

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

**ToR Lr.No.SEIAA-TN/F.No.9619/SEAC/ToR-1354 Dated: 10.02.2023**

<b>PROPOSED QUARRY LEASE DETAILS</b>	
<b>SURVEY NOS</b>	<b>7, 8/1, 2, 3, 4, 5 and 214/5</b>
<b>VILLAGE</b>	<b>VADA ALAPIRANDAN</b>
<b>TALUK</b>	<b>CHEYYAR</b>
<b>DISTRICT</b>	<b>TIRUVANNAMALAI</b>
<b>EXTENT</b>	<b>2.57.0 HA</b>
<b>PROPOSED PRODUCTION QUANTITY FOR FIVE YEARS</b>	<b>2,37,440 m<sup>3</sup> OF ROUGH STONE 18,465 m<sup>3</sup> OF WEATHERED ROCK 19,125 m<sup>3</sup> OF GRAVEL</b>
<b>LAND</b>	<b>CONSENT PATTA LAND</b>

**(Sector No. 1(a) (Sector no.1 as per NABET)  
Category of the Project: B1 Cluster Mining, Total Cluster Area – 10.62Ha**

**APPLICANT**

**THIRU. K.SUDHAKARAN  
S/O.KANNAN, NO.782, MARIAMMAN KOVIL STREET,  
JAMBODAI VILLAGE, AZHIVIDAITHANGI POST,  
VEMBAKKAM TK., THIRUVANNAMALAI - 604402**

**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**

**June -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.K.Sudhakaran has obtained Precise Area communication letter from the Deputy Director, Department of Geology and Mining, Tiruvannamalai District, to quarry out 2,37,440m<sup>3</sup> of Rough Stone, 18,465m<sup>3</sup> of Weathered rock and 19,125m<sup>3</sup> of Gravel over an extent of 2.57.0Ha located at S.F. Nos. 7, 8/1, 2, 3, 4, 5 and 214/5 located in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu.

As per EIA notification, 2006 and its subsequent amendments the proposed "**Rough Stone & Gravel Quarry of Thiru.K.Sudhakaran**" 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 10.62 Ha which is >5 Ha. The ToR for preparation of EIA/EMP was approved vide letter No. SEIAA-TN/F.No.9619/SEAC/ToR-1354/dated 10.02.2023. This report has been prepared in line with the approved TOR for production of maximum excavation of 2,37,440 Cu.m of Rough Stone, 18,465 Cu.m of Weathered Rock and 19,125 Cu.m of Gravel for a period of five years.

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

Name of the Proponent	: Thiru.K.Sudhakaran
Status of the Proponent	: Individual
Address	Thiru.K.Sudhakaran S/o.Kannan, No.782, Mariamman Kovil Street, Jambodai Village, Azhividaithangi Post,

Vembakkam Taluk,

Tiruvannamalai District – 604 402

### 1.2 Size and Location of the Project

S. No.	Feature	Description
1	Co-ordinates of the project	Latitude: 12°38'20.50"N to 12°38'28.14"N Longitude 79°35'53.58"E to 79°36'01.61"E
2	Type of land	Private Patta land
3	Extent of lease area	2.57.0 Ha
4	Type of lease	Fresh lease
5	Toposheet No.	57-P/10
6	Geological Resource	6,41,200 m <sup>3</sup> of Rough Stone, 25,648 m <sup>3</sup> of Weathered rock and 25,648 m <sup>3</sup> of Gravel
7	Mineable Resource	2,41,440 m <sup>3</sup> of Rough Stone, 18,465 m <sup>3</sup> of Weathered rock and 19,125 m <sup>3</sup> of Gravel
8	Proposed production quantity for five years	2,37,440 m <sup>3</sup> of Rough Stone, 18,465 m <sup>3</sup> of Weathered rock and 19,125 m <sup>3</sup> of Gravel
9	Proposed depth of mining	27m 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. 155/Kanimam/2022 dated 21.09.2022. The letter copy enclosed as Annexure – 1.

(b) Mining Plan Approval Letter:

The project proponent has prepared mining plan under rule L9(l),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.155/Kanimam/2022 dated 03.10.2022. The approval letter along with approved plan is enclosed as Annexure – 2.

(c) 500m radius quarry features:

The project proponent has obtained an official letter from Deputy Director, Dept. of Geology & Mining, Tiruvannamalai vide Rc.No.155/Kanimam/2022 dated 13.10.2022. The letter copy enclosed as Annexure – 3.

(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, Vada Alapirandan village, dated 21.10.2023. The letter copy enclosed as Annexure – 4.

(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. The Affidavit copy is enclosed as Annexure – 5.

(f) Blasting Agreement:

The Project Proponent have agreement with T.M.K. Explosives to carry out the blasting operation for the proposed quarry. The Blasting Agreement is enclosed as Annexure – 6.

(g) Land document of the proposed lease area:

It is a Joint Owned Patta land and the applicant has obtained Consent from the Pattadars. The copy of the Consent document along with Patta copy are enclosed as Annexure -7.

## **2.0 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.

## 2.1 Location details

This project site is located at S.F. Nos. 7, 8/1, 8/2, 8/3, 8/4, 8/5 and 214/5 over an area of 2.57.0 Ha in Vada Alapirandan Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu. The nearest highway is Kanchipuram – Vandavasi road (SH 116) at a distance of 4.5km, SE. The nearest railway station is Kanchipuram Railway Station which is located at a distance of 25km, NE from the project site. The nearest airport is Chennai (Meenambakkam) Airport which is located at a distance of 90km, NE

## 2.2 Geological resources

Geological Resources is estimated at 6,41,200m<sup>3</sup> of Rough Stone, 25,648m<sup>3</sup> of Weathered Rock and 25,648m<sup>3</sup> of Gravel and Mineable Reserves is estimated at 2,37,440m<sup>3</sup> of Rough Stone, 18,465m<sup>3</sup> of Weathered Rock and 19,125m<sup>3</sup> of Gravel 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 (m)	Width (m)	Depth (m)	Volume (m <sup>3</sup> )	Gravel (m <sup>3</sup> )	Weathered Rock (m <sup>3</sup> )	Geological Resources of Rough Stone (m <sup>3</sup> )
XY-AB	48	157	1	7536	7536		
	48	157	1	7536		7536	
	48	157	25	188400			188400
Total					7536	7536	188400
XY-CD	171	56	1	9576	9576		
	171	56	1	9576		9576	
	171	56	25	239400			239400
Total					9576	9576	239400
X1Y1-CD	97	88	1	8536	8536		
	97	88	1	8536		8536	
	97	88	25	213400			213400
Total					8536	8536	213400
<b>Grand Total</b>					<b>25648</b>	<b>25648</b>	<b>641200</b>

## 2.3 Mineable resources

The mineable reserves calculated by deducting 7.5m and 10m safety distance and bench loss.

Section	Bench	Length (m)	Width (m)	Depth (m)	Volume (m <sup>3</sup> )	Gravel (m <sup>3</sup> )	Weathered Rock (m <sup>3</sup> )	Mineable Reserves of Rough Stone (m <sup>3</sup> )
XY-AB	I	40	141	1	5640	5640		
	II	39	139	1	5421		5421	
	III	36	132	5	23760			23760
	IV	29	119	5	17255			17255
	V	23	106	5	12190			12190
	VI	16	93	5	7440			7440
Total						5640	5421	60645
XY-CD	I	161	45	1	7245	7245		
	II	160	44	1	7040		7040	
	III	157	41	5	32185			32185
	IV	150	35	5	26250			26250
	V	144	28	5	20160			20160
	VI	137	22	5	15070			15070
	VII	131	15	5	9825			9825
Total						7245	7040	103490
X1Y1-CD	I	78	80	1	6240	6240		
	II	76	79	1	6004		6004	
	III	70	76	5	26600			26600
	IV	57	69	5	19665			19665
	V	44	63	5	13860			13860
	VI	31	56	5	8680			8680
	VII	18	50	5	4500			4500
Total						6240	6004	73305
<b>Grand Total</b>						<b>19125</b>	<b>18465</b>	<b>237440</b>

#### 2.4 Yearwise production resources

The project proponent has proposed to carry out 2,37,440m<sup>3</sup> of Rough Stone 18,465m<sup>3</sup> of Weathered rock and 19,125m<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 (m)	Width (m)	Depth (m)	Volume (m <sup>3</sup> )	Gravel (m <sup>3</sup> )	Weathered Rock (m <sup>3</sup> )	Mineable reserve of Rough Stone (m <sup>3</sup> )
I	XY-AB	I	40	141	1	5640	5640		
		II	39	139	1	5421		5421	

		III	36	132	5	23760			23760
	XY-CD	I	120	45	1	5400	5400		
		II	120	44	1	5280		5280	
		III	120	41	5	24600			24600
Total							11040	10701	48360
II	XY-CD	I	41	45	1	1845	1845		
		II	40	44	1	1760		1760	
		III	37	41	5	7585			7585
	X1Y1-CD	I	78	80	1	6240	6240		
		II	76	79	1	6004		6004	
		III	70	76	5	26600			26600
	IV	41	69	5	14145			14145	
Total							8085	7764	48330
III	X1Y1-CD	IV	16	69	5	5520			5520
	XY-CD	IV	150	35	5	26250			26250
	XY-AB	IV	29	119	5	17255			17255
Total									49025
IV	XY-AB	V	23	106	5	12190			12190
	XY-CD	V	144	28	5	20160			20160
	X1Y1-CD	V	44	63	5	13860			13860
Total									46210
V	X1Y1-CD	VI	31	56	5	8680			8680
		VII	18	50	5	4500			4500
	XY-CD	VI	137	22	5	15070			15070
		VII	131	15	5	9825			9825
	XY-AB	VI	16	93	5	7440			7440
Total							0	0	45515
<b>Grand Total</b>							<b>19125</b>	<b>18465</b>	<b>237440</b>

## 2.5 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	1.93
2	Infrastructure	Nil	0.01
3	Roads	Nil	0.01
4	Green Belt	Nil	0.20
5	Unutilized	2.57.0	0.42
	<b>Total</b>	<b>2.57.0</b>	<b>2.57</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	201	96	27

## 2.6 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.

## 2.7 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, Albizia lebbeck,	200		
3	III	Thespesia populnea,	200		
4	IV	Bauhinia racemose,	200		
5	V	Cassia siamea, Azadirachta indica	200		
<b>Total</b>			<b>1000</b>		

## 3.0 Description of the Environment

The project area is located in Vada Alapirandan village, Cheyyar Taluk, Tiruvannamalai District over an extent of 2.57.0Ha. 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 predominant wind blow from West. Temperature range was from 20°C (minimum in night) to 45°C (maximum in day).

### 3.1 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  $\mu\text{g}/\text{m}^3$

S. No.	Parameters	A1 Near Mine lease area	A2 Athi village	A3 Kil nethapakka m village	A4 Vada Alapiranda	A5 Anappathu r village	NAA Q limit s
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								n Pudur village				
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
1	PM10	42.4	54.5	45.1	56.4	43.1	57.2	45.4	60.2	47.2	61.3	100
2	PM2.5	19.3	29.3	20.4	29.3	18.7	29.1	20.6	30.2	22.2	34.3	60
3	SO <sub>2</sub>	3.4	5.8	3.7	6.4	4.0	6.4	3.8	8.4	4.2	7.6	80
4	NO <sub>x</sub>	5.4	7.9	5.8	7.6	6.2	9.2	6.7	11.4	6.8	10.4	80
5	CO	BDL (DL - 1144)										2

### 3.2 Water Environment

Water samples (bore wells) were collected from 5 different locations and the results are given below.

**Table 3.4 Results of Water sampling Analysis in 5 locations**

S. No	Parameter	WS1	WS2	WS3	WS4	WS5	Limits	
		Near Mine lease area	Athi	Kilnethakkam	Vada Alapirandan	Anappathur	Acceptable Limits	Permissible Limits
1	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
2	Turbidity	<1	<1	<1	<1.0	<1	1	5
3	pH at 25 °C	7.28	7.81	6.89	7.34	7.29	6.5- 8.5	No Relaxation
4	Electrical Conductivity	1018	389.4	710.5	1656	985.7	-	-
5	TSS	612	236	430	995	596	500	2000
6	Total hardness as CaCO <sub>3</sub>	431	171	235	349	408	200	600
7	Calcium as Ca	83.1	43.1	56.8	64.3	74.5	75	200
8	Magnesium as Mg	53.6	15.1	22.3	45.2	53.2	30.0	100
9	Calcium as CaCO <sub>3</sub>	208	108	142	161.0	186	-	-
10	Magnesium as CaCO <sub>3</sub>	223	62.7	93.0	188	221	-	-

11	Total alkalinity as CaCO <sub>3</sub>	319	147	160	326	254	200	600
12	Chloride as Cl <sup>-</sup>	82.2	34.2	134	342	117	250	1000
13	Free Residual chlorine as Cl <sup>-</sup>	BDL(D.L-0.2)	BDL(D.L-0.2)	BDL (D.L - 0.2)	BDL(D.L-0.2)	BDL(D.L-0.2)	0.2	1
14	Sulphates as SO <sub>4</sub> <sup>2-</sup>	124	13.6	72.6	208	114	200	400
15	Iron as Fe	0.09	0.08	0.05	0.15	0.12	0.3	No Relaxation
16	Nitrate as NO <sub>3</sub>	3.26	BDL(D.L-1.0)	3.5	2.08	2.93	45	No Relaxation
17	Fluoride as F	0.36	0.13	0.21	0.39	0.24	1	1.5
19	Manganese as Mn	BDL(D.L-0.05)	BDL(D.L-0.05)	BDL (D.L - 0.05)	BDL(D.L-0.05)	BDL(D.L-0.05)	0.1	0.3

### 3.3 Noise Monitoring

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

S. No	Location	Day equivalent	Night equivalent	Day and Night equivalent	Day equivalent limits by CPCB	Night equivalent limits by CPCB
1	NM1 - Mine lease area	45	37.7	43.6	55	45
2	NM2 - Athi	47.3	38.1	45.8		
3	NM3 - Kilnethapakkam	46.2	39.0	44.8		
4	NM4 - Vada Alapirandan	45.2	37.5	43.8		
5	NM5 - Anappathur	48.7	38.7	47.2		

### 3.4 Soil Sampling

Soil samples have been collected from the mine lease area and 2 other locations from Athi village and Kilnethapakkam village and the results are given below.

S. No.	Parameter	SS1 Mine lease area	SS2 Athi	SS3 Kil Nethapakkam
1	pH	7.95	7.25	7.67
2	Electrical Conductivity	184.9	156.7	110.2
3	Dry Content	97.6	96.5	98.3
4	Water Content	2.4	3.5	1.7

5	Organic Mater	0.15	0.22	0.32
6	Sulphur	BDL(D.L.0.02)	BDL(D.L.0.02)	BDL(D.L.0.02)
7	Phosphorus	4.5	3.2	2.7
8	Texture	sandy loam	clay	silt loam
9	Sand	55.64	32.57	36.58
10	Clay	28.95	26.44	52.47
11	Loam	15.41	40.99	10.95
12	Total Nitrogen	53	68	102
13	Sodium	476	540	386
14	Potassium	720	910	562
15	Water Holding Capacity	3.3	3.7	3.5
16	Porosity	16.4	18.6	16.9

#### **4.0 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.

##### **4.1 Land Environment**

This is a proposed Rough Stone and Gravel Quarry of Thiru.K.Sudhakaran at S.F. Nos. 7, 8/1, 8/2, 8/3, 8/4, 8/5 and 214/5 over an extent of 2.57.0 Ha in Vada Alapirandan Village, Cheyyar 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 2,37,440 m<sup>3</sup> of Rough Stone, 18465 m<sup>3</sup> of Weathered rock and 19125 m<sup>3</sup> of gravel upto a depth of 27m 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 27m 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, 1.93 Ha of lease area will be left as rain water harvesting pond. 0.20 Ha 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.

#### **4.2 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.

#### **4.3 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.

The nearest river is Cheyyar River flows from northwestern to northeastern at a distance of 296 m from the proposed ML area. There are other water bodies near to the proposed as such a Tandarai canal Northwestern side at distance of 120 m and a tank on Southeastern side at distance of 470 m. Water table is found at a depth of 48m in summer and 45m 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 5.0 KLD which

will be sourced from outside agencies. Negligible sewage of 0.8 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 48 BGL in summer season and in Rainy season at 45 BGL. The mining will go up to the maximum depth of 27 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).

## **4.4 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**

<b>S. No.</b>	<b>Impact</b>	<b>Mitigation measures</b>
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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>

#### **4.5 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.

#### **4.6 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.

#### **4.7 Occupational Health**

##### **Impacts**

The occupational risk due to proposed mining may be due to drilling, blasting, excavation and transportation. A total of 25 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.

### **5.0 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.

### **6.0 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.

## **7.0 Additional Studies**

### **7.1 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.

### **7.2 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.

### **7.3 Hydrogeological Study**

There is a canal located at 120m in the North Western side of the lease area. Cheyyar River is located at 296m in the Northwestern part of the lease area. 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 North and Southwestern parts.

### **7.4 Slope Stability Study**

The proposed quarry is a very small quarry and the production is also less. Opencast Semi-mechanized mining with a bench height of 5m and bench width of 5m and 80° Slope is proposed. The depth of mining is proposed as 27m BGL, which is the ultimate pit limit. Also, there is no overburden since the entire mined out material will be utilized.

### **7.5 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.

## **7.6 Mine Closure Plan**

The quarrying operation is proposed up to a depth of 27m only, which will be achieved in 5 years. The ultimate pit dimension will be 201 x 96 x 27 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.

## **8.0 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. K. Sudhakaran cluster will create direct employment opportunity for 25 local people. The PP has proposed CER amount of Rs. 5, 00,000 for project surrounding schools development.

## **9.0 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.

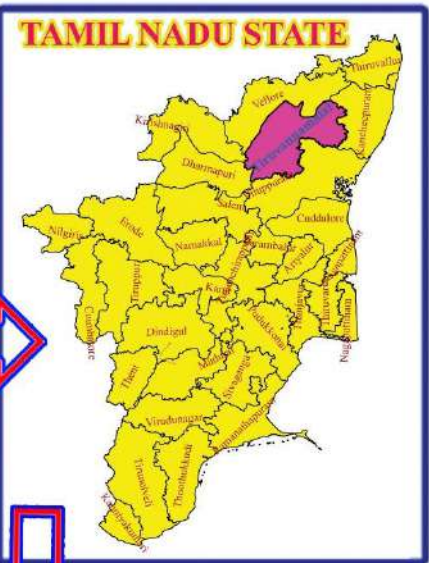
The effective implementation of EMP is not only reduce pollution load and comply the regulatory requirement but also increase productivity and improve marketability of product. The capital and recurring cost of EMP for the cluster of mines has been given in below table.

<b>S.No.</b>	<b>Budget planned for</b>	<b>Amount (INR)</b>
1	Air sampling	40,000
2	Water sampling	40,000
3	Noise monitoring	20,000
4	Ground vibration test	20,000
5	Drinking water facility	1,20,000
6	Sanitary arrangement	50,000
7	Safety kits	50,000
8	Water sprinkling	1,20,000
9	Afforestation	60,000
Total		5,20,000

## **10.0 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.

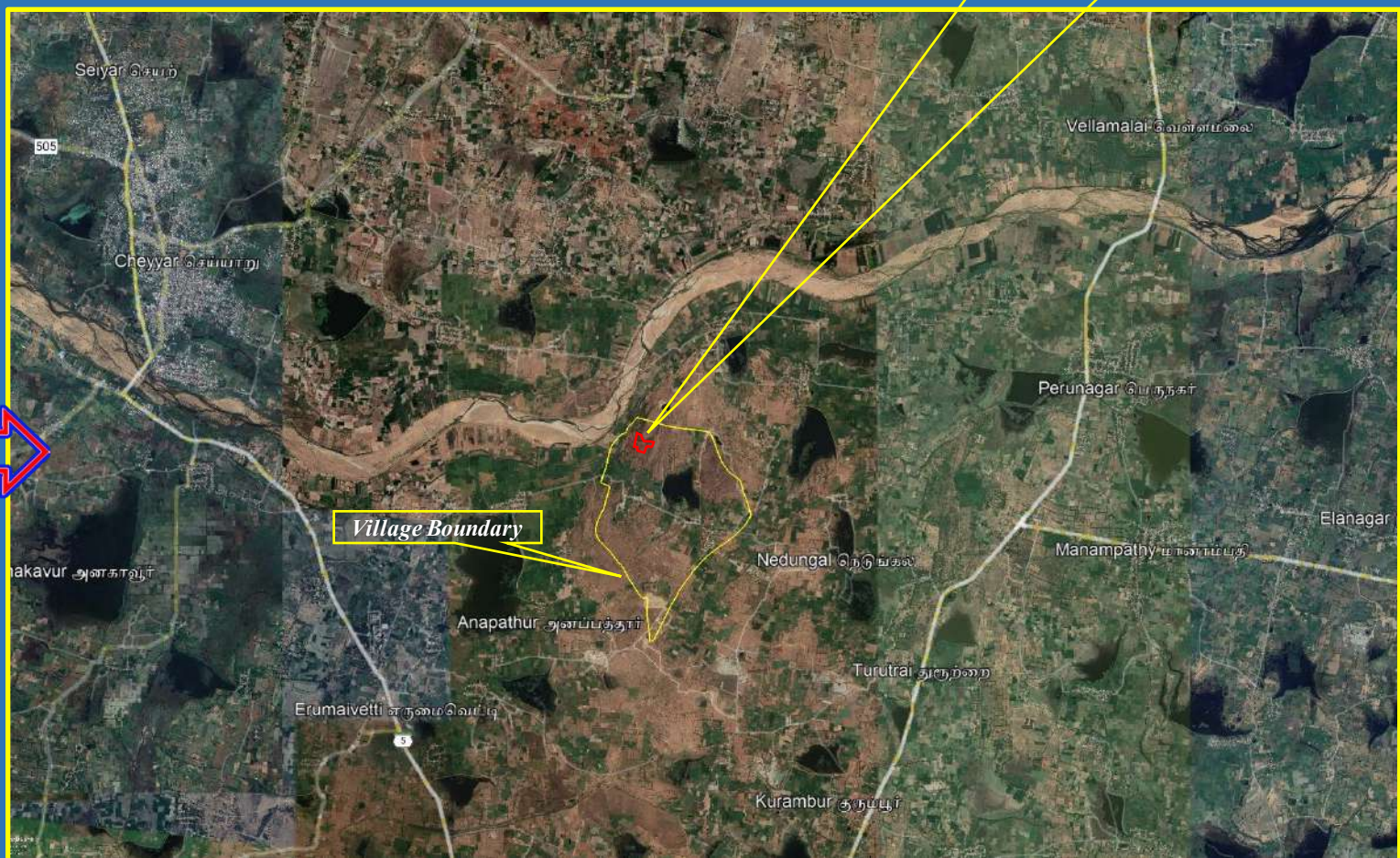




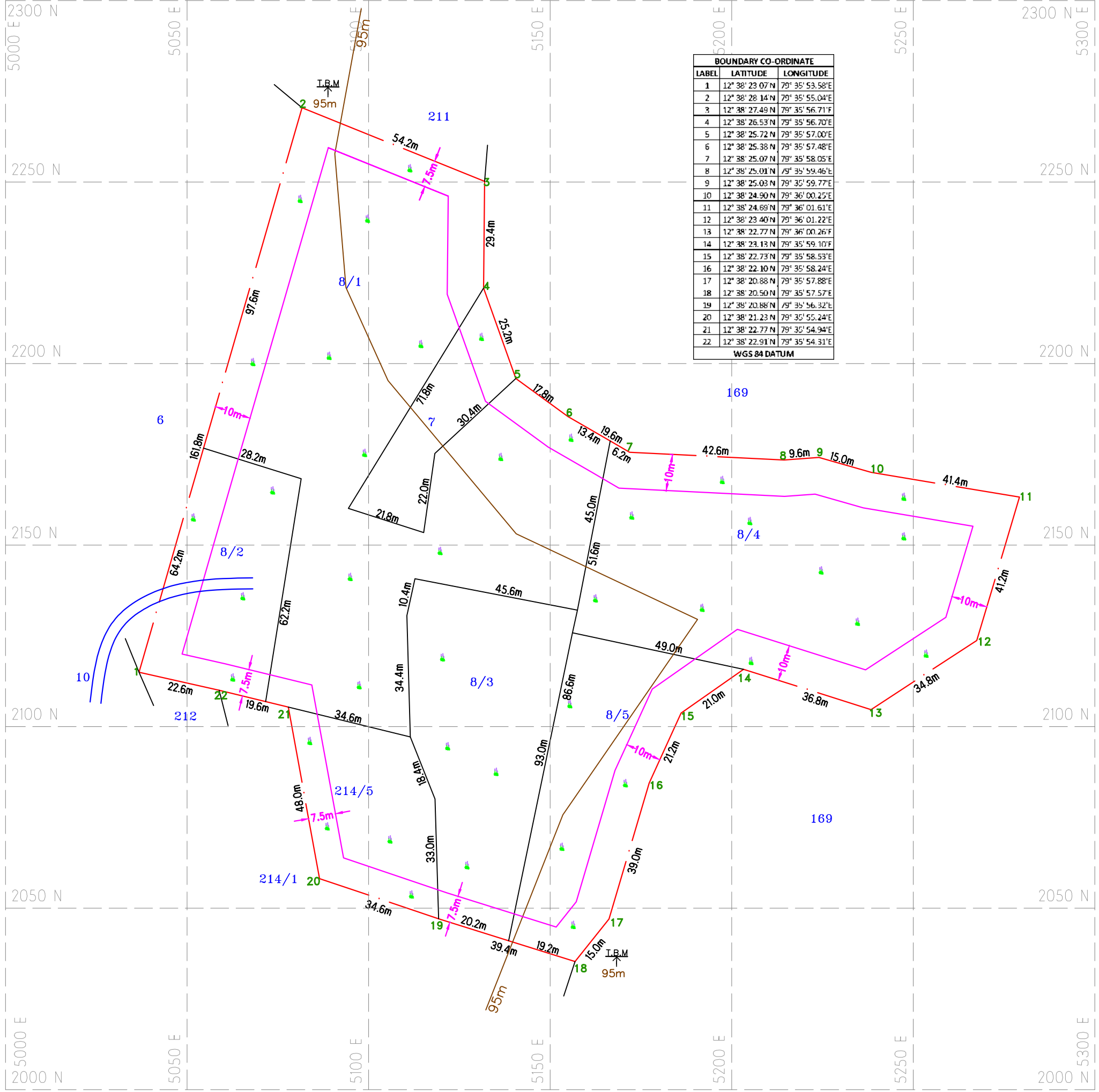
# LOCATION OF THE PROJECT AREA



**Vada Alapiranthan Village**

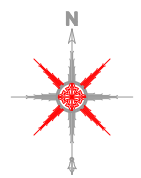






BOUNDARY CO-ORDINATE		
LABEL	LATITUDE	LONGITUDE
1	12° 38' 23.07" N	79° 35' 53.58" E
2	12° 38' 28.14" N	79° 35' 55.04" E
3	12° 38' 27.49" N	79° 35' 56.71" E
4	12° 38' 26.53" N	79° 35' 56.70" E
5	12° 38' 25.72" N	79° 35' 57.00" E
6	12° 38' 25.38" N	79° 35' 57.48" E
7	12° 38' 25.07" N	79° 35' 58.05" E
8	12° 38' 25.01" N	79° 35' 59.46" E
9	12° 38' 25.03" N	79° 35' 59.77" E
10	12° 38' 24.90" N	79° 36' 00.25" E
11	12° 38' 24.69" N	79° 36' 01.61" E
12	12° 38' 23.40" N	79° 36' 01.22" E
13	12° 38' 22.77" N	79° 36' 00.26" E
14	12° 38' 23.13" N	79° 35' 59.10" E
15	12° 38' 22.73" N	79° 35' 58.53" E
16	12° 38' 22.10" N	79° 35' 58.24" E
17	12° 38' 20.88" N	79° 35' 57.88" E
18	12° 38' 20.50" N	79° 35' 57.57" E
19	12° 38' 20.88" N	79° 35' 56.32" E
20	12° 38' 21.23" N	79° 35' 55.24" E
21	12° 38' 22.77" N	79° 35' 54.94" E
22	12° 38' 22.91" N	79° 35' 54.31" E

WGS 84 DATUM



**PLATE NO-II**  
 DATE OF SURVEY : 23.09.2022

**APPLICANT:**  
 THIRU.K.SUDHAKARAN,  
 S/o.KANNAN,  
 No.782, MARIAMMAN KOVIL STREET,  
 JAMBODAI VILLAGE,  
 AZHIVIDAITHANGI POST,  
 VEMBAKKAM TALUK,  
 TIRUVANNAMALAI DISTRICT.

**QUARRY APPLIED LEASE AREA:**  
 S.F.NOS : 7, 8/1, 8/2, 8/3, 8/4, 8/5 & 214/5,  
 EXTENT : 2.57.0Ha,  
 VILLAGE : VADA ALAPIRANDAN,  
 TALUK : CHEYYAR,  
 DISTRICT : TIRUVANNAMALAI.

**INDEX**

- Q.L. APPLIED BOUNDARY
- 7.5m & 10m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- CONTOUR
- SCRUB

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

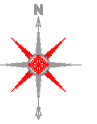
**PREPARED BY:**  
 THIS IS TO CERTIFY THAT THE INFORMATION  
 IN THIS PLATE IS TRUE AND CORRECT TO  
 THE BEST OF MY KNOWLEDGE BASED UPON  
 THE LEASE MAP AUTHENTICATED BY STATE  
 GOVERNMENT

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



PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.K.SUDHAKARAN OVER AN EXTENT 2.57.0HA LOCATED AT S.F.NOS.7, 8/1, 8/2, 8/3, 8/4, 8/5 & 214/5 OF VADA ALAPIRANDANVILLAGE, CHEYYAR TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE

INDEX  
TOPO SHEET NO: 57 P/10



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 constr.			
Railways, other gauges: double; single with distance stone; do			
Mineral line or tramway. Kiln. 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; tahsil 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



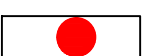
1.0km RADIUS



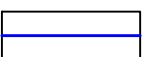
STATE HIGHWAY



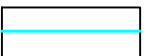
HABITATION



CHEYYAR RIVER

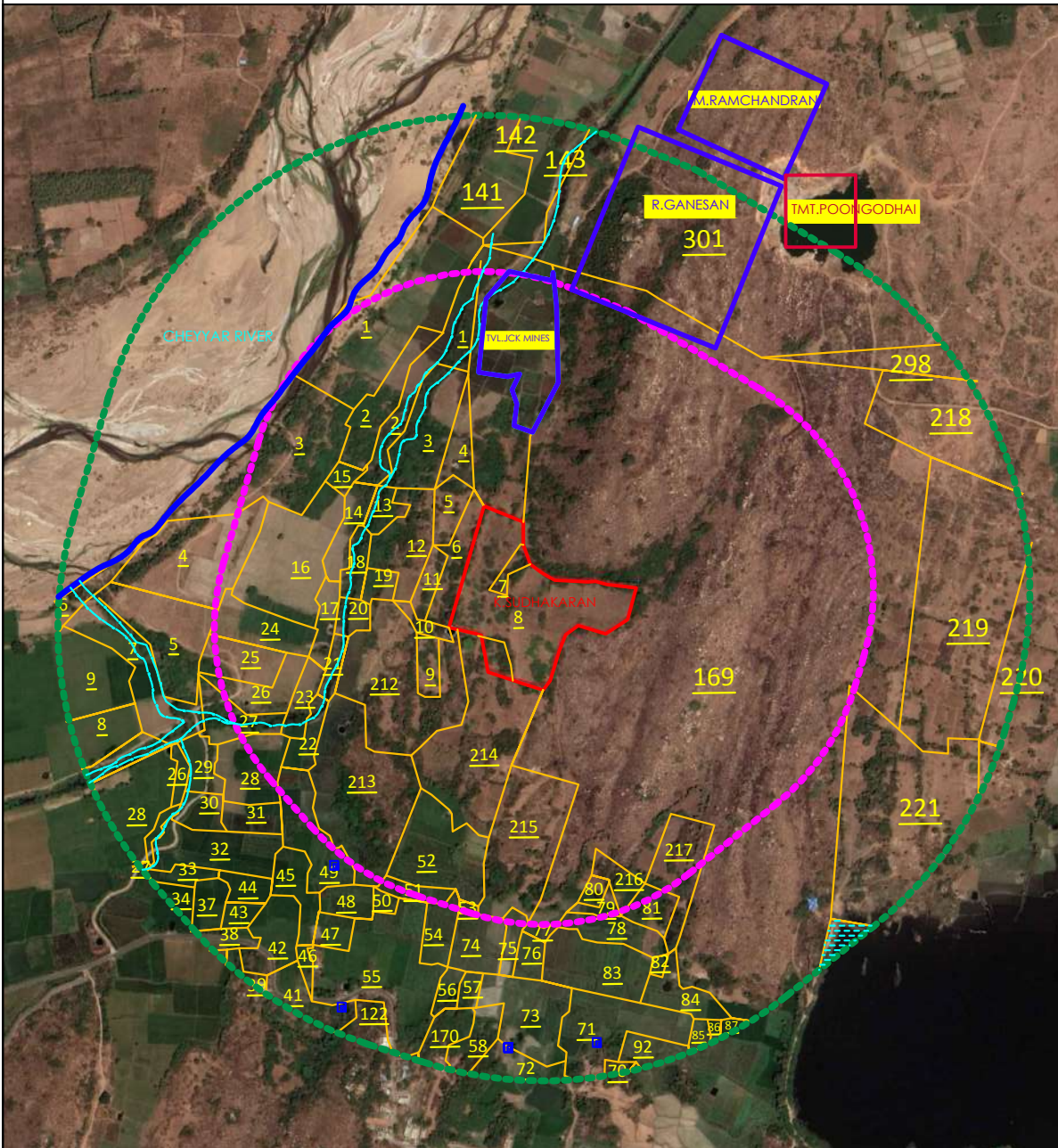


TANDARAI CANAL





**PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.K.SUDHAKARAN OVER AN EXTENT 2.57.0HA LOCATED AT S.F.NOS.7, 8/1, 8/2, 8/3, 8/4, 8/5 & 214/5 OF VADA ALAPIRANDAN VILLAGE, CHEYYAR TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE**



**APPLICANT:**  
 THIRU.K.SUDHAKARAN,  
 S/o.KANNAN,  
 No.782, MARIAMMAN KOVIL STREET,  
 JAMBODAI VILLAGE,  
 AZHIVIDAITHANGI POST,  
 VEMBAKKAM TALUK,  
 TIRUVANNAMALAI DISTRICT.

**QUARRY LEASE APPLIED AREA:**  
 S.F.NOS : 7, 8/1, 8/2, 8/3, 8/4, 8/5 & 214/5,  
 EXTENT : 2.57.0Ha,  
 VILLAGE : VADA ALAPIRANDAN,  
 TALUK : CHEYYAR,  
 DISTRICT : TIRUVANNAMALAI.

**INDEX**  
 TOPO SHEET NO : 57 P/10  
 LATITUDE : 12°38'20.50"N to 12°38'28.14"N  
 LONGITUDE : 79°35'53.58"E to 79°36'01.61"E

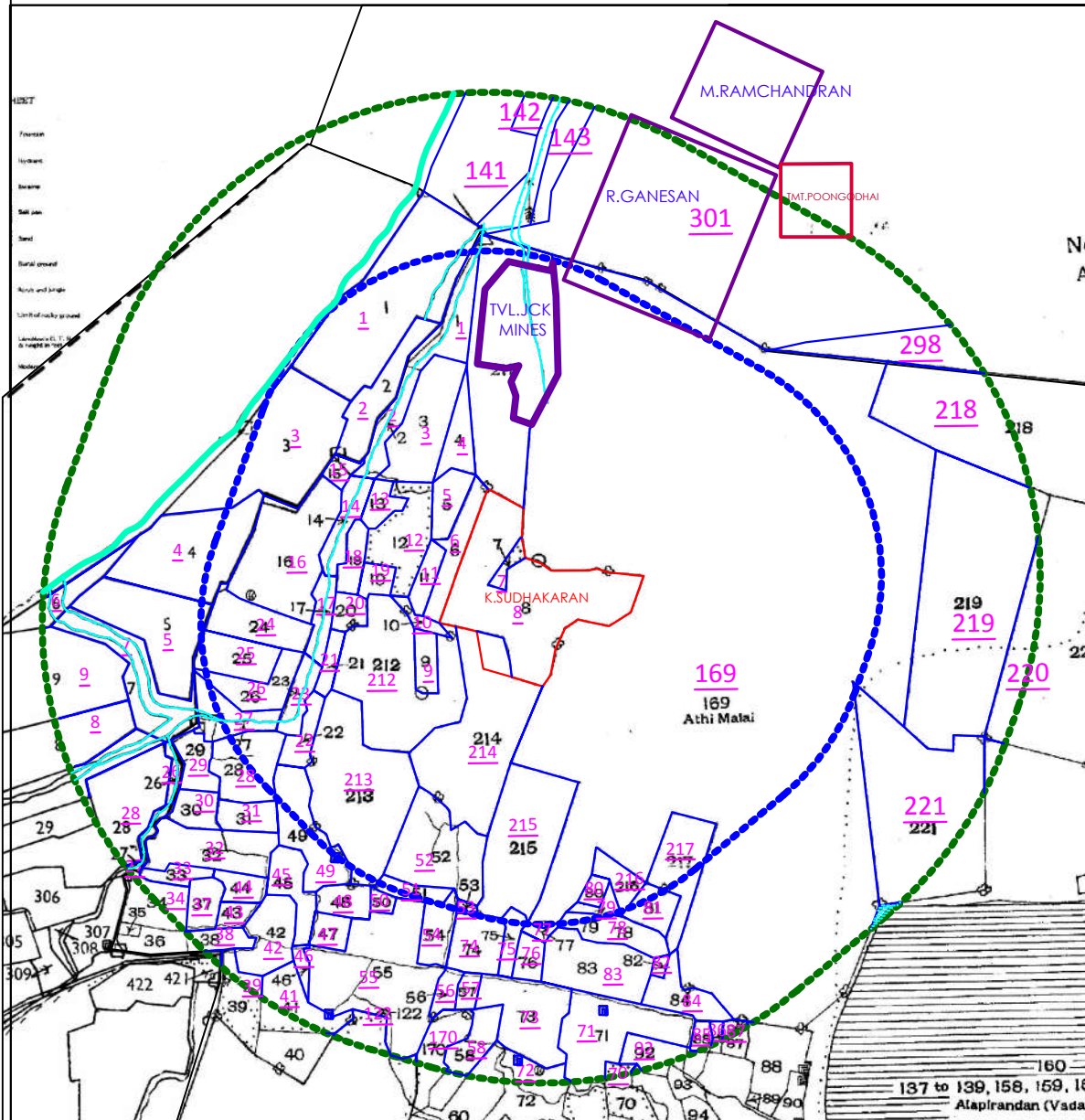
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 500m Radius :   
 Q.L.Applied Area :   
 TOPO SHEET NO : 58 J / 06  
 LATITUDE : 10°31'19.51"N to 10°31'28.20"N  
 LONGITUDE : 78°25'51.00"E to 78°25'55.32"E

- ABANDONED QUARRIES**
- 1.T.MT.POONGODHAI
- PRESENT PROPOSED QUARRIES**
- 1.THIRU.K.SUDHAKARAN
- FUTURE PROPOSED QUARRIES**
- 1.R.GANESAN
  - 2.M.RAMCHANDRAN
  - 3.TV.LJCK MINES

**INDEX**

- WELL
- ODAI
- CHEYYAR RIVER
- TANK




PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.K.SUDHAKARAN OVER AN EXTENT 2.57.0HA LOCATED AT S.F.NOS.7, 8/1, 8/2, 8/3, 8/4, 8/5 & 214/5 OF VADA ALAPIRANDAN VILLAGE, CHEYYAR TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE




**APPLICANT:**  
 THIRU.K.SUDHAKARAN,  
 S/o.KANNAN,  
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**PRESENT PROPOSED QUARRIES**

1.THIRU.K.SUDHAKARAN 

**FUTURE PROPOSED QUARRIES**

1.R.GANESAN   
 2.M.RAMCHANDRAN   
 3.TVLJCK MINES 

**INDEX**

WELL   
 ODAI   
 CHEYYAR RIVER   
 TANK 



From

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

To

Thiru.K.Sudhakaran,  
S/o. Kannan,  
No.782, Mariyamman Koil Street,  
Jambodai village,  
Vembakkam Taluk,  
Tiruvannamalai District.

Annexure - V 90

**Rc.No.155/Kanimam/2022, dated:13.10.2022**

Sub: Quarries and Minerals - Minor Mineral Rough Stone and Gravel - Tiruvannamalai District - Cheyyar Taluk - Vadaalapiranthan village - Patta SF.Nos.7 & etc., over an extent 2.57.0 hecets., - Application preferred by Thiru.K.Sudhakaran - Details of quarries located in 500m radius- requested - Regarding.

Ref: Thiru.K.Sudhakaran S/o. Kannan, Letter dated.13.10.2022.

\*\*\*\*\*

In the reference cited, applicant Thiru.K.Sudhakaran S/o. Kannan, the applicant of proposed Rough Stone quarry lease in SF.Nos. 7 (0.07.5), 8/1 (0.92.0), 8/2 (0.21.0), 8/3 (0.31.5), 8/4 (0.60.5), 8/5 (0.28.5) & 214/5 (0.16.0) over an extent 2.57.0 hecets., of Vadaalapiranthan Village, Cheyyar 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
--Nil--					

**ii). Abandoned quarries**

Sl. No	Name of the Owner (Tvl)	Village & S.F. Nos.	Extent in Hect.	Lease Period	Remarks
1	Tmt.Poongodhai, W/o.Sundaramoorthy No.96, Road Street, Manamadhi, Unthiramerur Taluk, Kancheepuram District	Athi 301 (Part)	1.00.0	21.08.2008 to 20.08.2018	Quarry Exired

*K. Sudhakaran*

**iii). Present Proposed quarries**

Sl. No	Name of the Owner (Tvl)	Village & S.F. Nos.	Extent in Hect.
1	Thiru.K.Sudhakaran, S/o. Kannan, No.782. Mariyamman Koil Street, Jambodai village, Vembakkam Taluk, Tiruvannamalai District.	Vadaalapiranthan 7, 8/1, 8/2, 8/3, 8/4, 8/5 & 214/5	2.57.0

**iv). Future Proposed quarries**

Sl. No	Name of the Owner (Tvl)	Village & S.F. Nos.	Extent in Hect.
1	Thiru.R.Ganesan, Director of SRC Project Pvt. Ltd., No.47, Brunthavan, Porlands, Salem.	Athi 301 (Part-2)	4.50.0
2	Thiru.M.Ramchandran, S/o. Mogili Nadu, No.15B, Medutheru, Old Perukozhathuvor, Tambaram, Chennai.	Athi 301 (Part-3)	2.00.0
3	Tvl.JCK Mines, Rep. by its partner of Thiru.J.K.Srinivasan, No.782, Mariamman Kovil Street, Jambodai Village, Azhivedaithangi Post, Vembakkam Taluk, Tiruvannamalai District.	Vadalapiranthan & 211/2B, 211/3B, 211/4, 211/5, 211/6, 211/7, 211/8 & 211/9	1.55.0

*[Signature]*  
Deputy Director,  
Geology and Mining,  
Tiruvannamalai.

*copy*

*[Signature]*