated so that flow of water with loose material is prevented. The mine water will be passed through the natural slopes and valleys and gets accumulated in the settling tank (Bottom pit).

## **3.4 Air Environment**

### **Impacts due to mining operation**

Mining activities in the proposed lease area not only pollutes the air in the core zone but also the nearby areas. The major air pollutants due to mining operations are fugitive emissions like PM<sub>10</sub>, PM<sub>2.5</sub>. Other than these pollutants, gaseous emissions of sulfur dioxide (SO<sub>2</sub>) and oxides of nitrogen (NO<sub>x</sub>) due to excavation/loading equipment and vehicles plying on haul roads are the cause of air pollution in the project area.

Furthermore loading, unloading and transportation of rough stone and gravel as well as wind erosion of the exposed area and movement of light vehicles will cause pollution within a 500-meter radius of the project area due to quarrying activities. This has a cumulative impact on the ambient air environment around the project area.

### Mitigation measures for various impacts

S. No.	Impact	Mitigation measures
1	Dust emission due to drilling	<ul style="list-style-type: none"><li>• Using Wet drilling methods</li><li>• Allowing drilling only with PPE</li></ul>
2	Dust emission due to Blasting	<ul style="list-style-type: none"><li>• Carrying out blasting only during specified times</li><li>• Avoiding blasting during unfavourable weather conditions</li><li>• Using explosives of good quality</li></ul>
3	Transportation	<ul style="list-style-type: none"><li>• Using mist sprayers</li><li>• Regular wetting of transport roads</li><li>• Covering the materials carried in tippers with tarpaulin</li><li>• Proper maintenance of vehicles used for transportation</li><li>• Conducting regular emission tests for vehicles used for transport</li><li>• Development of greenbelt is proposed in the safety zone of 10m and 7.5m barriers in the lease area.</li></ul>

### 3.5 Noise Environment

The main noise generating source during mining operation and related activities are drilling, excavation, loading and transportation. Intermittent noise is generated due to operation of diesel generator.

#### Impacts

Noise generation in mining is due to operation like drilling, blasting and transportation of minerals within and outside the lease area. As per DGMS (Directorate General of Mines Safety) limits, the acceptable noise level is 85 dB(A) for an exposure period of 8 hours. Exposure to loud noise can also cause high blood pressure, heart disease, sleep disturbances, and stress. Noise pollution also impacts the health and well-being of wildlife. Noise exceeding prescribed limits may cause impairment like abnormal loudness perception, tinnitus which causes a persistent high-pitched ringing in the ears, paracusis or distorted hearing.

### **Mitigation Measures**

As the distance between the source and receptor increases, the noise level decreases. Hence, there will be a natural attenuation. The proponent has planned to develop green belt in the periphery of the lease area which diminishes sound volume by dampening them. All the equipment/machinery/tippers involved will be properly maintained to control noise generation. Conducting regular health checkups for employees involved. Employees will be made to work on shifts to reduce their exposure time. Providing earplugs to all employees. Providing green walls/nets wherever possible.

### **3.6 Socio Economic Impact**

The lease area is a private land jointly owned by the proponent and 4 other owners. The proponent has obtained Consent from other owners and got it registered. No rehabilitation is needed. Hence, there is no negative impact. The proponent has planned to spend INR 5,00,000 for CER activities.

### **3.7 Occupational Health**

#### **Impacts**

The occupational risk due to proposed mining may be due to drilling, blasting, excavation and transportation. A total of 27 workers will be engaged in the mining activity. Mining activity may cause various health problems to the mines workers as follows:

- Dust generated during excavation, drilling, stone cutting, sizing and transportation may cause health problems like Silicosis, Asthma, Tuberculosis and other respiratory lungs disorders.
- Heavy weight lifting by the workers may cause injuries to arms, legs and back.
- Noise generated during the mining activity may cause Noise Induced Hearing Loss (NIHL).

#### **Mitigation Measures**

- The mines worker will be provided with dust mask to minimize the inhalation of the dust.
- Water sprinkling twice in a day is in practice on the haul roads, near excavation and roads to reduce the fugitive dust emission.

- Wet drilling and drilling with dust extractor will be practiced.
- Ear muffs will be supplied to the workers working in the noise prone area
- The mining site will be supplied with first aid facilities and the entire mines worker will have access to that.
- The mines workers will be well trained about the safety practices in the mining activities.
- As per Mines Rules, 1955, medical examination of employees at the initial stage and periodically, shall be done by a team of qualified medical officers provided by the project proponent.
- Regular medical checkup camps shall also be arranged for detection of occupational diseases and minor disease in the nearby rural population.
- Free checkup and medicine for treatment for their acute and chronic illness shall be provided by the lessee. Conducting periodical Medical Examination as per DGMS.
- Making all first aid kits available in mines office
- Keeping fire extinguisher in place
- Educating the employees about how to handle unexpected happenings
- Posting information containing emergency contact numbers in mines office
- By adopting all these measures, the safety of the employees working in the quarry will be ensured.

#### **4.0 Analysis of Alternatives (Technology & Sites)**

The mining technology is semi mechanized Opencast in single-shift operation without any change in technology. The operation will be carried out as per DGMS norms. No alternate technology will be used.

#### **5.0 Environmental Monitoring Programme**

Monitoring is done to measure the efficiency of control measures implemented. Regular monitoring of various environmental parameters like air, water, noise and soil environments is needed to assess the status of environment during the project operation.

A schedule is framed with timeline to monitor various parameters during the operation of the project. The schedule is framed based on MoEF & CC and Tamil Nadu State Pollution Control Board. In case the SEIAA/TNPCB/MoEF & CC or other statutory



bodies demand monitoring of any additional parameter/factor, the same will also be done.

The proposed quarry is a small quarry. Hence the Mines-in-charge will be responsible for environmental related activities. After obtaining EC, the conditions mentioned in EC will be strictly followed. The Mines-in-charge will be responsible for implementing the conditions. EC compliance report will also be submitted periodically.

## **6.0 Additional Studies**

### **6.1 Risk Assessment & Management**

Risk assessment is a method in which possible threats/hazards which may arise during mining operations are identified so that adequate machinery/equipment are made available in precaution.

### **6.2 Rehabilitation and Resettlement (R&R) Plan**

No land is acquired from people dwelling in the area. The lease area is an uninhabited land. No R & R plan is proposed.

### **6.3 Hydrogeological Study**

There is canal passing on northern side of the S.F.No.181/2 for which 50m safety distance maintained from the proposed ML area. Canal – 2.1km (N), Mamandur Tank – 3.7km (W), Palar River – 5.8km (N), Canal – 5.8km (SE), Cheyyar River – 6.4km (SE), Vegavati River – 8.7km (N). Due to the presence of these water bodies nearby, a detailed hydrogeological study has been done. As suggested in the precise Area Communication letter, safety distances of 10m is left on the West, Northeast, South eastern parts, and a safety distance of 7.5 is left on the East and Southwestern parts.

### **6.4 Disaster Management Plan**

Precautionary measures are well explained to all staff by the mines in-charge. PPE necessary for all staff are available in the quarry. No person is allowed to enter inside without PPE. Avoiding quarrying during unfavorable environmental conditions. Carrying out safe blasting by following DGMS norms. Safety equipment like fire extinguisher, first aid kit, etc are present in the mine. Proper maintenance of machinery used for mining. In case of any emergency, the contact numbers of mines in-charge, mines manager, Management contact are available in the mines office.

## **6.5 Mine Closure Plan**

The quarrying operation is proposed up to a depth of 44m only, which will be achieved in 5 years. The ultimate pit dimension will be 313 x 99 x 44 m. After completion of quarrying operation, the mined out pit will be left as rain water harvesting pond. The quarry will be properly fenced with barbed wire.

## **7.0 Project Benefits**

The project area is located on barren private Patta land, thereby causing no impact on the loss of agriculture or forest land. The project will create employment opportunities in the area. There will be no adverse effect of mining on the socioeconomic status of the people; rather, mining activities will improve their standard of living. The mining activity creates employment opportunities for the local people, and this definitely raises their economic status. Apart from the overall beneficial impact of the project on the local people of the region, it is felt necessary to augment facilities in the fields of education, health, and social awareness, including concern for the environment and ecosystem.

The mining activity at proposed Rough Stone & Gravel of Thiru.A.V.Sarathy cluster will create direct employment opportunity for 27 local people. The PP has proposed CER amount of Rs. 5, 00,000 for project surrounding schools development.

## **8.0 Environmental Management Plan**

The Environmental Management Plan is developed to ensure that a project is implemented in an environmentally sustainable manner, where all contractors and subcontractors, including consultants, understand the potential environmental risks arising from the project and take appropriate actions to minimize those risks. EMP also ensures that the project implementation is carried out in accordance with the planned design and by taking appropriate mitigation measures to reduce adverse environmental impacts during the project's life cycle.

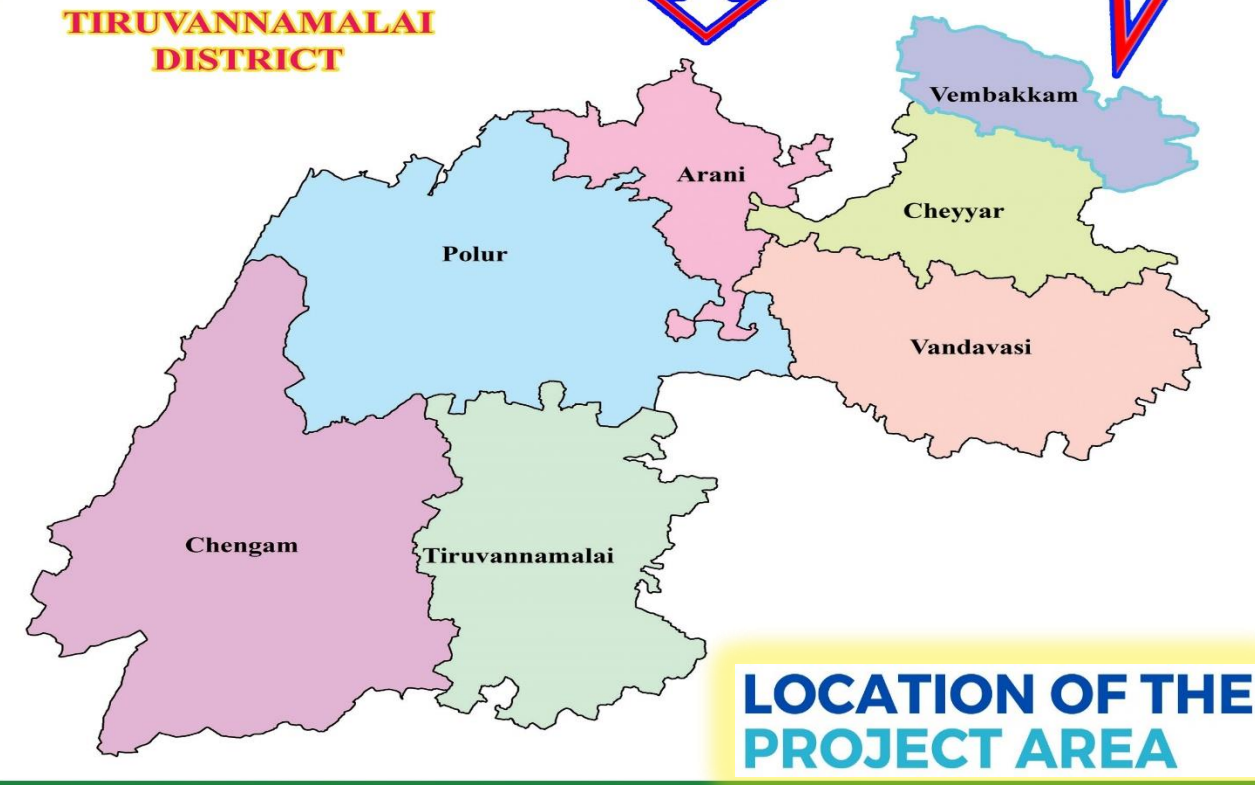
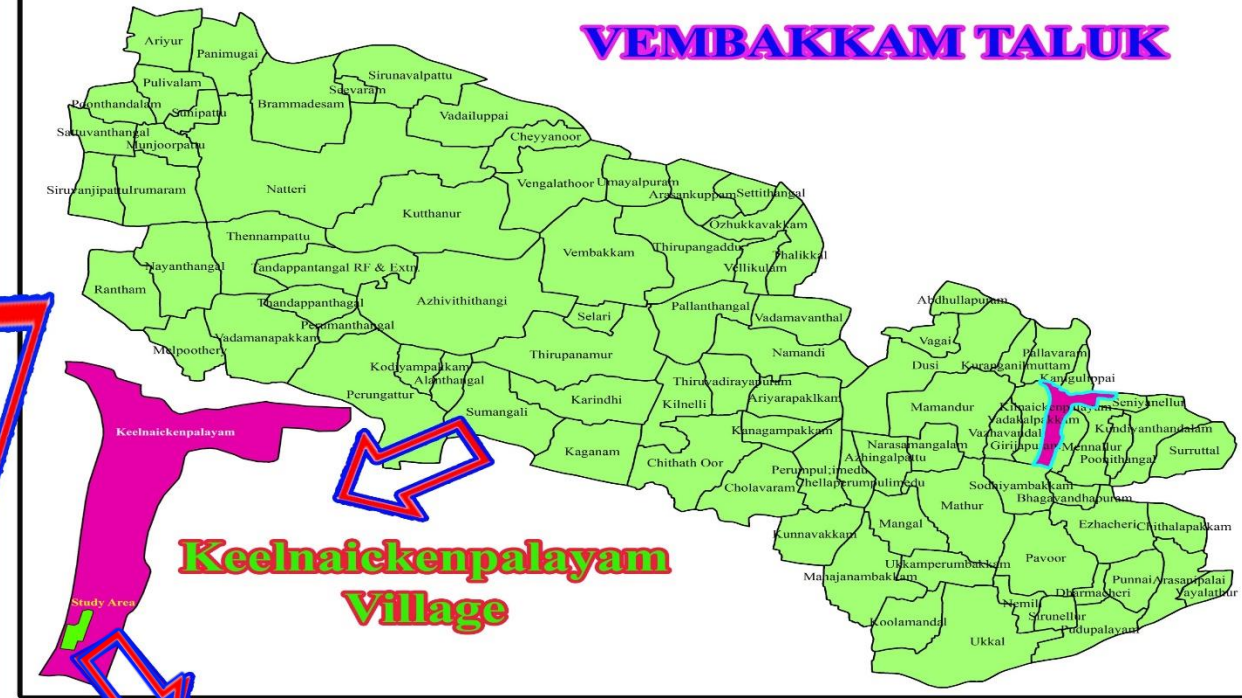
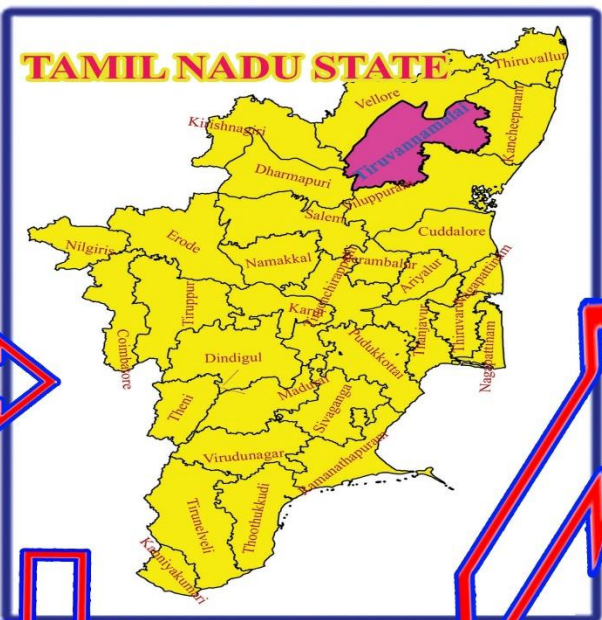
The effective implementation of EMP is not only reduce pollution load and comply the regulatory requirement but also increase productivity and improve marketability of product. The capital and recurring cost of EMP for the project has been given in below table.

Sl .No	Budget planned for	Capital Cost Amount (INR)	Recurring Cost/Annum Amount (INR)
1	Air Environment	11,61,030	2,84,030
2	Water Environment	11,500	5,000
3	Noise monitoring	50,000	2,000
4	Implementation of EC, Mining Plan & DGMS Condition	12,13,750	9,00412
5	Greenbelt Development	5,80,000	60,000
<b>Total</b>		<b>30,16,280</b>	<b>12,51,442</b>

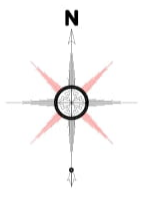
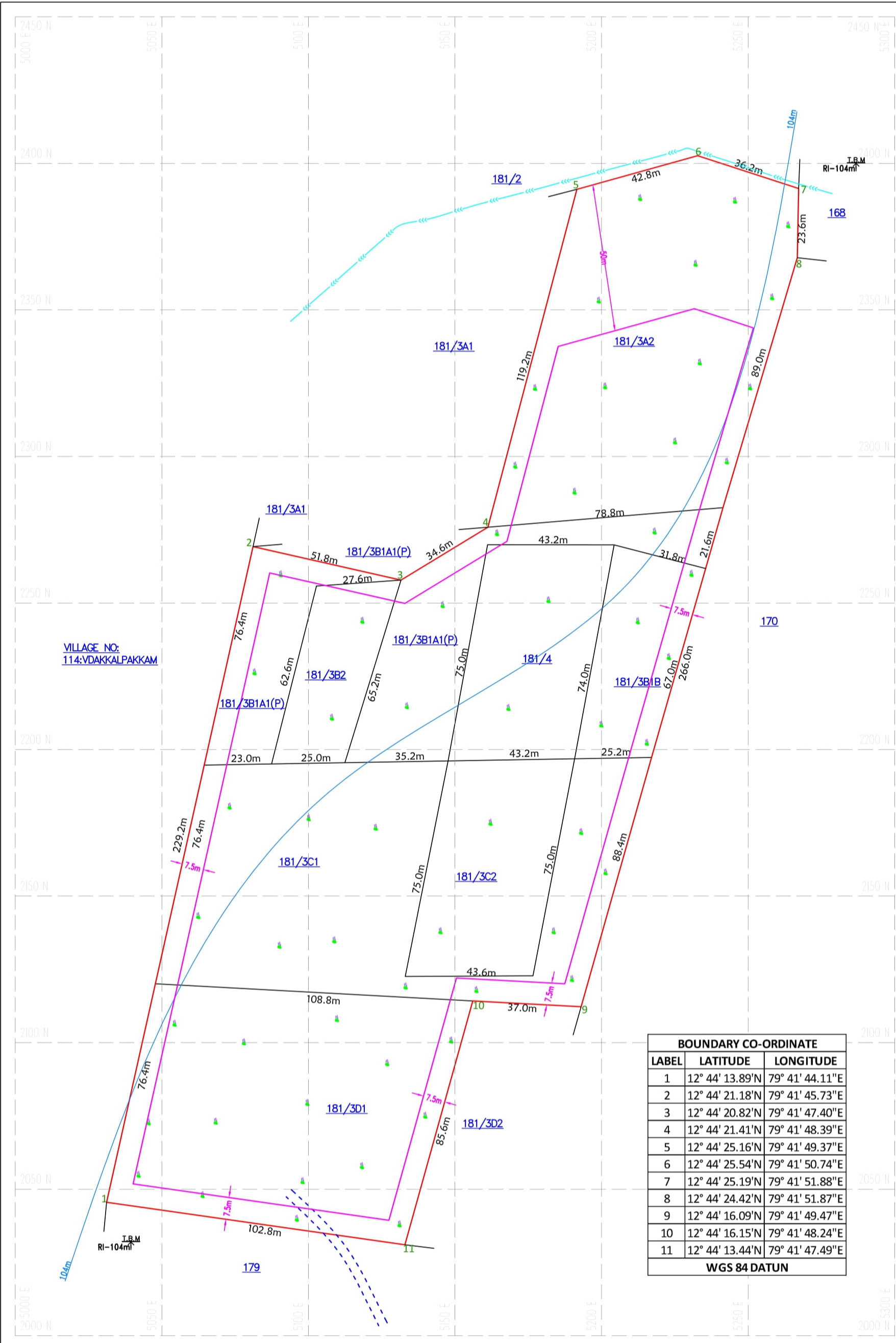
## 9.0 Conclusion

It can be concluded from overall assessment of the impacts, in terms of positive and negative effects on various environmental components, that the mining activities will not have any adverse effect on the surrounding environment.









VILLAGE NO:  
114:VDAKKALPAKKAM

**PLATE NO-II**  
**DATE OF SURVEY :**

**APPLICANT:**  
THIRU.A.V.SARATHY,  
S/o.C.VARATHAN,  
NO.34,R-1,VELLORE MAIN ROAD,  
ARCOT TALUK,  
VELLORE DISTRICT.

**QUARRY LEASE APPLIED AREA:**  
S.F.NOs :181/3A2,181/3B1A1(P),181/3B1B,181/3B2,  
:181/3C1,181/3C2,181/3D1&181/4,  
EXTENT : 4.10.30Ha,  
VILLAGE : KEELNAICKENPALAYAM,  
TALUK : VEMBAKKAM,  
DISTRICT : TIRUVANNAMALAI.

**INDEX**

- Q.L. APPLIED BOUNDARY
- 7.5m & 50m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- CONTOUR
- SCRUB
- CANAL

BOUNDARY CO-ORDINATE		
LABEL	LATITUDE	LONGITUDE
1	12° 44' 13.89'N	79° 41' 44.11"E
2	12° 44' 21.18'N	79° 41' 45.73"E
3	12° 44' 20.82'N	79° 41' 47.40"E
4	12° 44' 21.41'N	79° 41' 48.39"E
5	12° 44' 25.16'N	79° 41' 49.37"E
6	12° 44' 25.54'N	79° 41' 50.74"E
7	12° 44' 25.19'N	79° 41' 51.88"E
8	12° 44' 24.42'N	79° 41' 51.87"E
9	12° 44' 16.09'N	79° 41' 49.47"E
10	12° 44' 16.15'N	79° 41' 48.24"E
11	12° 44' 13.44'N	79° 41' 47.49"E

**WGS 84 DATUM**

**QUARRY LEASE & SURFACE PLAN**  
SCALE 1 : 1000

**PREPARED BY :**  
THIS IS TO CERTIFY THAT THE INFORMATION  
IN THIS PLATE IS TRUE AND CORRECT TO  
THE BEST OF MY KNOWLEDGE BASED UPON  
THE LEASE MAP AUTHENTICATED BY STATE  
GOVERNMENT

C.NATARAJAN,R.Sc.M.Phil.,  
QUALIFIED PERSON



PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.A.V.SARATHY OVER AN EXTENT 4.10.30HA  
 LOCATED AT S.F.NOS.181/3A2,181/3B1A1(P),181/3B1B,181/3B2,181/3C1,181/3C2,181/3D1&181/4 OF  
 KEELNAICKENPALAYAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE

INDEX



TOPO SHEET NO: 57 P/09, 10, 13 & 14



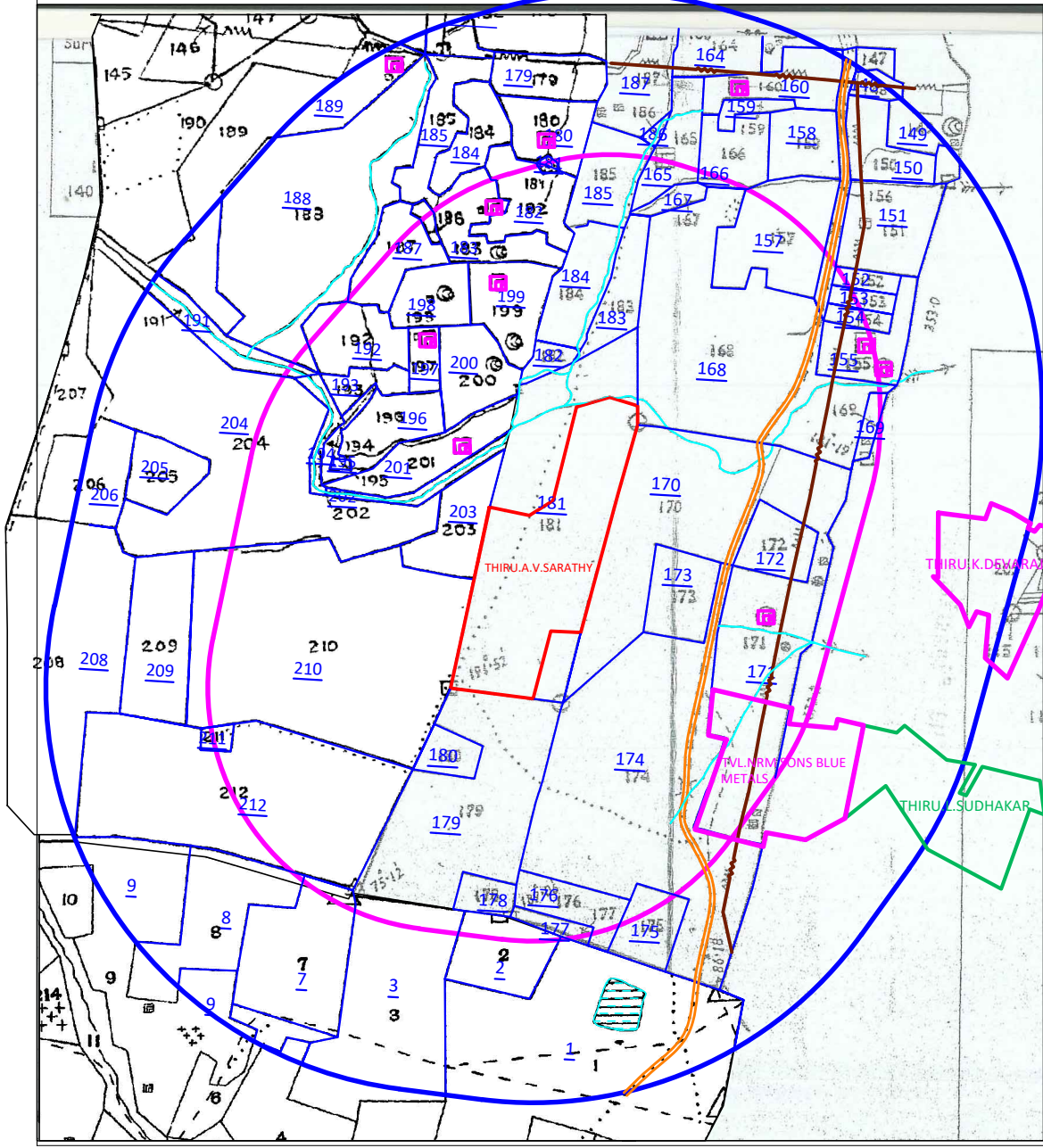
CONVENTIONAL SYMBOLS	
Express highway: with toll; with bridge; with distance stone	
Roads, metalled: according to importance	
Roads, double carriageway: according to importance	
Unmetalled road: Cart-track: Pack-track with pass: Foot-path	
Streams: with track in bed; undefined: Canal	
Dams: masonry or rock-filled; earthwork: Weir	
River: dry with water channel; with island & rocks: Tidal river	
Submerged rocks: Shoal: Swamp: Reeds	
Wells: lined; unlined: Tube-well: Spring: Tanks: perennial; dry	
Embankments: road or rail; tank: Broken ground	
Railways: broad gauge: double; single with station; under constn	
Railways, other gauges: double; single with distance stone; do	
Mineral line or tramway: Kin. Cutting with tunnel	
Contours with sub-features: Rocky slopes: Cliffs	
Sand features: (1)flat: (2)sand-hills(permanent): (3)dunes(shifting)	
Towns or Villages: inhabited; deserted: Fort	
Huts: permanent; temporary: Tower: Antiquities	
Temple: Chhatri: Church: Mosque: Idgah: Tomb: Graves	
Lighthouse: Lightship: Buoys: lighted; unlighted: Anchorage	
Mine: Vine on trellis: Grass: Scrub	
Palms: palmyra; other: Plantain: Conifer: Bamboo: Other trees	
Areas: cultivated; wooded: Surveyed tree	
Boundary, international	
state: demarcated; undemarcated	
district: subdivision; taluk or taluk; forest	
Boundary pillars: surveyed; unlocated	
Heights, triangulated: station; point; approximate	
Bench-mark: geodetic; tertiary; canal	
Post office: Telegraph office: Overhead tank	
Rest house or inspection bungalow: Circuit house: Police station	
Camping ground: Forest: reserved; protected	
Spaced names: administrative; locality or tribal	
Hospital: Dispensary: Veterinary: Hospital / Dispensary	
Aerodrome: Helipad: Tourist site	
Power line: with pylons surveyed; with poles unsurveyed	

Q.L.APPLIED AREA	
10km RADIUS	
5.0km RADIUS	
1.0km RADIUS	
STATE HIGHWAY	
HABITATION	
RIVER	
CANAL	





PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.A.V.SARATHY OVER AN EXTENT 4.10.30HA  
 LOCATED AT S.F.NOS.181/3A2,181/3B1A(P),181/3B1B,181/3B2,181/3C1,181/3C2,181/3D1&181/4 OF  
 KEELNAICKENPALAYAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE



**APPLICANT:**

THIRU.A.V.SARATHY,  
 S/o.C.VARATHAN,  
 NO:34,R-1,VELLORE MAIN ROAD,  
 ARCOT TALUK,  
 VELLORE DISTRICT.

**QUARRY LEASE APPLIED AREA:**

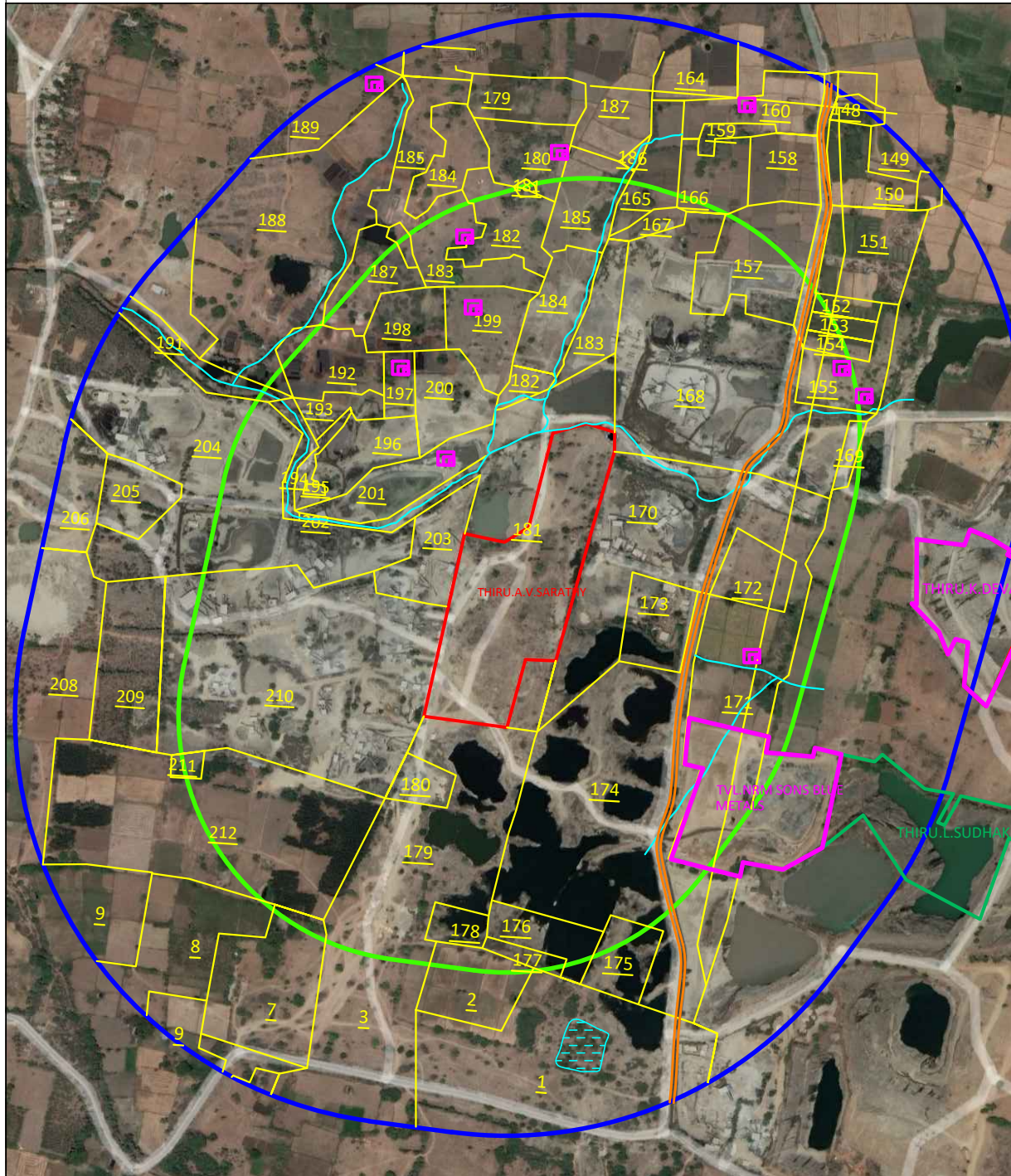
S.F.NOs :181/3A2,181/3B1A(P),181/3B1B,181/3B2,  
 :181/3C1,181/3C2,181/3D1&181/4,  
 EXTENT : 4.10.30Ha,  
 VILLAGE : KEELNAICKENPALAYAM,  
 TALUK : VEMBAKKAM,  
 DISTRICT : TIRUVANNAMALAI.

**INDEX**

Q. L. A. AREA : ●  
 TOPO SHEET NO : 57 P/ 10  
 LATITUDE: 12°44'13.44"N to 12°44'25.54"N  
 LONGITUDE: 79°41'44.11"E to 79°41'51.88"E

<b>EXISTING QUARRIED</b>	
1.TVL.NRM SONS BLUE METALS	
2.THIRU.K.DEVARAJ	
<b>ABANDONED QUARRY</b>	
1.THIRU.L.SUDHAKAR	
<b>PRESENT PROPOSED QUARRIES</b>	
1.THIRU.A.V.SARATHY	
Q.L. APPLIED AREA	
300M RADIUS	
500M RADIUS	
ODAI	
PANCHAYAT ROAD	
TANK	
WELL	

PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.A.V.SARATHY OVER AN EXTENT 4.10.30HA  
 LOCATED AT S.F.NOS.181/3A2,181/3B1A1(P),181/3B1B,181/3B2,181/3C1,181/3C2,181/3D1&181/4 OF  
 KEELNAICKENPALAYAM VILLAGE, VEMBAKKAM TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE




**APPLICANT:**





THIRU.A.V.SARATHY,  
 S/o.C.VARATHAN,  
 NO.34,R-1,VELLORE MAIN ROAD,  
 ARCOT TALUK,  
 VELLORE DISTRICT.








**QUARRY LEASE APPLIED AREA:**

S.F.NOS :181/3A2,181/3B1A1(P),181/3B1B,181/3B2,  
 :181/3C1,181/3C2,181/3D1&181/4,  
 EXTENT : 4.10.30Ha,  
 VILLAGE : KEELNAICKENPALAYAM,  
 TALUK : VEMBAKKAM,  
 DISTRICT : TIRUVANNAMALAI.

**INDEX**

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<b>PRESENT PROPOSED QUARRIES</b>	
1.THIRU.A.V.SARATHY	

Q.L. APPLIED AREA	
300M RADIUS	
500M RADIUS	
ODAI	
PANCHAYAT ROAD	
TANK	
WELL	



From

To

Thiru.A.Perumal, M.sc., M.phil.,  
Deputy Director,  
Geology and Mining,  
Tiruvannamalai District.

Thiru.A.V.Sarathy,  
S/o. Varathan,  
No.34, R-1, Vellore Main Road,  
Arcot Taluk,  
Vellore District.

**Rc.No. 144/Kanimam/2022, dated:06.01.2023**

**Sub:** Quarries and Minerals - Minor Mineral Rough Stone and Gravel - Tiruvannamalai District - Vembakkam Taluk - Keelnaickenpalayam village - Patta SF.No.181/3A2 & etc., over an extent 4.10.30 hecets., - Application preferred by Thiru.A.V.Sarathy S/o. Varathan - Precise area communicated - Submission of Mining Plan for approval - Approved - Regarding.

**Ref:** Thiru.A.V.Sarathy S/o. Varathan Letter Dated:05.01.2023

\*\*\*\*\*

In the reference cited, Thiru.A.V.Sarathy the applicant of proposed Rough Stone quarry lease in SF.Nos.181/3A2 (0.93.52), 181/3B1A1 (Part) (0.48.78), 181/3B1B (0.20.0), 181/3B2 (0.17.0), 181/3C1 (0.83.12), 181/3C2 (0.32.38), 181/3D1 (0.83.12) & 181/4 (0.32.38) over an extent 4.10.30 hecets., of Keelnaickenpalayam village, Vembakkam Taluk, Tiruvannamalai District has requested to furnish the details of quarries located within 500 meters radius from his proposed quarry.

In this regard, the followings are furnished.

**i). Existing quarries**

Sl. No.	Name of the Owner (Tvl.)	Village & S.F. Nos.	Extent in Hect.	Lease Period	Remarks
1	Tvl. NRM SONS BLUE METALS, 97A, Ottakuthar St, Mamallan Nagar, Kanchipuram District.	Kizhnaickenpalayam 171/9, 171/12 & Girijapuram 103/4, 103/5, 103/6 & 103/10	2.75.0	17.12.2021 to 16.12.2031	Existing quarry
2	Thiru.K.Devaraj, S/O. T.Kanniyappan, No.105, Gandhisilai St, Lakshmiapuram Village, Vembakkam Taluk, Tiruvannamalai.	Girijapuram 83/11F, 83/11G, 83/11H, 92/1B, 92/3A, 92/3B, 92/3C, 98/13A, & 98/14A	2.06.0	15.10.2018 to 14.10.2023	

**ii). Abandoned quarries**

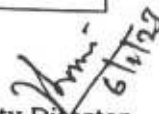
Sl. No	Name of the Owner (Tvl)	Village & S.F. Nos.	Extent in Hect.	Lease Period	Remarks
1	Thiru.L.Sudhakar, S/o. Loganathan, No.82, Palla Street, Agaram Village, Thenneri Post., Kancheepuram.	Girijapuram 94/4, 95/2, 96/1, 103/11 & 103/12	3.51.5	14.09.2017 to 13.09.2022	Expired quarry

**iii). Present Proposed quarries**

Sl. No	Name of the Owner (Tvl)	Village & S.F. Nos.	Extent in Hect.
1	Thiru.A.V.Sarathy, S/o. Varathan, No.34, R-1, Vellore Main Road, Arcot Taluk, Vellore District.	Keelnayackenpalayam 181/3A2 (0.93.52), 181/3B1A1 (Part) (0.48.78), 181/3B1B (0.20.0), 181/3B2 (0.17.0), 181/3C1 (0.83.12), 181/3C2 (0.32.38), 181/3D1 (0.83.12) & 181/4 (0.32.38)	4.10.30

**iv). Future Proposed quarries**

Sl. No	Name of the Owner (Tvl)	Village & S.F. Nos.	Extent in Hect.
--Nil--			

  
 Deputy Director,  
 Geology and Mining,  
 Tiruvannamalai.

om  
06/01/23