Application Form For Environmental Clearance (Public Hearing)

September 2026

Application Form
(Draft EIA Report)

For

Proposed Rough stone and Gravel Quarry – 2.12.50 Ha

at

S. F No. 532/2C and 533/1, 2, 3 of Gopalapuram Village of Vembakottai Taluk, Virudhunagar District of TamilNadu State

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

Category of the Project: B1 Cluster Mining

Baseline Period: June 2026 - August 2026

Environmental Consultant & Laboratory details:

Ecotech Labs Pvt Ltd,

No 48, 2nd Main road,
South extension Ram Nagar,
Pallikaranai, Chennai - 600100.

Proponent details:

Thiru.A.Seethakumar,
S/o. Arumugam
D No.543, Mappillai Subbiah Road,
Rajapalayam Taluk,
Virudhunagar District,
TamilNadu.
626 117.

Thiru.A. Seethakumar,

S/o.Arumugam

D No.543, Mappillai Subbiah Road,

Rajapalayam Town & Taluk,

Virudhunagar District - 626 117

UNDERTAKING

I, Thiru.A.Seethakumar, undertaking that the Draft Environmental Impact Assessment (EIA) Report for Rough Stone and Gravel Quarry over an extent of 2.12.50 Ha at S.F.No. 532/2C and 533/1, 2, 3 & 4 of Gopalapuram Village, Vembakottai Taluk and Virudhunagar District, Tamil Nadu State under project category B1 and Schedule S.No.1(a)

TOR issued by the State Expert Appraisal Committee, TN vide Letter No. SEIAA-TN/F. No. 13716, Dated: 25.06.2026 & ToR identification No: TO26B0108TN5856033N.

I, hereby assure that all the information and data provided in the EIA report is accurate, true and correct and owns responsibility for the same.

Place: Virudhunagar

Date:

Yours faithfully

Thiru. A.Seethakuamar

Plot No.48A, 2nd Main Road,
Ram Nagar, South Extension,
Pallikkaranai, Chennai - 600 100
GST NO. 33AADCE6103A2ZH
PAN NO. AADCE6103A

Eco Tech Labs Pvt Ltd

Cell No. 98400 87542
Email : info@ecotechlabs.in
Website : www.ecotechlabs.in
CIN : U74900TN2014PTC094895

UNDERTAKING

I, Dr. A. Dhamodharan, Managing Director confirms that this Draft EIA Report of Rough Stone and Gravel Quarry over an extent of 2.12.50 Ha at S.F.No. 532/2C and 533/1, 2, 3 & 4 of Gopalapuram Village, Vembakottai Taluk and Virudhunagar District, Tamil Nadu State has been prepared at M/s. Ecotech Labs Pvt. Ltd., Chennai.

I also confirm that I shall be fully accountable for any misleading information mentioned in this Report.

Signature:

Dr. A. DHAMODHARAN
(NABET APPROVED EIA COORDINATOR)
NABET/EIA/25-28 / RA 0400
Environmental Consultant
Eco Toch Labs Pvt. Ltd
Plot No. 48A,2nd Main Road, Ram Nagar South Extn
Pallikaranai, Chennai - 600 100.

Name: Dr. A. Dhamodharan

Designation: Managing Director

Name of the EIA Consultant Organization: M/s. Ecotech Labs Pvt Ltd., Chennai.

NABET Certificate No: NABET/EIA/25-28/RA 0400

Date: Place: Chennai

Declaration of Experts contributing to the EIA

Declaration by Experts contributing to the EIA of Existing Rough Stone and Gravel Quarry having total extent of 2.12.50 Ha by Thiru.A.Seethakumar at S.F.No. 532/2C and 533/1, 2, 3 & 4 of Gopalapuram Village, Vembakottai Taluk and Virudhunagar District, Tamil Nadu State.

I, hereby certify that I was a part of the EIA team in the following capacity that developed the above EIA.

Project	Rough Stone Quarry – 2.12.50 Ha
Type & Category	1 (a) Mining of Minerals
Project Proponent	Thiru. A.Seethakumar
Environment Consultant with their Accreditation Status	M/s. Eco Tech Labs Pvt. Ltd., QCI Accreditated
NABET Certificate No.	NABET/ EIA/25-28/ RA 0400
EIA Coordinator Name **Signature** **Period of Involvement**	Dr. A. Dhamodharan (Mining of Minerals)  15.04.2026 to Till now
Contact Information	**M/s. Eco Tech Labs Pvt. Ltd.** No. 48, 2nd Main Road, Ram Nagar South Extension Pallikaranai, Chennai - 600 100 Mobile: +91 9789906200 E-mail: dhamo@ecotechlabs.in

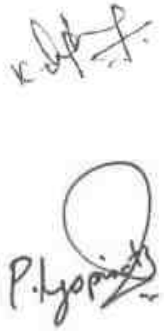
Functional Area Experts

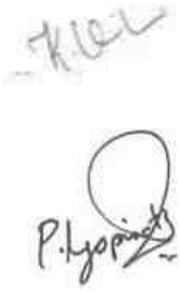
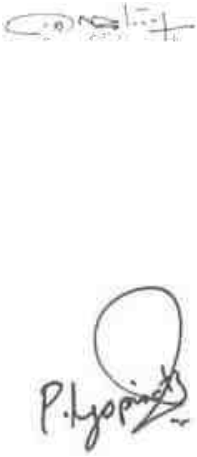
The basic fact division that environment and laboratory are accredited by NABL and Ministry of Environment and Forests, India and by other international bodies, stand testimony to its emphasis.

S. NO.	FUNCTIONAL AREAS	NAME OF THE EXPERTS	INVOLVEMENT (PERIOD AND TASK)	SIGNATURE AND DATE
1	AP	MRS. K. VIJAYALAKSHMI MR. P. GOPINATH (TEAM MEMBER)	1. Selection of Baseline Monitoring stations based on the wind direction 2. Interpretation of Baseline data by comparing it with standards prescribed by CPCB against the type of area 3. Identification of sources of air pollution and suggesting mitigation measures to minimize impact ***Period: April 2026 – Till now***	 
2	WP	DR. A. DHAMODHARAN	1. Selection of baseline Monitoring Locations for Ground water analysis and also identifying nearest surface water to be studied. 2. Interpretation of baseline data collected 3. Identification of impacts based on the baseline study conducted and also to the ground water and nearby	

			surface water due to the proposed project 4. Preparation of suitable and appropriate mitigation plan. ***Period: April 2026 – Till now***	
3	SHW	DR. A. DHAMODHARAN MRS. K.AMUDHA (FAA)	1. Identification of nature of solid waste generated 2. Categorization of the generated waste and estimating the quantity of waste to be generated based on the per capita basis. Identification of impacts of SHW on Environment 3. Suggesting suitable mitigation measures by recommending appropriate disposal method for each category of waste generated 4. Topsoil and refuse management ***Period: April 2026 – Till now***	 
4	SE	MR. S. PANDIAN	1. Primary data collection through the census questionnaire 2. Obtaining Secondary data from authenticated sources and incorporating the same in EIA report.	

			3. Impact assessment & proposing suitable mitigation plan 4. CSR budget allocation by discussing with the local body and allotting the same for need based activity. ***Period: April 2026 – Till Now***	
5	EB	DR. A. DHAMODHARAN	1. Primary data collection through field survey and sheet observation for ecology and biodiversity 2. Secondary Collection through various authenticated sources 3. Prediction of anticipated impacts and suggesting appropriate mitigation measures. ***Period: April 2026 – Till now***	
6	HG	DR. T. P. NATESAN MR. R. ALAGUMUTHUSELVAM (TM AS FAE)	1. Study of existing surface drainage arrangements in the core and buffer zone, impact due to mining on these drainage courses and suggestion of mitigative measures 2. Determination of groundwater use pattern, development of rainwater harvesting program.	 

			Storm water management through garland drainage system. ***Period: April 2026 – Till now***	
7	GEO	DR. T. P. NATESAN MR. R. ALAGUMUTHUSELVAM (TM AS FAE)	1. Field survey for assessing regional and local geology, aquifer distribution, Determination of groundwater use pattern, and development of rainwater harvesting program. ***Period: April 2026 – Till now***	
8	SC	DR. A. DHAMODHARAN	1. Interpretation of baseline report 2. Identification of possible impacts on soil, prediction of soil conservation and suggesting suitable mitigation measures. ***Period: April 2026 – Till now***	
9	AQ	MRS. K. VIJAYALAKSHMI MR. P.GOPINATH (FAA)	1. Collection of Meteorological data for the baseline study period 2. Plotting wind rose plot and thereby selecting the monitoring locations based on the wind pattern 3. Estimation of sources of air emissions and air quality modeling is done	

			4. Interpretation of the results obtained 5. Identification of the impacts and suggesting suitable mitigation measures. ***Period: April 2026 – Till now***	
10	NV	MRS. K. VIJAYALAKSHMI MR. P. GOPINATH (TEAM MEMBER)	1. Selection of monitoring locations 2. Interpretation of baseline data 3. Prediction of impacts due to noise pollution and suggestion of appropriate mitigation measures ***Period: April 2026 – Till now***	
11	LU	DR. T. P. NATESAN MR. P. GOPINATH (FAA)	1. Collection of Remote sensing satellite data to study the land use pattern. 2. Primary field survey and limited field verification for land categorization in the study area 3. Preparation of Land use map using Satellite data for 10km radius around the project site. ***Period: April 2026 – Till now***	
12	RH	MRS. K. VIJAYALAKSHMI MRS. K. AMUDHA (FAA)	1. Identification of the risk 2. Interpreting consequence contours 3. Suggesting risk mitigation measures ***Period: April 2026 – Till now***	

Declaration by the Head of the accredited consultant organization/ authorized person

I, Dr. A. Dhamodharan, hereby confirm that the above-mentioned experts prepared the EIA report on the mining project at Survey Numbers: 532/2C and 533/1, 2, 3 & 4 of Gopalapuram Village, Vembakottai Taluk and Virudhunagar District, Tamil Nadu State.

I also confirm that the consultant organization shall be fully accountable for any misleading information mentioned in this statement.

Signature: 

Name: Dr.A.Dhamodharan

Designation: Managing Director

Name of the EIA consultant organization: M/s. Eco Tech Labs Private Limited

NABET Certificate No: NABET/ EIA/25-28/ RA 0400

DRAFT EIA REPORT

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ABBREVIATION

LU –Land use

AP – Air Pollution monitoring, prevention and control

AQ- Meteorology, Air quality modeling and prediction

WP – Water pollution monitoring, prevention and control

EB- Ecology and Biodiversity

NV- Noise & Vibration

SE- Socio-economics

HG- Hydrology, ground water and water conservation

GEO –Geology

RH – Risk assessment and hazards management

SHW –Solid and Hazardous waste management

SC- Soil conservation

EXECUTIVE SUMMARY

1. Project Background:

The Proposed project is an Expansion project with total extent area of 2.12.50 Ha, It is a Own Patta land (Dry land) S.F. No: 532/2C and 533/1,2,3 & 4 of Gopalapuram Village, Vembakottai Taluk and Virudhunagar District for the balance lease period of 7 years and 6 Months. The category of project is B1, It is a Rough Stone and Gravel Quarry. The lease area exhibits plain terrain and covered by 0.6m thick layer of sandy brownish red soil followed by gravel, weathered rock formation and massive Charnockite rock formations. The massive rock formation is noticed / occurred at an average depth of 5.6 mts from the surface i.e. below topsoil and weathered rock formation.

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. Quarrying operation is carried out Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough stone from pithead to needy Crusher. Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting.

The quarry operation is proposed up to depth for 49.6m Below ground level for the proposed mining plan. The Total Geological reserve is about 28,22,787 Metric tons of Rough Stone, 1,62,100 Metric tons of Gravel and 19,158 Metric Tons of Topsoil. The Mineable Reserves are 8,72,919 Metric tons of Rough Stone, 1,29,988 Metric tons of gravel and 12968 Metric Tons of Topsoil for the balance period of 7 years and 6 Months. Production schedule is proposed production of 8,72,919 Metric Tons of Rough Stone and 1,29,988 Metric Tons of Gravel for the period of 7 Years and 6 Months only after leaving necessary safety distance from the lease boundary as indicated in the precise area letter and relevant mining laws in force.

The Precise area communication letter received from The Assistant Director, District Collectorate

Office, Dept. of Geology & Mining, Virudhunagar vide Na.Ka.En.KV1/638/2020-Kanimam Dt: 02.02.2021 for lease period of 10 years and The Lessee has obtained Environmental Clearance vide SEIAA-Chennai letter No. SEIAA-TN/F.No.8855/EC.No.5468/2022 dated 20.12.2022 and Quarry Lease was Granted vide Proceedings of the Assistant Director, Geology & Mining, Virudhunagar District Rc.KV1/638/2020 dated 06.04.2023 for quarrying & transportation of Rough Stone and Gravel over an area extent of 2.12.50 Hectares in SF. Nos.: 532/2C and 533/1,2,3 & 4 of Gopalapuram Village, Vembakottai Taluk, Virudhunagar District under Rule 19 & 20 of Tamil Nadu Minor Mineral Concession Rules 1959. As per the Proceedings of the Assistant Director, Geology & Mining, Virudhunagar District Rc.KV1/638/2020 dated 06.04.2023 and Registered Lease Deed vide document No.1488 of 2023 dated 24.04.2023 the Lease Period of the Quarry is from 11.04.2023 to 10.04.2023.

This Mining Plan for the proposed expansion was approved by the Assistant Director, Geology & Mining, Virudhunagar vide letter Roc.No.KV1/638/2020, Dated: 07.10.2025 for the period of 7 years and 6 Months. There is no CRZ zone, Western Ghats, notified Bird sanctuaries, wild life sanctuaries as per Wildlife protection Act 1972, within the radius of 15Km.

The project does not require huge amount of water for quarry operation and total water requirement is 4.0 KLD. (1.0 KLD) Drinking water use only Packaged drinking water is available from the nearby approved water vendors and (1.0 KLD) for Greenbelt Development and (2.0 KLD) for dust suppression of water use only road tankers supply. Requirements will be arranged from nearby sources.

The project cost is about Rs.1,95,58,000/- (One Crore Ninety-Five Lakhs and Fifty-Eight Thousand Rupees Only). EMP (Environmental Management Plan) Cost is about Rs.3,66,26,560/- (Three Crore Sixty-Six Lakhs Twenty-Six Thousand and Five Hundred Sixty Rupees Only).

The quantity of removed and transported Rough stone and Gravel during the period from 11.04.2023 to 10.09.2025 is given below;

Period/Year	Rough stone – MT	Gravel-MT
I	34993	21750
II	3325	17400
III From 11.04.2025 to 10.09.2025	20255	15723
Total	**88473**	**54873**

2. Nature & Size of the Project

The Existing Rough Stone Quarry over an extent of 2.12.50 Hectares land is located at Gopalapuram Village of Vembakottai Taluk, Virudhunagar District. The lease granted area for mining lease is plain terrain and dry lands in nature.

Mineral intends to quarry : Rough stone and Gravel Quarry
District : Virudhunagar
Taluk : Vembakottai
Village : Gopalapuram
S. F. Nos. : 532/2C and 533/1,2,3 & 4
Extent : 2.12.50 Hectares

Table 1: Brief Description of the Project

S. No	Particulars	Details
1	Latitude	09˚21'12.90" N to 09˚21'18.70" N
2	Longitude	77˚37'14.60" E to 77˚37'20.50" E
3	Site Elevation above MSL	The Altitude of the lease area is 120 m above MSL.
4	Mining plan period	Balance Lease Period - 7 Years and 6 Months
5	Topography	Plain topography
6	Land use of the site	Own Patta Land (Dry land-under quarrying operation)
7	Extent of lease area	2.12.50 Ha

8	Nearest highway	SH 186 – Rajapalayam– Alagulam – Vembakottai Road – 4.70 Km, N
9	Nearest railway station	Rajapalayam Railway Station – 12.70 km, NW
10	Nearest airport	Madurai International Airport – 74.18 km, NE
11	Nearest town / city	Town - Rajapalayam – 11.01 Km, NW City - Rajapalayam – 11.01 Km, NW District - Virudhunagar – 42.00 Km, NE
12	Rivers / Canal / Dam / Reservoir	❖ Vembakottai Reservoir - 12.60 Km, E ❖ Vaippar River – 1.75 km, S ❖ Melanmarainadu Checkdam – 6.26 Km, SE
13	Lake/Pond/Odai/ Kanmai/ Kulam	❖ Vadakarai Periyakulam Kanmoi – 0.18 km, SW ❖ Puliyankulam Kanmoi – 0.57 km, SE ❖ Kadiyankulam Kanmoi – 1.14 Km, SE ❖ Kurichiarpatti Kanmoi – 1.96 Km, NW ❖ Muthanathi Periya Kanmoi – 2.64 Km, W ❖ Narikulam Kanmoi – 2.65 Km, SE ❖ Pappankulam Kanmoi – 3.35 Km, N ❖ Nathampatti Kanmoi – 4.07 Km, W ❖ Sangaralingapuram Kanmoi – 4.29 Km, NW ❖ Periyakulam Keelarajakularaman – 4.57 Km, N ❖ Cholapuram Periya Kanmoi – 5.22 Km, NW ❖ Kanmaipatti Kanmoi – 5.26 Km, E ❖ Pernaur Kanmoi – 5.62 Km – NW ❖ Vijayarengapuram Oorani – 6.58 Km, SW ❖ Vagaikulam – 6.68 Km, NW ❖ Periyakanmoi, Melanmarainadu – 6.98 Km, SE ❖ Keela iluppilakulam – 7.04 Km, NW ❖ Periyakanmoi Perumalpatti – 7.49 Km, SW ❖ Achangulam (Keezhakulam) Kanmoi – 7.61Km, NW

		❖ Kaanaakulam – 7.90 Km, NW ❖ Melakulam Kanmoi – 8.20 Km, NW ❖ Periyakulam Muthugudi – 8.45 Km, NW ❖ Paruvakudi Kanmoi – 8.56 Km, SW ❖ Mangudi Kanmoi – 9.06 Km, W ❖ Sirukulam Kanmoi – 9.13 Km, NE ❖ Melamarathoni Kanmayi – 9.17 Km, S ❖ Elanthirakondan Kanmoi – 9.19 Km, NW ❖ Kongalapuram Kanmoi – 9.22 Km - N ❖ Sengulam Kanmoi – 9.30 Km, NW ❖ Periyakulam Kanmoi, Atchamthavithan – 9.34 Km, NE ❖ Maruthankulam – 9.65 Km, SW
14	Hills / valleys	Nil in 15 km Radius from project site
15	Archaeologically places	Nil within 15 km Radius from project site
16	National parks / Wildlife Sanctuaries	❖ ESZ of SMTR – 16.01 km, NW ❖ SMTR – 17.90 Km - NW ❖ Eco-Sensitive zone of Nellai Sanctuary – 23.53 km, W ❖ Nellai Sanctuary – 24.58 km, W
17	Reserved/ Protected Forests	❖ Venkateswarapuram R.F – 22.51 Km, N
18	Seismicity	Proposed Lease area come under Seismic zone-II

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 Gravel extracted will be transported to be Stone crusher of district Pudukkottai.
- ❖ 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 artificial recharge to the nearby wells.
- No damage to the land is caused, no reclamation or backfilling is required.

Figure 1: Location Map of the Project Site

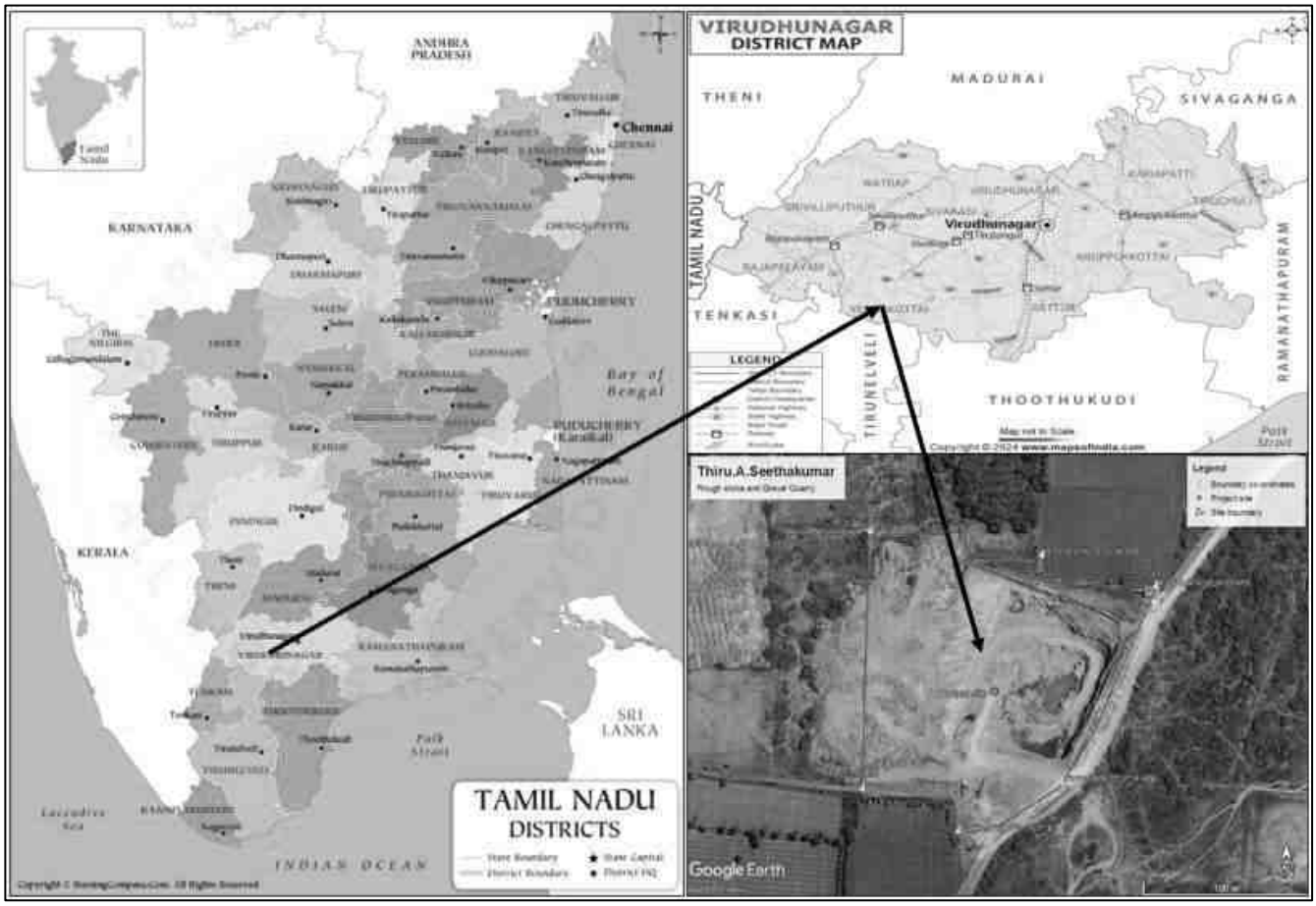




Figure 2: Google Image of the Project Site

4. Charnockite

Generally, the Charnockite is grey to greenish colored, coarse to medium grained, greasy nature with or without garnet. Because of the limited outcrops, the quarry sections are studied to infer the various interrelationships between the lithounits. Charnockite is interbanded nature with crystalline carbonate rocks observed in most of the limestone quarry in Pandalgudi, Lakshmipuram, Gopalapuram villages (Field photograph. 1), suggested a metasedimentary origin for the charnockite (V.R.Sowmi Narayanan, etal.,). Weathering of the Charnockite on the surface gives a deceptive look of gneiss and in the quarry sections at depth the fresh charnockite is exposed, which are well exemplified in almost all the Charnockite quarry sections. The specks of pyrites within the charnockite are seen in the Duraisamypuram village. Banded charnockite is observed in Gopalapuram rough stone quarry.

5. Geological Resources

The geological reserves have been calculated based on the cross-section method and the availability of Geological Resources in this land is given below.

Table 2. Geological resources

Section	Length (m)	Width (m)	Depth (m)	Tonnage Factor	Rough stone MT	Gravel MT	Topsoil MT
A-A' & B-B'	60	161	0.6	2.0	-	-	11592
	60	161	0.5	2.0	-	96600	-
	60	161	44.0	2.75	1168860	-	-
A-A' & C-C'	96	150	0.6	2.0	-	-	17280
	96	150	5.0	2.0	-	144000	-
	96	150	44.0	2.75	1742400	-	-
Total Estimated Geological Reserves					**2911260**	**240600**	**28872**
Less: Already Quarried (Below Table)					(-) 88473	(-) 78500	(-) 9714
Balance Geological Reserves					**2822787**	**162100**	**19158**

Table 3. Already quarried reserves

Section	Length (m)	Width (m)	Depth (m)	Tonnage Factor	Rough stone MT	Gravel MT	Topsoil MT
A-A' & B-B'	50.0	99.0	0.6	2.0	-	-	5940
	49.0	98.0	5.0	2.0	-	48020	-
	44.0	92.0	5.0	2.75	55660	-	-
A-A' & C-C'	30.5	103.1	0.6	2.0	-	-	3774
	30.0	101.6	5.0	2.0	-	30480	-
	28.0	85.23	5.0	2.75	32813	-	-
Total Already Quarried Reserves			**10.6**		**88473**	**78500**	**9714**

Table 4. Available gravel stocks size& quantity:

Stock Piles	Length in m	Width in m	Height in m	Tonnage factor	Gravel in MT
I	54.1	32.0	3.6	2.0	12465
II	49.6	36.3	3.1	2.0	11163
Total Gravel in 2 Stocks Piles					**23628**

The available mineable reserves are calculated for the balance period of 7 years & 6 months against granted lease period of 10 years based on the total minable reserves calculated by safety distances of 10.0m at southern side for the nilaviyal odai, 10m to the cart track on eastern side & Boomithan land at northwest and 7.5m to the patta land on all other sides of the boundary side of the applied area and Bench losses.

Table 5. Mineable Reserves

Section	Bench	Length (M)	Width (M)	Height (M)	Tonnage Factor	Rough Stone (MT)	Gravel (MT)	Topsoil in (MT)
A-A' & B-B'	-	50.0	143.5	0.6	2.0	-	-	8610
	I	49.0	142.0	5.0	2.0	-	69580	-
	II	44.0	131.0	5.0	2.75	79255	-	-
	III	39.0	121.0	5.0	2.75	64886	-	-
	IV	34.0	111.0	5.0	2.75	51893	-	-
	V	29.0	101.0	5.0	2.75	40274	-	-
	VI	24.0	91.0	5.0	2.75	30030	-	-
	VII	19.0	81.0	5.0	2.75	21161	-	-
	VIII	14.0	71.0	5.0	2.75	13668	-	-
	IX	9.0	61.0	5.0	2.75	7549	-	-
	X	4.0	51.0	4.0	2.75	2244	-	-
A-A' & C-C'	-	88.5	132.5	0.6	2.0	-	-	14072
	I	88.0	131.0	5.0	2.0	-	115280	-
	II	82.0	120.0	5.0	2.75	135300	-	-

	III	77.0	110.0	5.0	2.75	116463	-	-
	IV	72.0	100.0	5.0	2.75	99000	-	-
	V	67.0	90.0	5.0	2.75	82913	-	-
	VI	62.0	80.0	5.0	2.75	68200	-	-
	VII	57.0	70.0	5.0	2.75	54883	-	-
	VIII	52.0	60.0	5.0	2.75	42900	-	-
	IX	47.0	50.0	5.0	2.75	32313	-	-
	X	42.0	40.0	4.0	2.75	18480	-	-
Total Estimated Mineable Reserves						**961392**	**184860**	**22682**
Less: Existing Pit – Total Quantity						(-) 88473	(-) 78500	(-) 9714
Addition: Available Gravel Stock Total						**-**	**(+) 23628**	**-**
Balance Mineable Reserves						**872919**	**129988**	**12968**

The available mineable reserves have been computed as 8,72,919 MT of Rough Stone 1,29,988 MT of Gravel and 12,968 MT of Topsoil up-to the depth of 49.6 m from the ground level.

Table 6. Year wise Production Plan

Section	Year	Bench	Length (M)	Width (M)	Height (M)	Tonnage Factor	Rough Stone in MT	Gravel in MT
A-A' & B-B'	III-Year 6 months	III	39	82.0	5.0	2.75	43,973	-
		III	23	75.0	5.0	"	23,719	-
Gravel available in 2 Stocks -Total							-	23,628
III – YEAR Balance Period 6-Months PRODUCTION							**67,692**	**23,628**
A-A' & B-B'	IV-Year	I	49	44.0	5.0	2.0	-	21,560
		II	44	39.0	5.0	2.75	23,595	-
		III	39	39.0	5.0	"	20,914	-
		IV	34	111.0	5.0		51,893	-

		V	29	101.0	5.0	“ “	40,274	-
A-A’ & C-C’		I	30	29.4	5.0	2.00	-	8,820
		II	28	34.77	5.0	2.75	13,386	-
		III	23	35.0	5.0	“	11,069	-
		IV	18	100.0	5.0	“	24,750	-
IV – YEAR PRODUCTION							**1,85,881**	**30,379**
A-A’ & B-B’	V-YEAR	VI	24	91.0	5.0	2.75	30,030	-
A-A’ & C-C’		I	29	131.0	5.0	2.0	-	37,990
		II	25	120.0	5.0	2.75	41,250	-
		III	25	110.0	5.0	“	37,813	-
		IV	25	100.0	5.0	“	34,375	-
		V	38	90.0	5.0	“	47,025	-
V – YEAR PRODUCTION							**1,90,493**	**37,990**
A-A’ & C-C’	VI-YEAR	I	29	131.0	5.0	2.0	-	37,990
		II	29	120.0	5.0	2.75	47,850	-
		III	29	110.0	5.0	“	43,863	-
		IV	29	100.0	5.0	“	39,875	-
		V	29	90.0	5.0	“	35,888	-
		VI	15	80.0	5.0	“	16,500	-
VI – YEAR PRODUCTION							**1,83,976**	**37,990**
A-A’ & B-B’	VII-YEAR	VII	19	81.0	5.0	2.75	21,161	-
		VII	14	71.0	5.0	“	13,668	-
A-A’ & C-C’		VI	47	80.0	5.0	“	51,700	-
		VII	57	70.0	5.0	“	54,863	-
		VIII	52	60.0	5.0	“	42,900	-
VII – YEAR PRODUCTION							**1,84,292**	**-**
A-A’ & B-B’	VIII-YEAR	IX	9	61.0	5.0	2.75	7,549	-
A-A’ & C-C’		IX	19	50.0	5.0	“	13,062	-

VIII – YEAR PRODUCTION							**20,611**	**-**
A-A' & B-B'	IX-YEAR	IX	28	50.0	5.0	2.75	19,250	-
IX – YEAR PRODUCTION							**19,250**	**-**
A-A' & B-B'	X-YEAR	X	4	51.0	4.0	2.75	2,244	-
A-A' & C-C'		X	42	40.0	4.0	"	18,480	-
X – YEAR PRODUCTION							**20,724**	**-**
TOTAL PRODUCTION FOR REMAINIG LEASE PERIOD							**8,72,919**	**1,29,988**

Table 7: Year wise Production summary

Year	Rough Stone (MT)	Gravel (MT)
III- remaining period	67692	23628
IV	185881	30379
V	190493	37990
VI	183976	37990
VII	184292	-
VIII	20611	-
IX	19250	-
X	20724	-
Total	**8,72,919**	**1,29,988**

6. Mining

Opencast Mining

Open cast Semi-Mechanized Mining with one 6.0-meter bench for Topsoil & Gravel followed by 5.0-meter vertical bench with a bench width not less than the bench height.

The Quarry operation involves shallow jack hammer drilling, blasting, loading and transportation.

Process Description

- The reserves and resources arrived based upon the Geological investigation

- Removal of Gravel by Excavators and directly Loaded into Tippers.
- Removal of Rough Stone by Excavators by Drilling and Blasting.
- Shallow Drilling With Jackhammer of 30-32 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 4.0 KLD. Domestic water will be sourced from nearby Gopalapuram Village and other water will be source from nearby road tankers supply.

Table 8. Water Balance

Purpose	Quantity	Sources
Drinking Water	1.0 KLD	Packaged Drinking water vendors available in Gopalapuram village, which is about 0.40 km, N from the project site.
Afforestation & Green belt	1.0 KLD	Other domestic activities through road tankers supply
Dust suppression Sprinkling	2.0 KLD	From road tankers supply
Total	**4.0 KLD**	

8. Manpower

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

Table 9. Man Power

S. No.	Levels & Details		Persons
1.	Skilled	Operators	1
		Mechanic	1
		Blaster/Mate	2

2.	Semi-skilled	Drivers	2
3.	Unskilled	Musdoor/Labours	8
		Cleaners	2
		Office Boy	1
4.	Management & Supervisory staff		1
Total			**18**

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

9. Solid Waste Management

Table 10 Solid Waste Management

S. No	Type	Quantity	Disposal Method
1	Organic	3.24 kg/day	Municipal bin including food waste
2	Inorganic	4.86 kg/day	TNPCB authorized recyclers

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

Table 11. 500m Radius Cluster Mine

1) Existing other quarries:

S. No.	Quarry details	Taluk & Village	S.F. Nos & Extent (Ha)	Proceeding No & Lease Period
I. Existing Quarries				
1	M/s.Lakshmi Blue Metals (Rajmohan), 540/B, Gopalapuram Main Road, E.B.Sub office, Nallamanayakkanpatti Post, Rajapalayam Taluk	Vembakottai / Gopalapuram	557/1, 558/1, 558/2, 559, 574, 557/2 Extent – 4.85.00 Hect	KVI1/232/2021 31.01.2023 Lease period – 01.02.2023 to 31.01.2028
II. Abandoned Quarry				

1.	Thiru.V.Rajmohan S/o.Venkatapathy, No:4A8/1, INTUC Nagar, Rajapalayam, Virudhunagar.	Vembakottai / Gopalapuram	556/2 Extent – 1.14.50 Hect.,	KV1/555/2020 09.11.2020 Lease period 20.01.2017 to 19.01.2022
2.	Thiru.Mayilsamy	Vembakottai / Gopalapuram	565, 566	Prior 2013
III. Present Proposed Quarry				
1.	Thiru.A.Seethakumar, S/o.Arumugam, D.No.543, Mappilai Subbaiah Road, Rajapalayam Town and Taluk, Virudhunagar – 626 117.	Vembakottai / Gopalapuram	532/2C and 533/1,2,3 & 4 Extent – 2.12.50 Hect.,	KV1/638/2020
Total Cluster area			**6.97.50 Ha**	

10. Land Requirement

The total extent area of the project is 2.12.50 Ha, Patta Land in Gopalapuram Village of Vembakottai Taluk, Virudhunagar District.

Table 12 Land Use Breakup

S. No.	Land Use	Present Area (Hect)	Area after the quarrying period of 5 years (Hect)
1.	Area under quarrying	0.70.20	1.58.20
2.	Infrastructures	0.01.0	0.01.0
3.	Roads, cart tracks etc.,	0.03.0	0.03.0
4.	Green Belt	0.50.30	0.50.30
5.	Unutilized Area	0.88.00	0.00.00
Total		**2.12.50**	**2.12.50**

11. Human Settlement

There are no habitations within 300m radius. There are villages located in this area within a 15 km radius of the quarry.

Table 13 Habitation

Sl. No	Direction	Village	Population	Distance
1	North	Gopalapuram	1,461	0.4 Km
		Kannithevanpatti	-	2.0 Km
		Peyampatti	-	2.7 Km
		KeelaRajakularaman	8,986	3.5 Km
2	Northeast	Swaminathapuram	-	2.5 Km
		Andappanayakanpatti	-	2.5 Km
		Nallakammapuram (H)	-	3.0 Km
		Karisalkulam	1,500	4.0 Km
		Thombakulam	2,400	4.5 Km
3	Northwest	Varagunaramapuram	1,357	2.0 Km
		Nathampatti	2,143	3.5 Km
		Nallamanaickenpatti	2,806	4.5 Km
4	South	Vadakarai	3,454	1.5 Km
5	Southeast	Sivalingapuram	2,143	2.0 Km
6	Southwest	Thenkarai	918	2.2 Km
		Senthatiiyapuram	1,200	4.0 Km
7	East	Alangulam	1,924	4.5 Km
8	West	Kilavikulam	741	3.5 Km
		Cholapuram R. S	-	5.0 Km

12. Power Requirement

The proposed Rough stone quarrying does not require any power supply for the quarrying operation.

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 Topsoil.

13. Scope of the Baseline Study

This chapter contains information on existing environmental scenarios 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 : 30º C

ii) Average Maximum Temperature: 38.5ºC

iii) Average Annual Rainfall of the area: 820 mm

13.2 Air Environment

Ambient air monitoring was carried out on a 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 10 km. radius, air quality survey has been conducted at 7 locations. Major air pollutants like Particulate Matter (PM10), Sulphur Dioxide (SO_2), Nitrogen Dioxide (NO_2) were monitored, and the results are summarized below.

The baseline levels of PM_{10} (41- 63 µg/m³), $PM_{2.5}$ (16 - 30 µg/m³), SO_2 (5-16 µg/m³), NO_2 (8-52 µg/m³), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from June 2026 to August 2026.

13.3 Noise Environment

The maximum Day noise and Night noise were found to be 60 dB(A) and 52 dB(A) respectively in Valavaitha Amman Temple. The minimum Day Noise and Night noise were 40 dB (A) and 32 dB(A) respectively which was observed in Project site. The observed values are all well within the Standards prescribed by CPCB.

13.4 Water Environment

- The average pH ranges from 7.13 – 7.60.
- TDS value varied from 415 mg/l to 1395 mg/l
- Hardness varied from 245 to 798mg/l
- Chloride varied from 85.5 to 413 mg/l

13.5 Land Environment

The analysis results show that the majority of soil in the project and surrounding area is slightly alkaline in nature and pH value ranges from 7.23 to 8.76 with organic matter 0.07 to 1.21 %. 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 mine is Patta land. There is 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 components 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 1100 trees will plant before commencement of mining operation with interval 5m.

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

Table.14 Plantation/ Afforestation Program

Name of species proposed	Survival	No of species
Neem, Vilvam, Vaagai, Eachai, Naval, Mantharai, Magizha Maram, Vila Maram, Poo Marudhu, Panai, Marudha maram, Thandri, Sengondrai, Poovarasu, Thethankottai Maram, Pungam	70%	1100
Total		**1100**

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 1,95,58,000/-** for deployment of machinery and creation of infrastructural facilities like approach road, mine office / Workers Shed, First Aid Room etc., including electrifications and water supply

Table .15 Project Cost details

S. No.	Description	Cost (Rs.)
1	Investment Cost	8,00,000/-
2	Expenditure Cost	1,87,58,000/-
	Total	**1,95,58,000/-**

Total EMP Cost: **Rs.3,66,26,560/- for 7.5 years, approximately (Rs. 366 Lakhs)**

20. Corporate Environmental Responsibility

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

Table 16 CER Cost

S. No.	CER Activity	CER value (Rs)
1.	We have provided the CER activity at a total cost of **Rs. 5,00,000/-** (Rupees Five Lakhs only) by completing the work of **laying paver block pavements** within the premises of **Panchayat Union Middle School, Gopalapuram, Virudhunagar District – 626136**, in accordance with the commitment made in the existing Environmental Clearance. Photographic evidence of the completed work is enclosed as Annexure.	5,00,000
Total		**5,00,000**

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 a positive impact by providing direct and indirect jobs opportunities
- The project is environmentally compatible, financially viable and would be in the interest of the 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.

1 Introduction

1.1 PREAMBLE

Environment Impact Assessment (EIA) is a process used to identify the environmental, social & economic impacts of a project prior to decision making. It aims to predict environmental impacts at an early stage of project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the prediction options to the proponent. By using EIA, both environmental & economic benefits can be achieved. By considering environmental effects - prediction & mitigation, early benefits in project planning, protection of the environment, optimum utilization of resources, thus saving overall time & cost of the project.

1.2 GENERAL INFORMATION ON MINING OF MINERALS

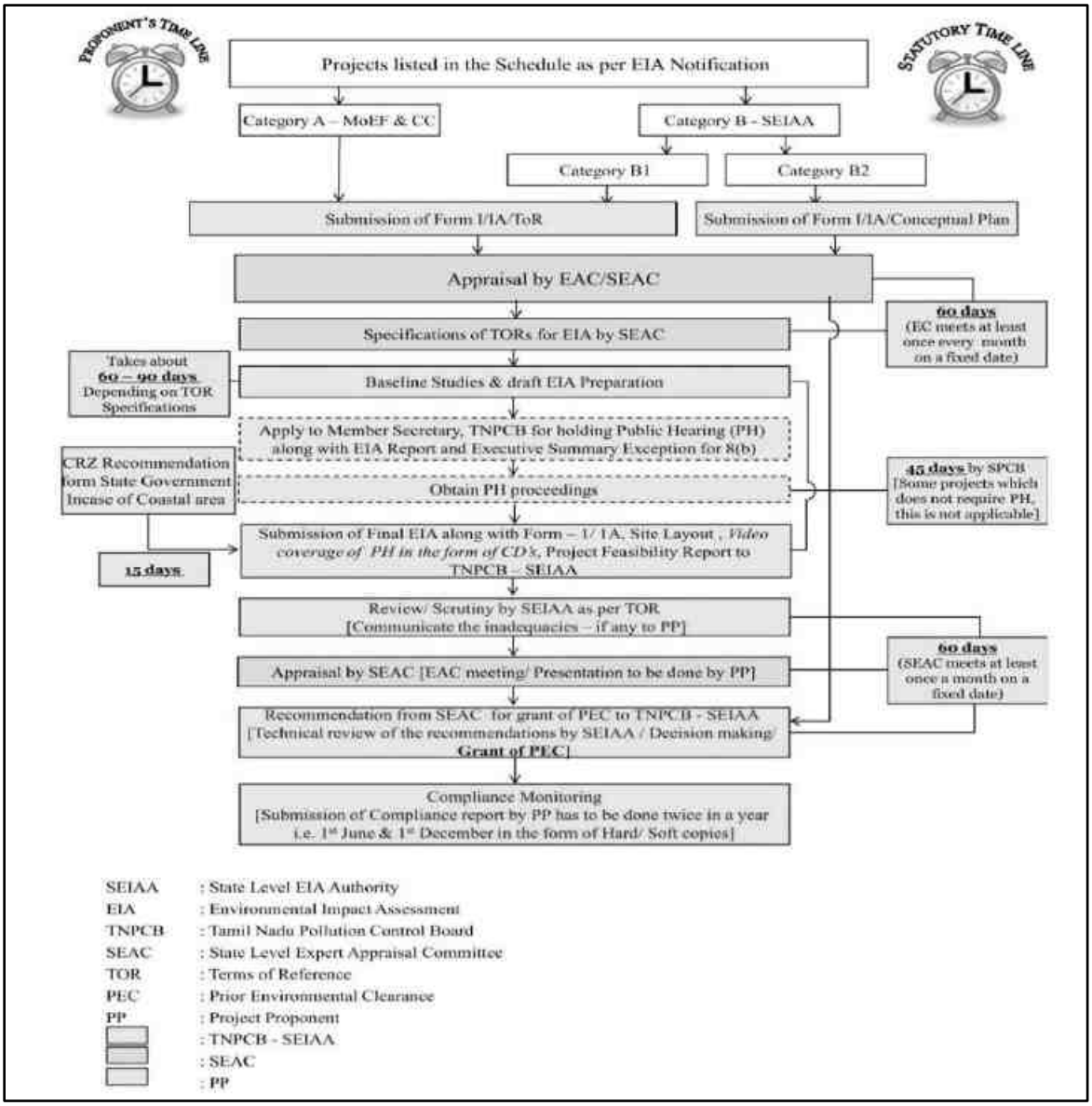
Virudhunagar is endowed with minor mineral resources like, granite (Leptynite), blue metal, gravel, brick soil, Limekankar, Clay (others) and sand deposit and the crystalline limestone is major mineral resource in the District. As a result of developmental activities and market demand for minor minerals, mining of minor minerals is vital. The mining if not carried out systematically, will result in ill-effects and environmental degradation in project effected areas. Therefore, a sustainable development of the area involving extraction of mineral wealth vis-à-vis protection of environment is the ultimate solution for betterment of mankind.

The Mining of minor minerals like Limekankar, Blue metal, Dimension stone, brick sand and Gravels are active in the district. Private companies play a major role in mining activity for minor minerals, whereas the Government agency takes part in mining dimension stones in the district. In total, 143 no's quarry for blue metal/rough stone, 34 granite (leptynite) quarry for dimension stone, 26 for limestone, 9 for gravel and 12 for brick earth quarries are available in the Virudhunagar district. As per District Survey Report For Rough stone Virudhunagar District 2018-2019 Prepared as per Gazette Notification S.O.3611 (E) dated 25.07.2018 of Ministry of Environment, Forest and Climatic Change, the total production of Rough Stone in the year 2018-2019 was 1635802.76 Cum

1.3 ENVIRONMENTAL CLEARANCE

As per EIA Notification, 2006 and (O.M vide No.F.No.L- 11011/175/2018-IA-II(M) Govt of India MOEF&CC on December 12th, 2018) project comes under category B1 cluster & schedule 1(a) under item 1

The proposed project is categorized under Category "B1" 1(a) (Cluster) - {Mining of Minerals} as the 500m radius area is more than 5 Ha including the mine lease area. Hence, the project will be considered at SEAC, Tamil Nadu.



1.4 TERMS OF REFERENCE (TOR)

The Terms of Reference have been issued by SEAC-TN vide File No. 13716 Dated: 25.06.2026 & ToR identification number TO26B0108TN5856033N. 43 additional ToR points were recommended by SEAC TN in addition to the Standard ToR Points. The replies for the same were addressed in this report.

1.5 POST ENVIRONMENTAL CLEARANCE MONITORING

1.5.1 *Methodology adopted*

Post project monitoring will be carried out as per conditions stipulated in the environmental clearance letter issued by SEIAA, consent issued by SPCB as well as according to CPCB guidelines. The lease area is considered as core zone and the area lying within 10 km radius from the lease boundary is considered as buffer zone, where some impacts may be observed on physical and biological environment. In the buffer zone slight impact may be observed and that too is occasional.

Table 1-1: Post Environmental Clearance Monitoring

S. No.	Description	Frequency of Monitoring
1.	Ambient Air Quality Monitoring	Quarterly/ Half Yearly
2.	Water level & Quality Monitoring	Quarterly/ Half Yearly
3.	Noise Level Monitoring	Quarterly/ Half Yearly
4.	Soil Quality Monitoring	Yearly
5.	Medical Check-up	Yearly

1.6 GENERIC STRUCTURE OF THE EIA DOCUMENT

Chapter 1: **Introduction**. This chapter contains general information on the mining of minerals, major sources of environmental impacts in respect of mining projects and details of environmental clearance process.

Chapter 2: **Project Description**. In this chapter the proponent should also furnish detailed description of the proposed project, such as the type of project, need for the project, project location, layout, project activities during construction and operational phases, capacity of the project, project operation i.e.,

land availability, utilities (power and water supply) and infrastructure facilities such as roads, railways, housing and other requirements. If the project site is near a sensitive area it is to be mentioned clearly why an alternative site could not be considered. The project implementation schedule estimated cost of development as well as operation etc should be also included.

Chapter 3: **Analysis of Alternatives (Technology and Site).** This chapter gives details of various alternatives both in respect of location of site and technologies to be deployed, in case the initial scoping exercise considers such a need.

Chapter 4: **Description of Environment**. This chapter should cover baseline data in the project area and study area.

Chapter 5: **Impact Analysis and mitigation measures**. This chapter describes the anticipated impacts on the environment and mitigation measures. The method of assessment of impacts including studies carried out, modelling techniques adopted to assess the impacts where pertinent should be elaborated in this chapter. It should give details of the impacts on the baseline parameters, both during the construction and operational phases and suggests the mitigation measures to be implemented by the proponent.

Chapter 6: **Environmental Monitoring Program.** This chapter should cover the planned environmental monitoring program. It should also include the technical aspects of monitoring the effectiveness of mitigation measures.

Chapter 7: **Additional Studies**. This chapter should cover the details of the additional studies required in addition to those specified in the ToR and which are necessary to cater to more specific issues applicable to the particular project.

Chapter 8: **Project Benefits**. This chapter should cover the benefits accruing to the locality, neighborhood, region and nation as a whole. It should bring out details of benefits by way of improvements in the physical infrastructure, social infrastructure, employment potential and other tangible benefits.

Chapter 9: **Environmental Cost Benefit Analysis**. This chapter should cover on Environmental Cost Benefit Analysis of the project.

Chapter 10: **Environmental Management Plan.** This chapter should comprehensively present the Environmental Management Plan (EMP), which includes the administrative and technical setup, summary matrix of EMP, and the cost involved to implement the EMP, both during the construction

and operational phase and provisions made towards the same in the cost estimates of project construction and operation. This chapter should also describe the proposed post-monitoring scheme as well as inter-organizational arrangements for effective implementation of the mitigation measures.

Chapter 11: **Summary and Conclusions**. This chapter gives the summary of the full EIA report condensed to ten A-4 pages at the maximum. It should provide overall justification for the implementation of the project and should explain how the adverse effects have been mitigated.

Chapter 12: **Disclosure of Consultants.** This chapter should include the names of the consultants engaged with their brief resume and nature of consultancy rendered.

1.7 DETAILS OF PROJECT PROPONENT

Project Proponent : Thiru.A.Seethakumar,
Status of the Proponent : Individual
Proponent's name & address : Thiru.A.Seethukumar,
S/o.Arumugam,
D No.543, Mappillai Subbiah Road,
Rajapalayam Town & Taluk,
Virudhunagar District - 626 117.

1.8 BRIEF DESCRIPTION OF THE PROJECT

1.8.1 *Project Nature, Size & Location*

As per EIA Notification, 2006 and its subsequent amendments (O.M vide No.F.No.L-11011/175/2018-IA-II(M) Government of India MoEF & CC on December 12th, 2018) project comes under category B1 cluster & schedule 1(a) under item 1.

Proposed proposal pertains to Expansion on existing Rough stone and gravel mining project by open cast mechanized method on allotted mine lease area at Gopalapuram Village, Vembakottai Taluk of Virudhunagar District, Tamil Nadu. It is a plain terrain. The total allotted mine lease for the proposed project is 2.12.50 Ha with their maximum production capacity i.e. 8,72,919 MT of Rough stone and 1,29,988 MT of Gravel upto a restricted depth of 49.6m BGL for the period of 7 Years & 6 Months.

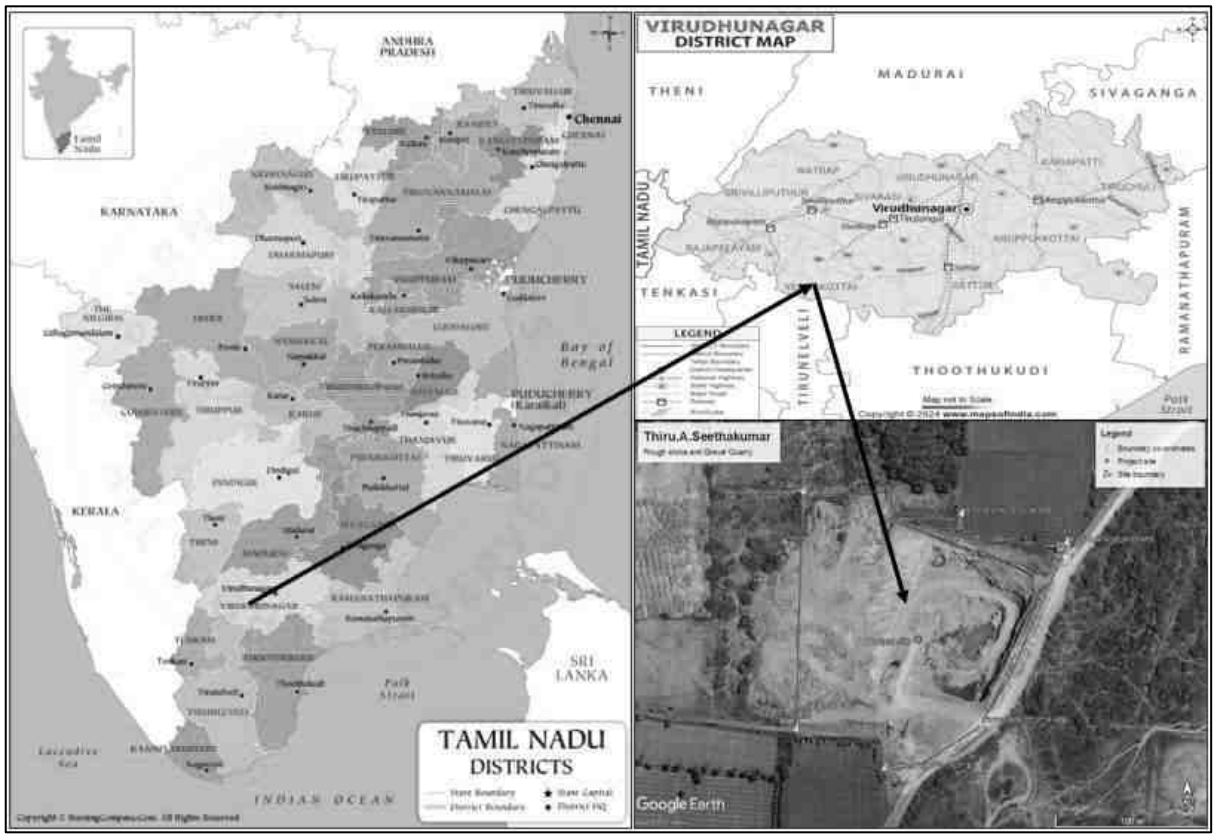


Figure 1.1: Location Map of the Project site

2 Project Description

This chapter furnishes detailed descriptions of the proposed project, such as the type of the project, need for the project, project location, layout, project activities during mining, capacity of the project, project operation i.e., land availability, utilities (power and water supply) and infrastructure facilities such as roads, railways, housing and other requirements. The project implementation schedule estimated cost for carrying out entire mining activity is included.

2.1 GENERAL

Proposed proposal pertains to Rough stone mining project by open cast mechanized method on allotted mine lease area at Gopalapuram Village, Vembakottai Taluk of Virudhunagar District, Tamil Nadu. It is a Plain terrain. We have obtained modified mining plan from 2025 to 2033 from Department of Geology and Mining, Virudhunagar District for 2.12.50 Ha land area in the S.F.Nos. 532/2C and 533/1,2,3 & 4 of Gopalapuram Village, Vembakottai Taluk and Virudhunagar District for a proposed mining depth of 49.6m below ground level and production of 8,72,919 MT of Rough stone and 1,29,988 MT of Gravel for the balance period of 7 years and 6 months period.

Type of the project:

As per EIA Notification, 2006 and its subsequent amendments (O.M vide No.F.No.L-11011/175/2018-IA-II(M) Government of India MoEF & CC on December 12th 2018) project comes under category B1 cluster & schedule 1(a) under item 1. The project required to be appraised at state level by State Environment Impact Assessment Authority, Tamil Nadu. Environment Clearance study will involve preparation of final EIA report on the basis of baseline & impact assessment study is carried out. Also, before appraisal, under 7(III) of EIA notification 2006, the project involves the Public Consultation and the same will be conducted under SPCB (TN) in Virudhunagar District. The proceedings of the same will be incorporated in the Final EIA Report.

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

Table 2-1: Quarry within 500m Radius

S. No.	Quarry details	Taluk & Village	S.F. Nos & Extent (Ha)	Proceeding No & Lease Period
I.	**Existing Quarries**			
1	M/s.Lakshmi Blue Metals (Rajmohan), 540/B, Gopalapuram Main Road, E.B.Sub office, Nallamanayakkanpatti Post, Rajapalayam Taluk	Vembakottai / Gopalapuram	557/1, 558/1, 558/2, 559, 574, 557/2 Extent – 4.85.00 Hect	KVI1/232/2021 31.01.2023 Lease period – 01.02.2023 to 31.01.2028
II.	**Abandoned Quarry**			
1.	Thiru.V.Rajmohan S/o.Venkatapathy, No:4A8/1, INTUC Nagar, Rajapalayam, Virudhunagar.	Vembakottai / Gopalapuram	556/2 Extent – 1.14.50 Hect.,	KV1/555/2020 09.11.2020 Lease period 20.01.2017 to 19.01.2022
2.	Thiru.Mayilsamy	Vembakottai / Gopalapuram	565, 566	Prior 2013
III.	**Present Proposed Quarry**			
1.	Thiru.A.Seethakumar, S/o.Arumugam, D.No.543, Mappilai Subbaiah Road, Rajapalayam Town and Taluk, Virudhunagar – 626 117.	Vembakottai / Gopalapuram	532/2C and 533/1,2,3 & 4 Extent – 2.12.50 Hect.,	KV1/638/2020
Total Cluster area			**6.97.50 Ha**	

The Total extent of the Existing / Lease expired / Proposed quarries are 6.97.50 Ha

2.1.1 *Need for the project:*

The said project plays a significant role in the domestic as well as infrastructural market. To achieve a huge infrastructure being envisaged by Government of India, particularly in road and housing sector, there is a need for basic building materials, the rough stone form the primary building material.

Rough stone is one of the most valuable natural building materials. Aggregates are mostly used for building roads and footpaths. Aggregates – stone used for its strong physical properties – crushed and sorted into various sizes for use in concrete, coated with bitumen to make asphalt or used 'dry' as bulk fill in construction.

Mostly used in roads, concrete and building products. Aggregates represent about 98% of quarry output, most of which is used in road construction, maintenance and repair. Much of this goes to the production of asphalt; the remainder is used 'dry' without the addition of other materials to provide a sturdy base for roads.

Rocks and minerals of economic importance found to occur in Virudhunagar District are Rough stone deposits suitable for the production of Jelly, Cut stones and Pillar Stones.

As a result of developmental activities and market demand for minor minerals, mining of minor mineral is vital. In addition to that, geological reserves of rough stone is abundant in the project area which is evident from the mine activities carried out in the nearby sites.

2.2 BRIEF DESCRIPTION OF THE PROJECT

Table 2-2 Salient Features of the Project

S. No.	Description	Details
1	Project Name	Thiru. A.Seethakumar Rough Stone and Gravel Quarry
2	Proponent	Thiru.A.Seethakumar
3	Mining Lease Area Extent	2.12.50 Ha

4	Location	SF. Nos: 532/2C and 533/1,2,3 & 4 in Gopalapuram Village, Vembakottai Taluk, Virudhunagar District.
5	Latitude	09˚21'12.90" N to 09˚21'18.70" N
6	Longitude	77˚37'14.60" E to 77˚37'20.50" E
7	Topography	Plain terrain
8	Site Elevation above MSL	The altitude of the lease area is 120m above MSL.
9	Topo sheet No.	58 G/11
10	Minerals of Mine	Rough Stone and Gravel Quarry
11	Proposed production	8,72,919 MT of Rough stone and Gravel 1,29,988 MT
12	Ultimate depth of Mining	49.6m below ground level
13	Method of Mining	Open cast mechanized mining
14	Water demand	4.0 KLD
15	Source of water	Water will be supplied through tankers supply
16	Manpower	18 Nos.
17	Mining Plan Approval	Mining Plan was approved by The Assistant Director, Dept. of Geology & Mining, Virudhunagar vide Roc.No.KV1/638/2020, Dated: 07.10.2025.
18	Precise area communication letter	Precise area communication letter received from The Assistant Director, District Collectorate Office, Dept. of Geology & Mining, Virudhunagar vide Na.Ka.En.KV1/638/2020 Kanimam Dt: 02.02.2021.
19	Production details	Geological reserves: 28,22,787 MT of Rough stone and 1,62,100 MT of Gravel. Proposed year wise reserves: Rough stone 8,72,919 Metric Tons of Rough Stone and 1,29,988 Metric Tons of Gravel for the remaining period of 7 Years and 6 Months.

20	Boundary Fencing	7.5 m barrier all along the boundary for adjacent patta lands and 10 m safety distance for Govt. Lands. Fencing will be provided.
21	Disposal of overburden	The overburden is in the form of gravel formation. It will be quarried for filling purposes to nearby end users and part of soil will be preserved all along the boundary as barrier for afforestation. This will be done only after obtaining permission and paying necessary seigniorage fees to the Government.
22	Ground water	Depth of water table (based on nearby wells and water bodies) The water table is below 60 mts from below ground level in this area. The quarry operation is proposed up to a depth of 49.6 mts below the ground level.
23	Habitations within 300m radius of the Project Site	There is no Habitation within 300m radius of the project site.
24	Drinking water	Water will be supplied through tankers from Gopalapuram village which is about 0.40 km, N from the project site

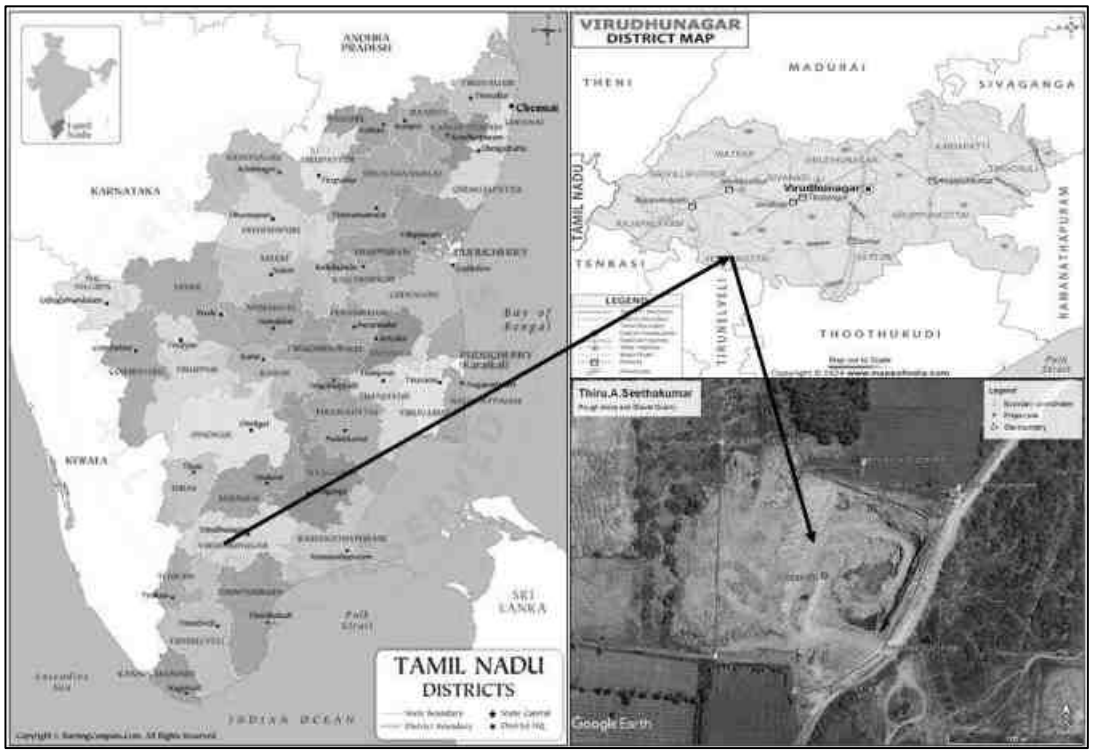


Figure 2.1: Location Map of the Project Site

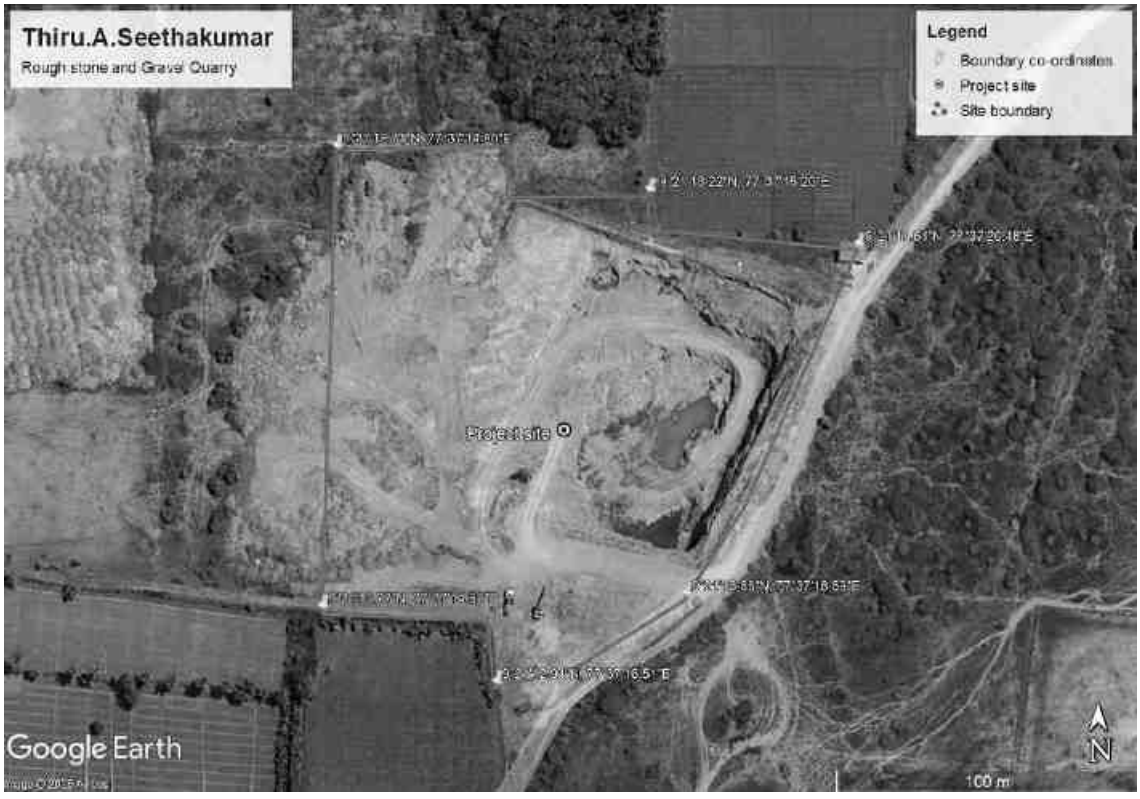


Figure 2.2: Google Earth Image and Coordinates of the Project Site

2.2.1 *Site Connectivity:*

The site is connected to the roadways as follows.

Village Road which connects Gopalapuram & Mettuvadakarai villages – 0.30 Km – E



Figure 2.3: Site Connectivity

2.3 LOCATION DETAILS:

Table 2-3: Location Details

S. No	Particulars	Details
1.	Latitude	09°21'12.90" N to 09°21'18.70" N
2.	Longitude	77°37'14.60" E to 77°37'20.50" E
3.	Site Elevation above MSL	The Altitude of the lease area is 120 m above MSL.
4.	Topography	Plain Terrain
5.	Land use of the site	Patta land (Punjai Land)
6.	Extent of lease area	2.12.50 Ha

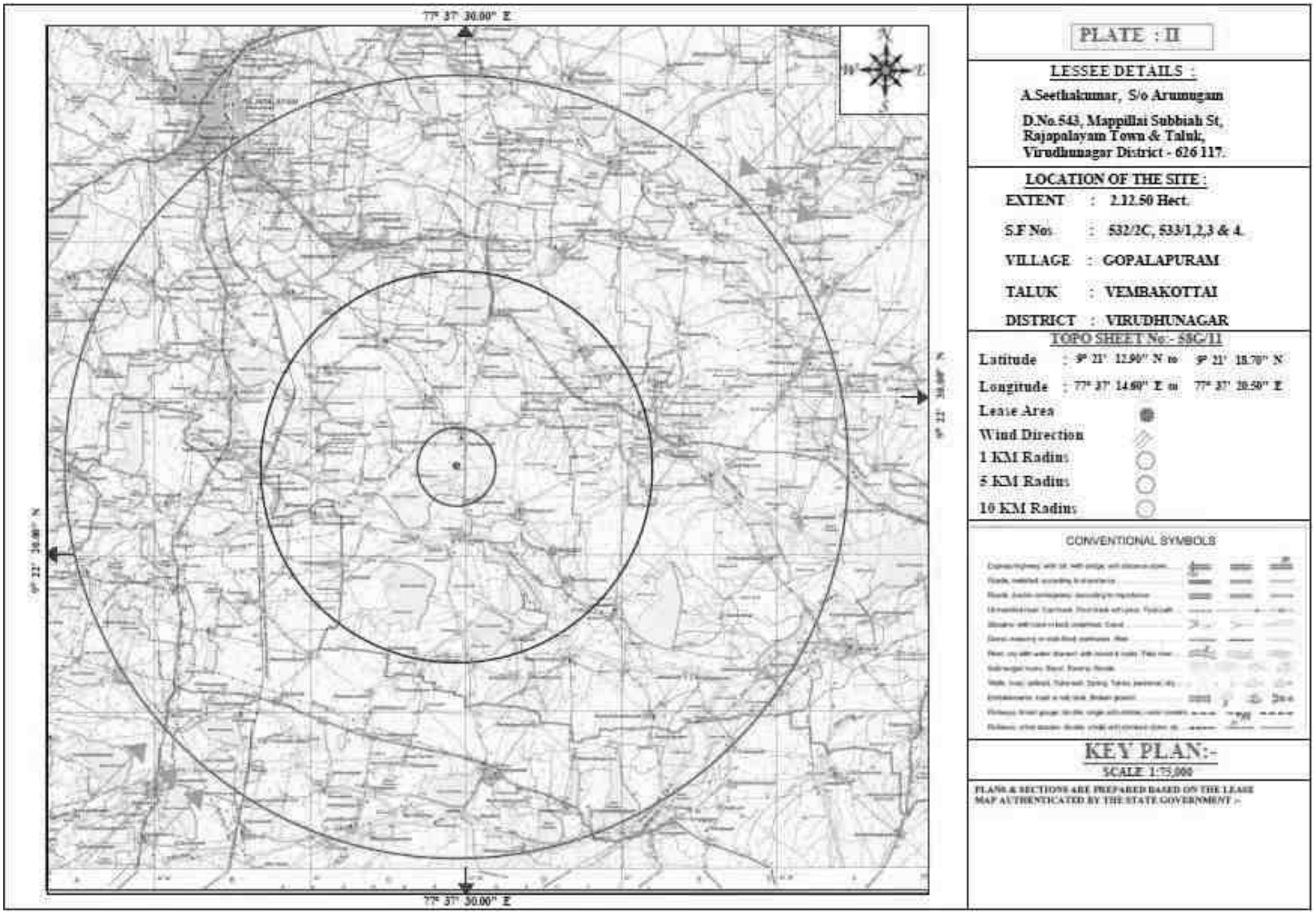


Figure 2.4: Topo Map of Project Site

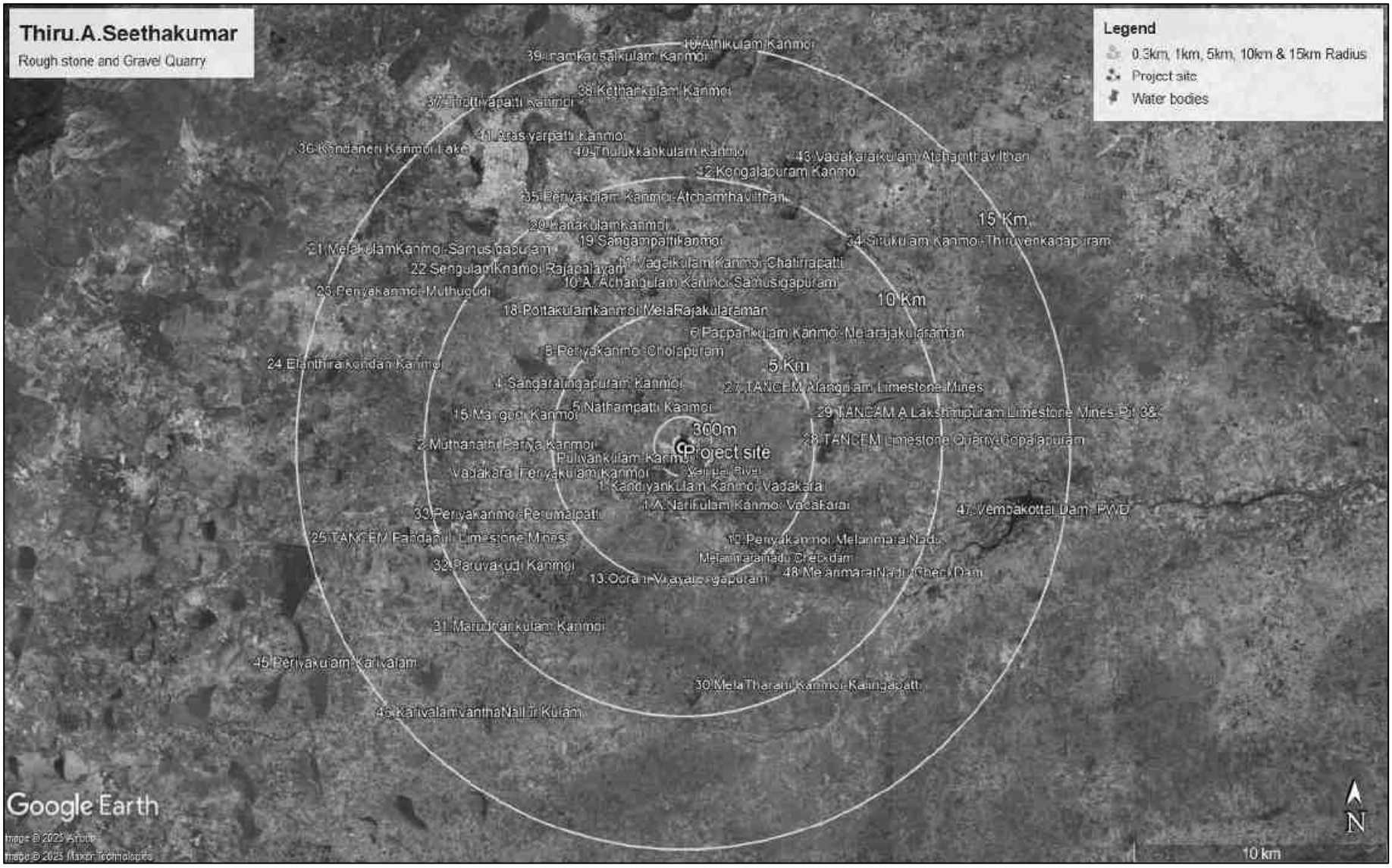


Figure 2.5: Environmental Sensitivity within 15km radius

2.3.1 *Site Photographs*

The site photographs of the project site are as follows



Figure 2.6: Site Photographs

2.3.2 *Land Use Breakup of the Mine Lease Area*

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

Table 2-4: Land use pattern

S. No.	Land Use	Present Area (Hect)	Area after the quarrying period of 5 years (Hect)
1.	Area under quarrying	0.70.20	1.58.20
2.	Infrastructures	0.01.0	0.01.0
3.	Roads, cart tracks etc.,	0.03.0	0.03.0
4.	Green Belt	0.50.30	0.50.30
5.	Unutilized Area	0.88.00	0.00.00
Total		**2.12.50**	**2.12.50**

2.3.3 *Human Settlement*

There are no habitations within the radius of 300m. The nearby habitations are as follows

Table 2-5: Habitation

Sl. No	Direction	Village	Population	Distance
1	North	Gopalapuram	1,461	0.4 Km
		Kannithevanpatti	-	2.0 Km
		Peyampatti	-	2.7 Km
		KeelaRajakularaman	8,986	3.5 Km
2	Northeast	Swaminathapuram	-	2.5 Km
		Andappanayakanpatti	-	2.5 Km
		Nallakammapuram (H)	-	3.0 Km
		Karisalkulam	1,500	4.0 Km
		Thombakulam	2,400	4.5 Km
3	Northwest	Varagunaramapuram	1,357	2.0 Km
		Nathampatti	2,143	3.5 Km
		Nallamanaickenpatti	2,806	4.5 Km
4	South	Vadakarai	3,454	1.5 Km

5	Southeast	Sivalingapuram	2,143	2.0 Km
6	Southwest	Thenkarai Senthatiiyapuram	918 1,200	2.2 Km 4.0 Km
7	East	Alangulam	1,924	4.5 Km
8	West	Kilavikulam Cholapuram R.S	741 -	3.5 Km 5.0 Km

2.4 LEASEHOLD AREA

The Rough Stone and Gravel Quarry mine of 2.12.50 Ha is a patta land. The lease area falls in S.F No: 532/2C and 533/1, 2, 3 & 4. of Gopalapuram Village, Vembakottai Taluk and Virudhunagar District, Tamil Nadu State. There is no reserve forest or protected forest land within the lease area. There is neither human settlement within 300m radius from the lease area.

2.5 GEOLOGY

Virudhunagar district is bordered by Western Ghats (Ridge and valley complex) in the West. Valley fill area is observed in Watrap block. A major part of the district constitutes a plain terrain with a gentle slope toward East and Southeast, except for the hilly terrain in the west. The prominent geomorphic units identified in the district through interpretation of Satellite imagery are; 1. Flood Plain, 2. Bazada, 3. Pediment, 4. Shallow & deep buried Pediments and 6. Structural Hills. (Source – CGWB). The area under investigation is covered by a vast tract of reddish brown soil with residual hills and knolls. Since the area is covered by thick pediments, the geology of the area is studied in available exposers and quarry section opened up for limestone, dimension stone and blue metals for various purposes. The area exposes Khondalite Group of rocks and migmatite gneisses of Precambrian (V.R.Sowmi Narayanan, etal.,). The Khondalite Group of rocks comprises Charnockite, crystalline limestone/calc gneiss, garnetiferous quartzfeldspathic gneiss (leptynite), all these litho units probably represent a sequence of metamorphosed sedimentary units of arenaceous, calcareous and argillaceous composition with various intermixtures of different proportions (V.R.Sowmi Narayanan, etal.,). Granite and quartz veins form the younger intrusive.

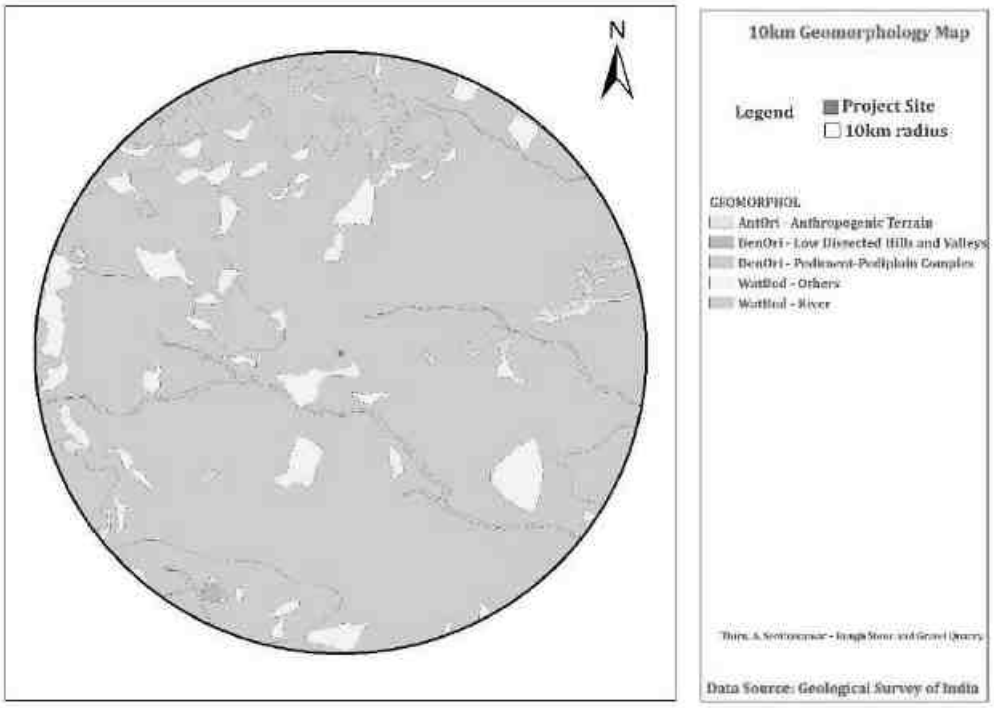


Figure 2.7: Geomorphology

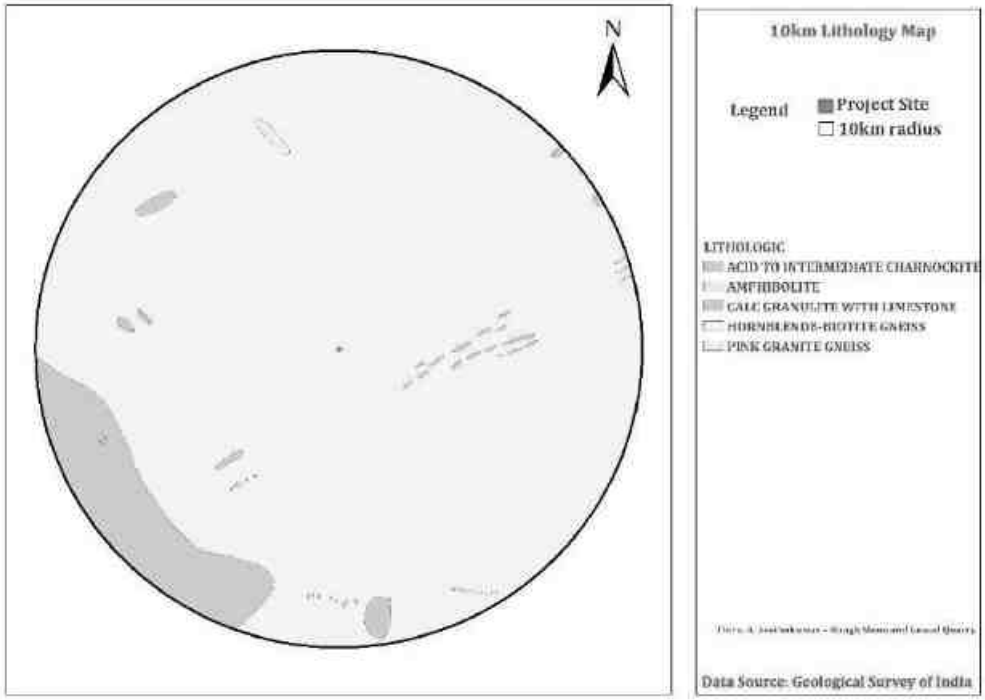


Figure 2.8 Lithology

2.6 QUALITY OF RESERVES:

The mining lease area is 2.12.50 Ha, with production capacity of 8,72,919 Metric tons of Rough Stone and 1,29,988 Metric tons of gravel. Due to significant role in the domestic as well as infrastructural market, making the mining of Stone and gravel along with associated minor minerals is economically viable.

Table 2-6: Details of Mining

S. No	Particulars	Details
1	Method of Mining	Open Cast mechanized
2	Geological Reserves	28,22,787 Metric tons of Rough Stone, 1,62,100 Metric tons of Gravel and 19,158 Metric tons of top soil
3	Recoverable Reserves	8,72,919 Metric tons of Rough Stone, 1,29,988 Metric tons of gravel and 12,968 Metric tons of top soil
4	Proposed Production	8,72,919 Metric tons of Rough Stone and 1,29,988 Metric tons of gravel
5	Elevation Range of the Mine Site	120m AMSL

2.6.1 *Geological Reserves*

The geological reserves have been calculated based on the cross-section method and the availability of Geological Resources in this land is given below.

Table 2-7: Geological Reserves

Section	Length (m)	Width (m)	Depth (m)	Tonnage Factor	Rough stone MT	Gravel MT	Topsoil MT
A-A' & B-B'	60	161	0.6	2.0	-	-	11592
	60	161	0.5	2.0	-	96600	-
	60	161	44.0	2.75	1168860	-	-
A-A' & C-C'	96	150	0.6	2.0	-	-	17280
	96	150	5.0	2.0	-	144000	-

	96	150	44.0	2.75	1742400	-	-
Total Estimated Geological Reserves					**2911260**	**240600**	**28872**
Less: Already Quarried (Below Table)					(-) 88473	(-) 78500	(-) 9714
Balance Geological Reserves					**2822787**	**162100**	**19158**

Table 2-8: Already quarried reserves

Section	Length (m)	Width (m)	Depth (m)	Tonnage Factor	Rough stone MT	Gravel MT	Topsoil MT
A-A' & B-B'	50.0	99.0	0.6	2.0	-	-	5940
	49.0	98.0	5.0	2.0	-	48020	-
	44.0	92.0	5.0	2.75	55660	-	-
A-A' & C-C'	30.5	103.1	0.6	2.0	-	-	3774
	30.0	101.6	5.0	2.0	-	30480	-
	28.0	85.23	5.0	2.75	32813	-	-
Total Estimated Geological Reserves			**10.6**		**88473**	**78500**	**9714**

Table 2-9: Available gravel stocks size& quantity

Stock	Length in m	Width in m	Height in m	Tonnage factor	Gravel in MT
I	54.1	32.0	3.6	2.0	12465
II	49.6	36.3	3.1	2.0	11163
Total Gravel in 2 Stocks					**23628**

2.6.2 *Mineable Reserves*

The available mineable reserves are calculated for the balance period of 7 years & 6 months against granted lease period of 10 years based on the total minable reserves calculated by safety distances of 10.0m at southern side for the nilaviyal odai, 10m to the cart track on eastern side & Boomithan land at northwest and 7.5m to the patta land on all other sides of the boundary side of the applied area and Bench losses.

Table 2-10: Mineable Reserves

Section	Bench	Length (M)	Width (M)	Height (M)	Tonnage Factor	Rough Stone (MT)	Gravel (MT)	Topsoil in (MT)
A-A' & B-B'	-	50.0	143.5	0.6	2.0	-	-	8610
	I	49.0	142.0	5.0	2.0	-	69580	-
	II	44.0	131.0	5.0	2.75	79255	-	-
	III	39.0	121.0	5.0	2.75	64886	-	-
	IV	34.0	111.0	5.0	2.75	51893	-	-
	V	29.0	101.0	5.0	2.75	40274	-	-
	VI	24.0	91.0	5.0	2.75	30030	-	-
	VII	19.0	81.0	5.0	2.75	21161	-	-
	VIII	14.0	71.0	5.0	2.75	13668	-	-
	IX	9.0	61.0	5.0	2.75	7549	-	-
	X	4.0	51.0	4.0	2.75	2244	-	-
A-A' & C-C'	-	88.5	132.5	0.6	2.0	-	-	14072
	I	88.0	131.0	5.0	2.0	-	115280	-
	II	82.0	120.0	5.0	2.75	135300	-	-
	III	77.0	110.0	5.0	2.75	116463	-	-
	IV	72.0	100.0	5.0	2.75	99000	-	-
	V	67.0	90.0	5.0	2.75	82913	-	-
	VI	62.0	80.0	5.0	2.75	68200	-	-

	VII	57.0	70.0	5.0	2.75	54883	-	-
	VIII	52.0	60.0	5.0	2.75	42900	-	-
	IX	47.0	50.0	5.0	2.75	32313	-	-
	X	42.0	40.0	4.0	2.75	18480	-	-
Total Estimated Mineable Reserves						**961392**	**184860**	**22682**
Less: Existing Pit – Total Quantity						(-) 88473	(-) 78500	(-) 9714
Addition: Available Gravel Stock Total						**-**	**(+) 23628**	**-**
Balance Mineable Reserves						**872919**	**129988**	**12968**

The available mineable reserves have been computed as 8,72,919 MT of Rough Stone, 1,29,988 MT of Gravel and 12,968 MT of Topsoil up to the depth of 49.6m from the ground level.

2.6.3 *Year wise Production Plan*

The Year wise production and Development plan and sections indicating the Pit layout, green belt development and sections are shown in Plate-V and presented in Table-2.11 as follows and the plates have been attached as Annexures.

Table 2-11: Year wise Production Plan

Section	Year	Bench	Length (M)	Width (M)	Height (M)	Tonnage Factor	Rough Stone (MT)	Gravel (MT)
A-A' & B-B'	III-Year	III	39	82.0	5.0	2.75	43973	-
	6 Months	III	23	75.0	5.0	2.75	23719	-
Gravel available in 2 stocks-Total							-	23628
III – Year Balance Period 6-Months Production							**67692**	**23628**
A-A' & B-B'	IV - Year	I	49	44.0	5.0	2.0	-	21560
		II	44	39.0	5.0	2.75	23595	-
		III	39	39.0	5.0	2.75	20914	-
		IV	34	111.0	5.0	2.75	51893	-
		V	29	101.0	5.0	2.75	40274	-
A-A' & C-C'		I	30	29.4	5.0	2.0	-	8820
		II	28	34.77	5.0	2.75	13386	-

		III	23	35.0	5.0	2.75	11069	-
		IV	18	100.0	5.0	2.75	24750	-
IV – YEAR PRODUCTION							**185881**	**30379**
A-A' & B-B'	V -Year	VI	24	91.0	5.0	2.75	30030	-
A-A' & C-C'		I	29	131.0	5.0	2.00	-	31,920
		II	25	120.0	5.0	2.75	41250	-
		III	25	110.0	5.0	2.75	37813	-
		IV	25	100.0	5.0	2.75	34375	-
		V	38	90.0	5.0	2.75	47025	-
V – YEAR PRODUCTION							**1,90,493**	**37,990**
A-A' & C-C'	VI – Year	I	29	131.0	5.0	2.00	-	37990
		II	29	120.0	5.0	2.75	47850	-
		III	29	110.0	5.0	2.75	43863	-
		IV	29	100.0	5.0	2.75	39875	-
		V	29	90.0	5.0	2.75	35888	-
		VI	15	80.0	5.0	2.75	16500	
VI – YEAR PRODUCTION							**1,83,976**	**37,990**
A-A' & B-B'	VII - YEAR	VII	19	81.0	5.0	2.75	21161	-
		VII	14	71.0	5.0	2.75	13668	-
A-A' & C-C'		VI	47	80.0	5.0	2.75	51700	-
		VII	57	70.0	5.0	2.75	54863	-
		VIII	52	60.0	5.0	2.75	42900	-
VII – YEAR PRODUCTION							**1,84,292**	**-**
A-A' & B-B'	VIII - YEAR	IX	9	61.0	5.0	2.75	7549	-
A-A' & C-C'		IX	19	50.0	5.0	2.75	13062	-
VIII-YEAR PRODUCTION							**20611**	-
A-A' & B-B'	IX-YEAR	IX	28	50.0	5.0	2.75	19250	-
IX-YEAR PRODUCTION							**19250**	-
A-A' & B-B'	X-YEAR	X	4	51.0	4.0	2.75	2244	-
A-A' & C-C'		X	42	40.0	4.0	2.75	18480	-
X – YEAR PRODUCTION							**1,35,740**	**-**
TOTAL PRODUCTION FOR REMAINING LEASE PERIOD							**8,72,919**	**1,29,988**

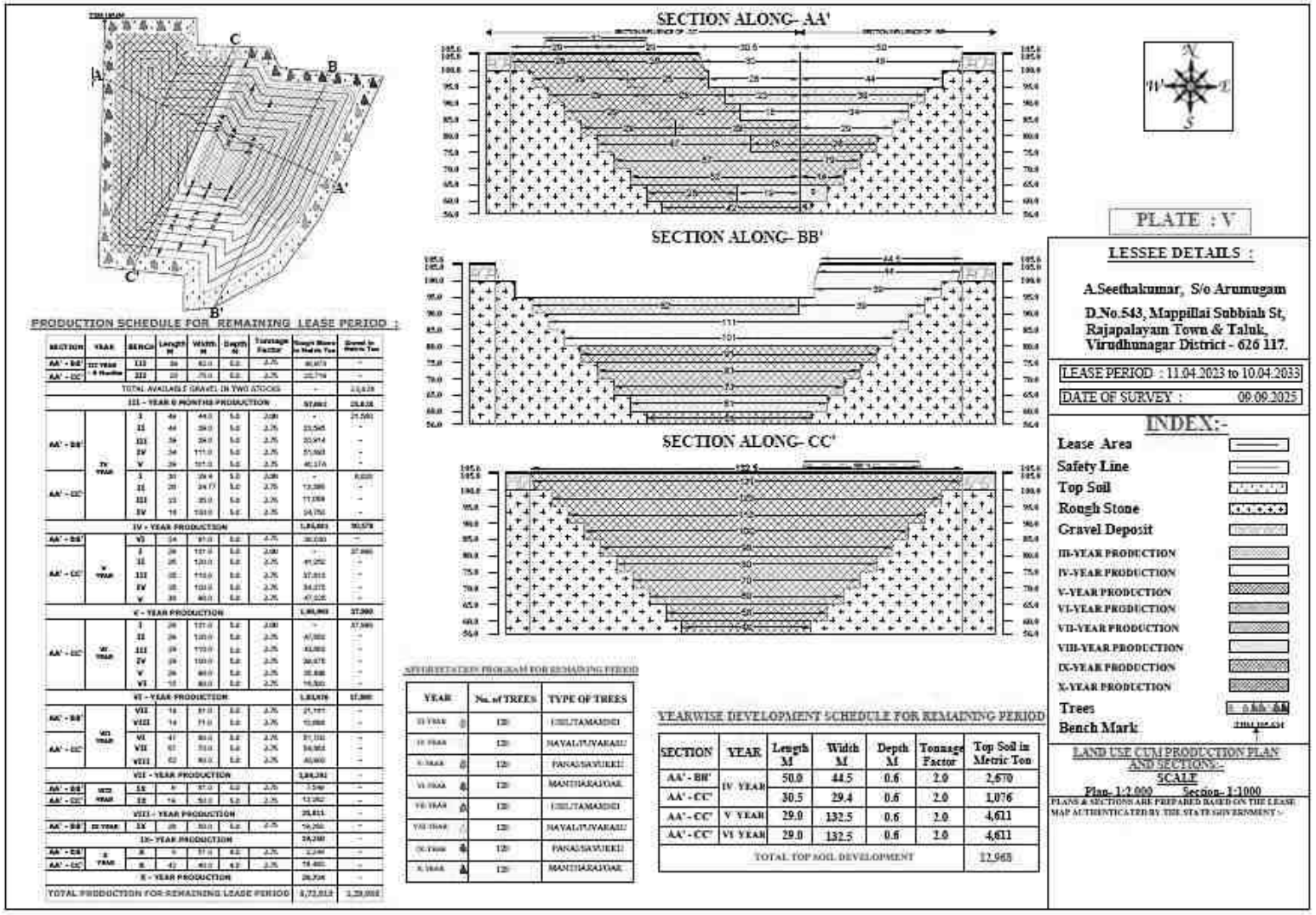


Figure 2.9 Year wise Production Plan

2.7 TYPE OF MINING

The proposed project is an open cast mechanized mining with one with 5.0-meter vertical bench with a bench width of 5.0 meter. However, as far as the quarrying of Rough Stone is concerned, observance of the provisions of regulations 106 (2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence, it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety for which necessary provision is available with Regulation 106(2) (b) of MMR-1961, under Mines Act- 1952.

2.7.1 *Method of Working:*

The Rough stone is proposed to quarry at 6m bench height & 5m width with conventional Open cast mechanized method. The quarrying operation will be carried out in conjunction with conventional methods of mining using Jack hammer drilling and blasting for shattering effect and loosen the Rough stone.

2.7.2 *Overburden*

The overburden is in the form of gravel formation. It will be quarried for filling purposes to nearby end users, and part of soil will be preserved all along the boundary as barrier for afforestation. This will be done only after obtaining permission and paying necessary seigniorage fees to the Government.

2.7.3 *Machineries to be used*

The type of machineries proposed for quarrying operation for the entire project is listed below.

Table 2-12: List of Machineries used

For Mining operation	Excavator of 0.9 Cu.m bucket capacity Jack Hammer (30-32 mm dia) Tractor mounted compressor
Loading Equipment	Excavator of 0.9 Cu.m bucket capacity
Transportation	Tipper 2 Nos. of 10/20 M.T capacity

2.7.4 *Blasting:*

2.7.4.1 Blasting Pattern:

The quarrying operation will be carried out in conjunction with conventional methods of mining using Jack hammer drilling and blasting for shattering effect and loosen the Rough stone.

2.7.4.2 Drilling & Blasting:

Drilling and Blasting Parameters are as follows

Table 2-13: Drilling and Blasting Parameters

Diameter of the hole	:	32-36 mm
Spacing	:	0.5m
Depth	:	1.2m to 1.5m
Burden per hole	:	0.5m
Pattern of hole	:	Zig Zag Staggered in 2 to 3 rows
Inclination of holes	:	80^0 from the horizontal.
Use of delay detonators	:	25 milli-second delays
Detonating fuse	:	NONEL "Detonating" Cord

2.7.4.3 Types of Explosives to be used:

Slurry Class 3 explosives, a type of nitro compound are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling or primary blasting is proposed. Detonators of Class 3 and Safety fuse of Class 6 are used.

2.7.4.4 Measures to minimize ground vibration due to blasting:

The quarry is situated more than 0.4 km from the nearby villages. Controlled blasting measures will be adopted for minimizing the ground vibration and fly of rocks. Shallow depths jackhammer drilling & blasting is proposed to be carried out with minimum use of explosive mainly to give shattering effect in rough stone for easy excavation and to control fly of rock.

Table 2-14: Blasting Details

Parameters	Details
Diameter of holes	32-32mm
Spacing between holes	0.5 m
Depth	1.2 to 1.5 m
Charge/Hole	0.5kg
Pattern of hole	Zig Zag Staggered in 2 to 3 rows
Inclination of Hole	80^0 from the horizontal
Blasting time	12.00-2.00 PM / 4.30-5.30 PM

2.7.4.5 Storage & Safety measures taken during blasting:

The project proponent "Thiru.A.Seethakumar" will engage an authorized explosive agency to carry out the small amount of blasting and it will be supervised by Permit Mines Manager. The copy of the explosive certificate is attached as *Annexure.*

2.8 MAN POWER REQUIREMENTS

The manpower requirement to meet out the production Schedule and the machinery strength envisaged in the mining plan and to comply with the statutory provisions of the Mines Safety Regulations is as follows.

Table 2-15: Man Power Requirements

S. No.	Levels & Details		Persons
1.	Skilled	Operators	1
		Mechanic	1
		Blaster/Mate	2
2.	Semi-skilled	Drivers	2
3.	Unskilled	Musdoor/Labours	8
		Cleaners	2
		Office Boy	1
4.	Management & Supervisory staff		1
Total			**18**

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

2.8.1 *Water Requirement*

Total water requirement for the mining project is 4.0 KLD. Domestic water will be sourced from nearby Gopalapuram village and other water will be sourced from nearby road tankers supply.

Table 2-16: Water Requirment

Purpose	Quantity	Sources
Drinking Water	1.0 KLD	Packaged Drinking water vendors available in Gopalapuram village, which is about 0.40 km, N from the project site.
Afforestation & Green belt	1.0 KLD	Other domestic activities through road tankers supply
Dust suppression Sprinkling	2.0 KLD	From road tankers supply
Total	**4.0 KLD**	

2.9 PROJECT IMPLEMENTATION SCHEDULE

The implementation schedule of the proposed Mine Lease of Thiru.A.Seethakumar (2.12.50 ha) is as follows.

Table 2-17: Mining Schedule

MINING SCHEDULE								
Activity	Sep-25	Apr.-26	Apr-27	Apr-28	Apr-29	Apr.-30	Apr.-31	Apr.-32
III-Year remaining period Production – 67692 MT Rough stone & 23628 MT Gravel								
IV-Year Production - 185881 MT Rough stone & 30379 MT Gravel								
V-Year Production – 190493 MT of Rough Stone and 37990 MT of Gravel								

VI-Year Production – 183976 MT of Rough Stone and 37990 MT of Gravel								
VII-Year Production – 184292 MT of Rough Stone								
VIII-Year Production - 20611 MT of Rough Stone								
IX-Year Production – 19250 MT of Rough Stone								
X-Year Production - 20724 MT of Rough Stone								

Year wise Production summary:

Year	Rough Stone (MT)	Gravel (MT)
III- remaining period	67692	23628
IV	185881	30379
V	190493	37990
VI	183976	37990
VII	184292	-
VIII	20611	-
IX	19250	-
X	20724	-
Total	**8,72,919**	**1,29,988**

2.10 SOLID WASTE MANAGEMENT

Table 2-18: Solid Waste Management

S. No	Type	Quantity	Disposal Method
1.	Organic	3.24 Kg/day	Municipal bin including food waste
2.	Inorganic	4.86 Kg/day	TNPCB authorized recycler

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

2.11 MINE DRAINAGE

Depth of water table (based on nearby wells and water bodies)

The water table is below 60 mts from below ground level in this area. The quarry operation is proposed up to a depth of 49.6 mts below the ground level.

2.12 POWER REQUIREMENT

This Rough stone quarry project does not require huge amounts of 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 excavation of Topsoil needed.

2.13 PROJECT COST

Project Cost

(a) Investment Cost

S. No	DETAILS	COST in Rs.
i)	Lease rent / Land Cost	6,50,000
ii)	Machinery to be used	Hired machinery
iii)	Fencing	1,50,000
iv)	Labourers Shed	50,000
v)	Sanitary facility	25,000
vi)	Other Items	25,000
TOTAL		**8,00,000**

(b) Expenditure/ Production Cost.

Drilling and Blasting cost/ MT production including loading and breaking = Rs.20/-

i. Mining cost fir rough stone upto 7.5 years planned production quantity

Total Mineable Quantity in MT - 872919 MT

Total Cost of Mining Rough stone - 872919 x 20/-

= **Rs.1,74,58,380/-**

ii. Mining Cost for gravel planned production quantity

Total Mineable quantity in MT - 129988 MT

Total cost of Mining – Gravel = 129988 x Rs.10/-

= **Rs.12,99,880/-**

Total cost for Mining - Rs.1,87,58,260/-

Say - **Rs.1,87,58,000/-**

Total Project Cost (a+b) = Rs.1,95,58,000/-

Environmental Management Plan Cost:

	Mitigation Measure	**Provision for Implementation**	**Capital**	**Recurring**
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	21250	21250
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	200000	50000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sandbags / steel mesh / old tyres / used conveyor belts	0	5000
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance	100000	10000

	No overloading of trucks/ tippers/ tractors	Manual Monitoring through Security guard	0	1968035
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed	10000	1000
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5000
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	42500
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0

	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Competent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced controlling Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	865875
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	25000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Mine Closure	1. Progressive Closure Activity - Surface Runoff Management	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	21250	5000

	2. Progressive Closure Activity Barbed Wire Fencing to quarry area will be Provisioned	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	425000	10000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - (200 Inside Lease Area & 300 Outside Lease Area) (Total of 1062 Trees to be planted in Inside lease area – 425 Trees and Outside Lease Area – 637 Trees)	Site clearance, preparation of land, digging of pits/ trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	85000	12750
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	191250	19125
	4. Implementation of Final Mine Closure Activity as per Approved Mining Plan on Last Year.	For Final Closure activities 15% of the proposed closure cost will be spent during final mine closure stage - Last year	115406	0
	5. Contribution towards Green Fund. As per TNMMCR 1959, Rule 35 A.	The Contribution towards Green Funds @ 10% of Seigniorage fee are indicated as part of EMP Budget and not necessarily implemented in the Project Site	3220791	0
	Size 6’ X 5’ with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	10000	1000

	Air, Water, Noise and Soil Quality sampling every 6 Months for Compliance Report of EC Conditions	Submission of 2 Half Yearly Compliance - Lab Monitoring Report as per CPCB norms	0	50000
Implementation of EC, Mining Plan & DGMS Condition	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee)	72000	18000
	Health check-up for workers will be provisioned	IME & PME Health check-up @ Rs. 1000/- per employee	0	18000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	4250
	Slope Stability Action Plan	Slope Stability action plan in the end of fourth year plan period	200000	0
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000
	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	106250	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000

	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1st Class / 2nd Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR,1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0	780000
Total (Rs)			**1612000**	**3958434**
Grand Total (Rs)			**5570434**	

2.14 GREENBELT

1. The development of greenbelt in the peripheral buffer zone of the mine area.
2. Green belt has been recommended as one of the major components 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 1100 trees will plant before commencement of mining operation with interval 5m.
4. The rate of survival expected to be 80% in this area

Table. 2-17 Plantation/ Afforestation Program

Name of species proposed	Survival	No of species
Neem, Vilvam Vaagai, Eachai, Naval, Mantharai, Magizha Maram, Vila maram, Poo Marudhu, Panai Maram, Marudha Maram, Thandri, Sengondrai, Poovarasu, Therthag kottai , Pungam	80%	1100
Total		**1100**

3 Description of the Environment

3.1 GENERAL:

The method of mining for extracting rough stone quarry and gravel is required to be selected in such a manner to ensure sustainable development. Mining activities invariably affect the existing environmental status of the site. It has both adverse and beneficial effects. In order to maintain the environmental commensuration with the mining operation, it is essential to undertake studies on the existing environmental scenario and assess the impact on different environmental components. This would help in formulating suitable management plans and sustainable resource extraction.

To understand the existing environmental scenario, Baseline data helps in identification, prediction and evaluation of impacts in Environmental Impact assessment. Through field study, baseline data are collected considering various factors of the project. This includes-

- Physical- the area, the soil properties, the geological characteristics, the topography, etc
- Chemical- water, air, noise and soil pollution levels, etc.
- Biological- the biodiversity of the area, types of flora and fauna, species richness, species distribution, types of ecosystems, presence or absence of endangered species and/or sensitive ecosystems etc.
- Socioeconomic- demography, social structure, economic conditions, developmental capabilities, displacement of locals, etc.

3.1.1 *Study Area:*

The study area for the mining projects is as follows:

- Mine lease area as the "core zone"
- A study area of 10 km radius from the project boundary is designated as buffer Zone and for the study of Socio-economic status, 10 km radius from the boundary limits of the mine lease area has been selected.

We have obtained Terms of Reference from SEIAA vide SEIAA-TN File. No. 13716 Dated: 25.06.2026 and ToR Identification No. TO26B0108TN5856033N. The baseline monitoring is carried out in June

2026 to August 2026, and the analysis is briefed in the EIA report. The proponent has engaged M/s. Ecotech labs Pvt. Ltd to carry out the existing baseline study.

3.1.2 *Instruments Used*

The following instruments were used at the site for baseline data collection.

1. Respirable Dust Sampler with attachment for gaseous Pollutants, Envirotech APM 460, APM411.
2. Fine Particulate Matter (FPM) Sampler, APM 550
4. Sound Level Meter Model SL–4010
5. 2000 series watchdog automatic weathering monitoring station

3.1.3 *Baseline Data Collection Period:*

The baseline data is collected in accordance with the CPCB Guidelines. The Baseline study is carried out from June 2026 to August 2026.

3.1.4 *Frequency of Monitoring*

Table 3-1: Frequency of Sampling and Analysis

Attributes	Sampling	Frequency
Air environment – Meteorological (wind speed, wind direction, rainfall, humidity, temperature)	Project site	1 hourly continuous
Air environment – Pollutants PM 10 PM 2.5 SO_2 NO_X Lead in PM	7 locations	24 hourly twice a week 4 hourly. Twice a week, One non-monsoon season 8 hourly, twice a week 24 hourly, twice a week
Noise	7 locations	24 hourly Once in 7 locations
Water (Ground water)	7 locations	Once in 7 locations

pH, Temperature, Turbidity, Magnesium Hardness, Total Alkalinity, Chloride, Sulphate, Fluoride, Nitrate, Sodium, Potassium, Salinity, Total nitrogen, Total Coliforms, Fecal Coliforms		
Water (surface water) pH, Temperature, Turbidity, Magnesium Hardness, Total Alkalinity, Chloride, Sulphate, Fluoride, Nitrate, Sodium, Potassium, Salinity, Total nitrogen, Total Coliforms, Fecal Coliforms	Sample from nearby lakes/river	One-time Sampling
Soil (Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	7 locations	Once in 7 locations
Ecology and biodiversity Study	Study area covering 10 km radius	One-time Sampling
Socio- Economic study (Population, Literacy Level, employment, Infrastructure like school, hospitals & commercial establishments)	Villages around 10 km radius	One-time Sampling

3.1.5 *Secondary data Collection*

Apart from the primary data, Secondary data is also used for the collection; collation; synthesis and interpretation

- Flora & Faunal Study
- Land use study
- Demography and Socio-Economic Analysis
- Meteorological data, from Indian Meteorological Department (IMD)

3.1.6 *Study area details*

Table 3-2 Study area details

S. No	Description	Details	Source
1.	Project Location	S.F.No. 532/2C and 533/1, 2, 3 & 4 of Gopalapuram Village, Vembakottai Taluk and Virudhunagar District, Tamil Nadu State	Field Study
2.	Latitude & Longitude	Latitude : 09°21'12.90" N to 09°21'18.70" N Longitude: 77°37'14.60" E to 77°37'20.50" E	Topo Sheet
3.	Topo Sheet No.	58 – G/11	Survey of India Toposheet
4.	Mine Lease Area	2.12.50 Ha	- -
Demography in the study area (as per Census 2011)			
5.	Total Population	1461	Census Survey of India
6.	Total Number of Households	371	
7.	Maximum Temperature (°C)	38	IMD
8.	Minimum Temperature (°C)	30	
9.	Ecological Sensitive Areas - Wetlands, watercourses	❖ Vembakottai Reservoir - 12.60 Km, E ❖ Vaippar River – 1.75 km, S ❖ Melanmarainadu Checkdam – 6.26 Km, SE	Google Earth/ Field Study

	or other waterbodies, coastal zone, biospheres, mountains, forests	❖ Vadakarai Periyakulam Kanmoi – 0.18 km, SW ❖ Puliyankulam Kanmoi – 0.57 km, SE ❖ Kadiyankulam Kanmoi – 1.14 Km, SE ❖ Kurichirapatti Kanmoi – 1.96 Km, NW ❖ Muthanathi Periya Kanmoi – 2.64 Km, W ❖ Narikulam Kanmoi – 2.65 Km, SE ❖ Pappankulam Kanmoi – 3.35 Km, N ❖ Nathampatti Kanmoi – 4.07 Km, W ❖ Sangaralingapuram Kanmoi – 4.29 Km, NW ❖ Periyakulam Keelarajakularaman – 4.57 Km, N ❖ Cholapuram Periya Kanmoi – 5.22 Km, NW ❖ Kanmaipatti Kanmoi – 5.26 Km, E ❖ Pernaur Kanmoi – 5.62 Km – NW ❖ Vijayarengapuram Oorani – 6.58 Km, SW ❖ Vagaikulam – 6.68 Km, NW ❖ Periyakanmoi, Melanmarainadu – 6.98 Km, SE ❖ Keela iluppilakulam – 7.04 Km, NW ❖ Periyakanmoi Perumalpatti – 7.49 Km, SW ❖ Achangulam (Keezhakulam) Kanmoi – 7.61Km, NW ❖ Kaanaakulam – 7.90 Km, NW ❖ Melakulam Kanmoi – 8.20 Km, NW ❖ Periyakulam Muthugudi – 8.45 Km, NW ❖ Paruvakudi Kanmoi – 8.56 Km, SW ❖ Mangudi Kanmoi – 9.06 Km, W ❖ Sirukulam Kanmoi – 9.13 Km, NE ❖ Melamarathoni Kanmayi – 9.17 Km, S ❖ Elanthirakondan Kanmoi – 9.19 Km, NW ❖ Kongalapuram Kanmoi – 9.22 Km - N ❖ Sengulam Kanmoi – 9.30 Km, NW ❖ Periyakulam Kanmoi, Atchamthavithan – 9.34 Km, NE ❖ Maruthankulam – 9.65 Km, SW	
10.	Densely Populated area	Rajapalayam – 11.01 Km, NW	

11.	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	**S. No.** / **Places** / **Distance From Project Site** **Schools & Colleges** 1 – Government middle school, Gopalapuram – 0.98 Km, NE 2 – Government school, Devarayanpatti Rd – 1.22 Km, N 3 – Sivalingapuram middle school – 2.04 km, SE **Hospital** 4 – Govt. Primary Health Center, Kilavikulam. – 3.34 km, W 4 – Govt. Primary Health Center, Kalingapatti – 12.37 Km, S	Google Earth/ Field Study

3.1.7 *Site Connectivity:*

The site is connected to Village Road which connects Gopalapuram & Mettuvadakarai villages – 0.30 Km – E



Figure 3.1: Site Connectivity

3.2 LAND USE ANALYSIS

3.2.1 *Land Use Classification*

Land Use / Land Cover - Land Use refers to man's activity and the various uses, which are carried on land. Land Cover refers to natural vegetation, water bodies, rock/soil, artificial cover and others, resulting due to land transformation. The present Land Use/Land Classification map is developed with following objectives. The main objective of the study is to classify the different land use within 10 km from the project boundary.

3.2.2 *Methodology*

Information of land use and land cover is important for many planning and management activities concerning the surface of the earth (Agarwal and Garg, 2000). Land use refers to man's activities on land, which are directly related to land (Anderson et al., 1976). The land use and the land cover determine the infiltration capacity. Barren surfaces are poor retainers of water as compared to grasslands and forests, which not only hold water for longer periods on the surface, but at the same time allow it to percolate down.

The terms 'land use' and 'land cover' (LULC) are often used to describe maps that provide information about the types of features found on the earth's surface (land cover) and the human activity that is associated with them (land use). Satellite remote sensing is being used for determining different types of land use classes as it provides a means of assessing a large area with limited time and resources. However, satellite images do not record land cover details directly and they are measured based on the solar energy reflected from each area on the land. The amount of multi spectral energy in multi wavelengths depends on the type of material at the earth's surface and the objective is to associate particular land cover with each of these reflected energies, which is achieved using either visual or digital interpretation. In the present study the task is to study in detail the land use and land cover in and around the project site. The study envisages different LULC around the proposed project area and the procedure adopted is as below.

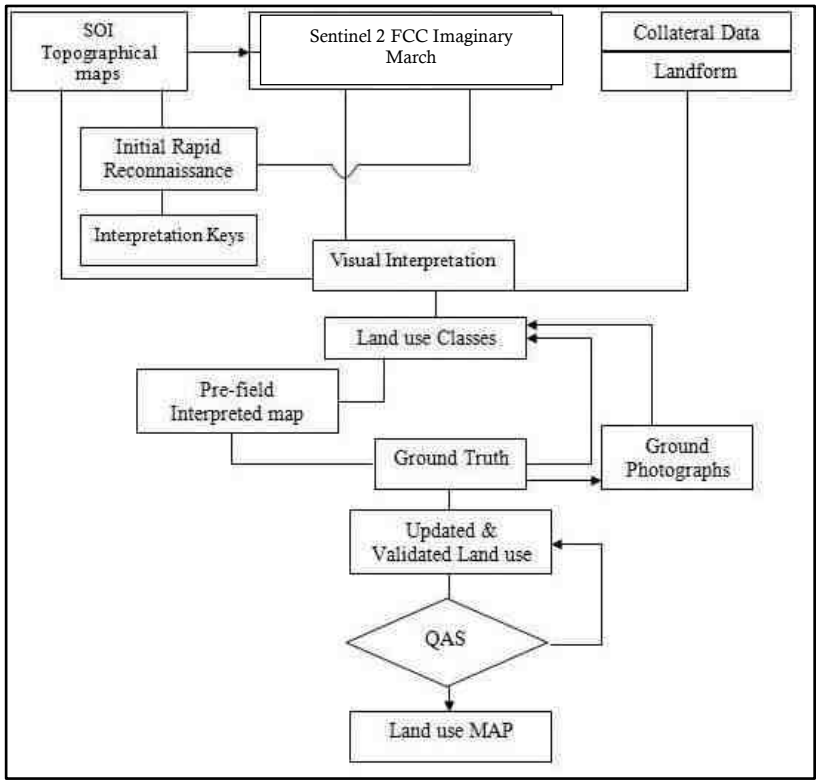


Figure 3.2 Flow Chart showing Methodology of Land use mapping

3.2.3 *Satellite Data*

Sentinal 2 multispectral satellite data for 2020 was utilized for the present study. Details of satellite data is given below. The rectification of imagery was carried out to bring the digital data on the earth coordinate system by means of ground control point (GCP) assignments/SOI topo sheets.

3.2.4 *Scale of mapping*

Considering the user defined scale of mapping, 1:50000 Sentinal 2 data was used for Land use / Land cover mapping of 10 km radius for proposed site. The description of the land use categories for 10 km radius and the statistics are given for 10 km radius.

3.2.5 *Interpretation Technique*

Standard on screen visual interpretation procedure was followed. The various Land use / Land cover classes interpreted along with the SOI topographical maps during the initial rapid reconnaissance of the study area. The physiognomic expressions conceived by image elements of color, tone, texture, size,

shape, pattern, shadow, location and associated features are used to interpret the FCC imagery. Image interpretation keys were developed for each of the LU/LC classes in terms of image elements.

June 2016 FCC imagery (Digital data) of the study area was interpreted for the relevant land use classes. On screen visual interpretation coupled with supervised image classification techniques are used to prepare the land use classification.

1. Digitization of the study area (10 km radius from the proposed site) from the topo maps
2. In the present study the sentinal satellite image and SOI topo sheets of 58J/10, 58J/11, 58J/14, 58J/15 have been procured and interpreted using the ERDAS imaging and ARC-GIS software adopting the necessary interpretation techniques.
3. Satellite data interpretation and vectorization of the resulting units
4. Adopting the available guidelines from manual of LULC mapping using Satellite imagery (NRSA, 1989)
5. Field checking and ground truth validation
6. Composition of final LULC map

The LULC Classification has been done at three levels where level -1 being the broad classification about the land covers that is Built-up land, agriculture land, waste land, wet lands, and water bodies. These are followed by level –II where built-up land is divided into towns/cities as well villages. The Agriculture land is divided into different classes such as cropland, Fallow, Plantation, while wastelands are broadly divided into, Land with scrub and without Scrub and Mining and Industrial wasteland. The wetlands are classified into inland wetlands, coastal wetlands and islands. The water bodies are classified further into River/stream, Canal, Tanks and bay. In the present study level II classification has been undertaken. The SOI Topo map is presented in Annexure and Satellite imagery of 10 km radius from the project site is presented Annexure

3.2.6 *Field Verification*

Field verification involved collection, verification and record of the different surface features that create specific spectral signatures / image expressions on FCC. In the study area, doubtful areas identified in course of interpretation of imagery is systematically listed and transferred on to the corresponding SOI topographical maps for ground verification. In addition to these, traverse routes were planned with reference to SOI topographical maps to verify interpreted LU/LC classes in such a manner

that all the different classes are covered by at least 5 sampling areas, evenly distributed in the area. Ground truth details involving LU/LC classes and other ancillary information about crop growth stage, exposed soils, landform, nature and type of land degradation are recorded and the different land use classes are taken the Land use map is presented in Annexure

3.2.7 *Description of the Land Use / land cover classes*

3.2.7.1 Water

Areas where water was predominantly present throughout the year; may not cover areas with sporadic or ephemeral water; contain little to no sparse vegetation, no rock outcrop nor built up features like docks; examples: rivers, ponds, lakes, oceans, flooded salt plains.

3.2.7.2 Trees

Any significant clustering of tall (~15-m or higher) dense vegetation, typically with a closed or dense canopy; examples: wooded vegetation, clusters of dense tall vegetation within savannas, plantations, swamp or mangroves (dense/tall vegetation with ephemeral water or canopy too thick to detect water underneath).

3.2.7.3 Grass

Open areas covered in homogenous grasses with little to no taller vegetation; wild cereals and grasses with no obvious human plotting (i.e., not a plotted field); examples: natural meadows and fields with sparse to no tree cover, open savanna with few to no trees, parks/golf courses/lawns, pastures.

3.2.7.4 Flooded vegetation

Mix of small clusters of plants or single plants dispersed on a landscape that shows exposed soil or rock; scrub-filled clearings within dense forests that are clearly not taller than trees; examples: moderate to sparse cover of bushes, shrubs and tufts of grass, savannas with very sparse grasses, trees or other plants.

3.2.7.5 Crops

Human planted/plotted cereals, grasses, and crops not at tree height; examples: corn, wheat, soy, fallow plots of structured land.

3.2.7.6 Scrub/Shrub

Mix of small clusters of plants or single plants dispersed on a landscape that shows exposed soil or rock; scrub-filled clearings within dense forests that are clearly not taller than trees; examples: moderate to sparse cover of bushes, shrubs and tufts of grass, savannas with very sparse grasses, trees or other plants.

3.2.7.7 Built Area

Human made structures; major road and rail networks; large homogenous impervious surfaces including parking structures, office buildings and residential housing; examples: houses, dense villages / towns / cities, paved roads, asphalt.

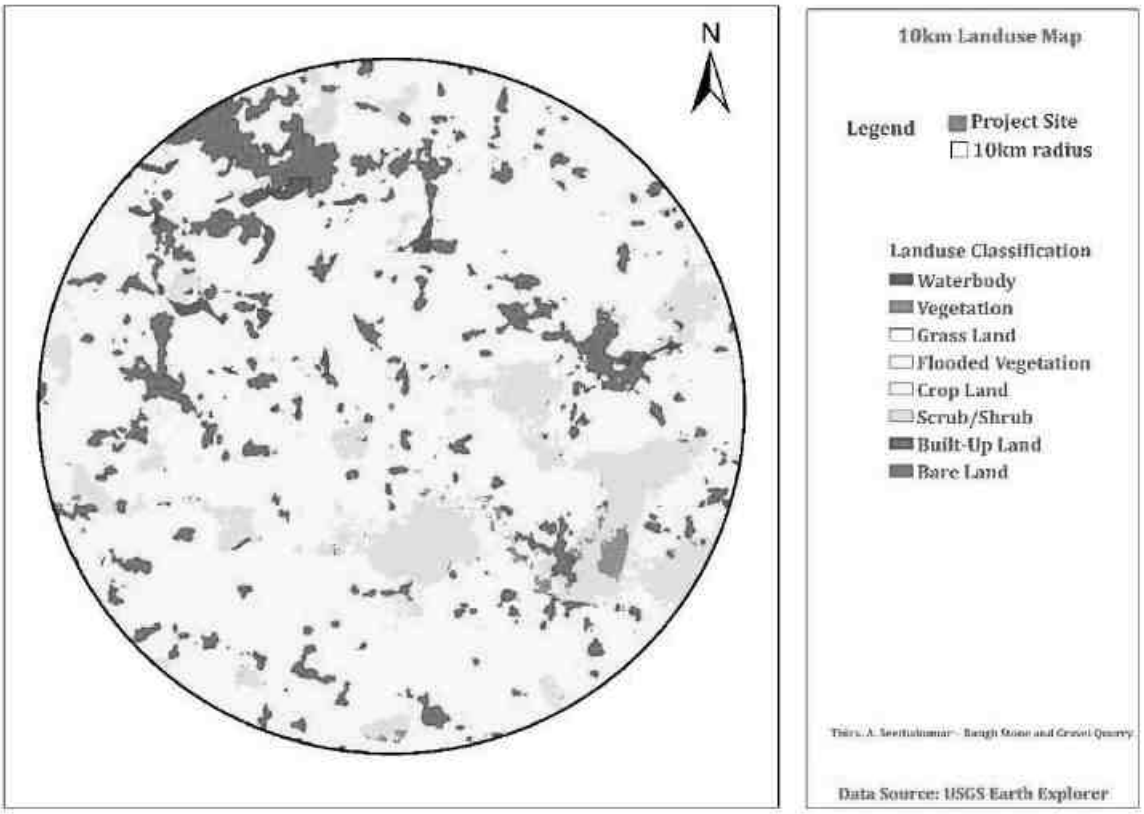


Figure 3.3 Land use classes around 10 km radius from the project site

3.2.7.8 Different Land use classes around 10 km radius from the project site

Table 3-3 Land use pattern

Sl.No	Categories	Area in Sq.m	%
1	Water Body	3.73	1.18

2	Trees	2.12	0.67
3	Grass	0.12	0.04
4	Flooded vegetation	0.56	0.18
5	Crops	245.63	77.39
6	Scrub/Shrub	33.65	10.60
7	Built-up Area	31.56	9.94
8	Barren Land	0.03	0.01

3.3 WATER ENVIRONMENT

3.3.1 *Contour & Drainage*

The project site is 120 m AMSL.

3.3.2 *Geomorphology*

Virudhunagar district is bordered by Western Ghats (Ridge and valley complex) in the West. Vally fill area is observed in Watrap block. A major part of the district constitutes a plain terrain with a gentle slope toward East and Southeast, except for the hilly terrain in the west. The prominent geomorphic units identified in the district through interpretation of Satellite imagery are; 1. Flood Plain, 2. Bazada, 3. Pediment, 4. Shallow & deep buried Pediments and 6. Structural Hills.

Soils

Soils in the area have been classified into i) Deep red Loam ii) Black soil iii) Red sandy soil. The majority of the study area is covered by Black soil. Ferruginous red soils are also seen at places. Black soils are deep to very deep and generally occurs in the depressions adjacent to hilly areas, in the western and central part of district. Alluvial soils occur along the river courses. Red sandy soil is seen all around the Sattur, Kariyapatti, Aruppukotai and Thiruchuli blocks.

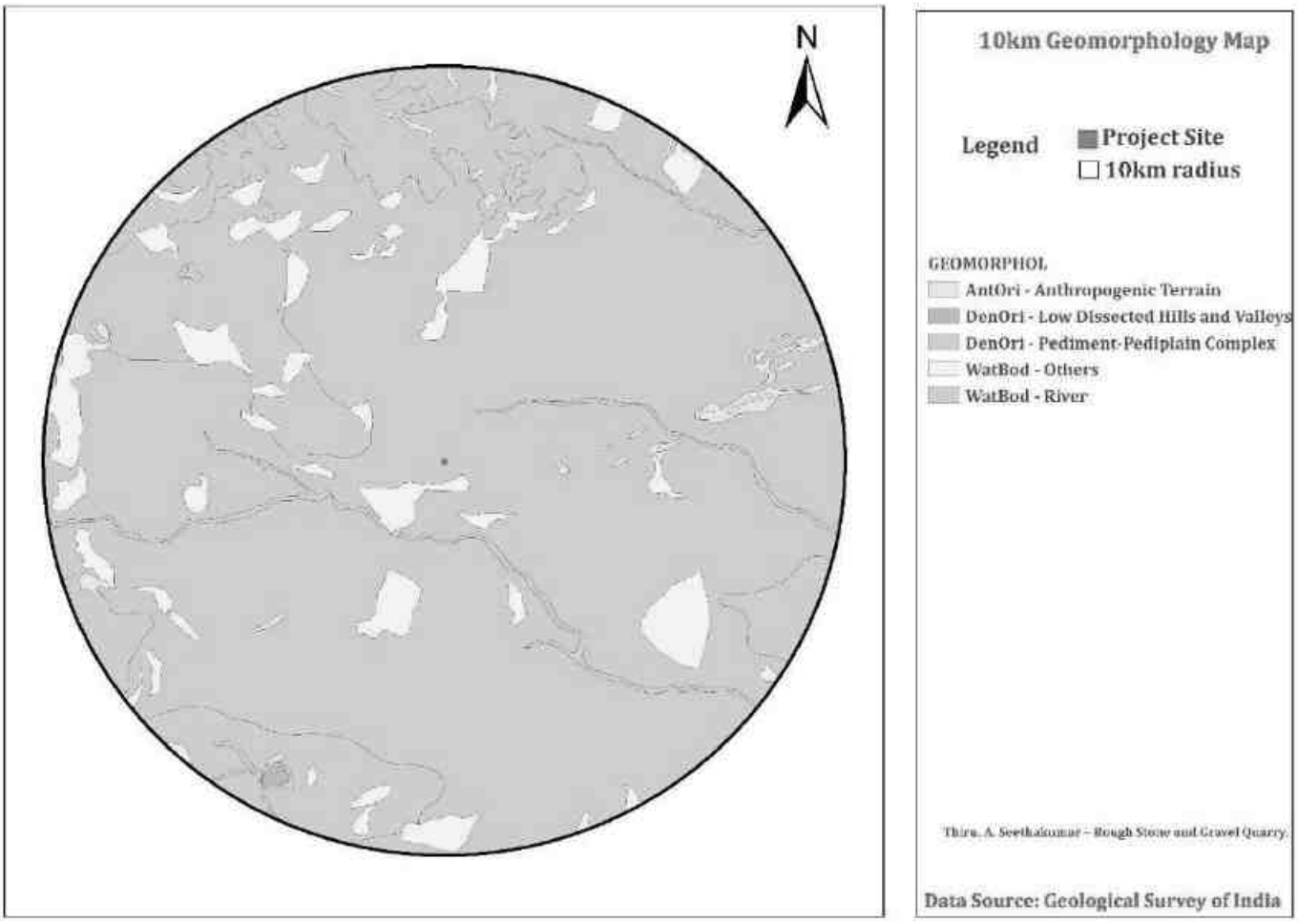


Figure 3.4 Geomorphology within 10km from the project site

3.3.3 *Geology:*

Most of the area in Virudhunagar District is covered by a vast tract of black soil with residual hills and knolls. Since the area is covered by thick pediments, the geology of the area is studied in available exposure and quarry section opened up for limestone, dimension stone and blue metals for various purposes. The area exposes Khondalite Group of rocks and migmatite gneisses of Precambrian (V.R.Sowmi Narayanan, etal.,). The Khondalite Group of rocks comprises Charnockite, crystalline limestone/calc gneiss, garnetiferous quartzofeldspathic gneiss (leptynite), all these litho units probably represent a sequence of metamorphosed sedimentary units of arenaceous, calcareous and argillaceous composition with various intermixtures of

different proportions (V.R.Sowmi Narayanan, etal.,). Granite and quartz veins form the younger intrusive.

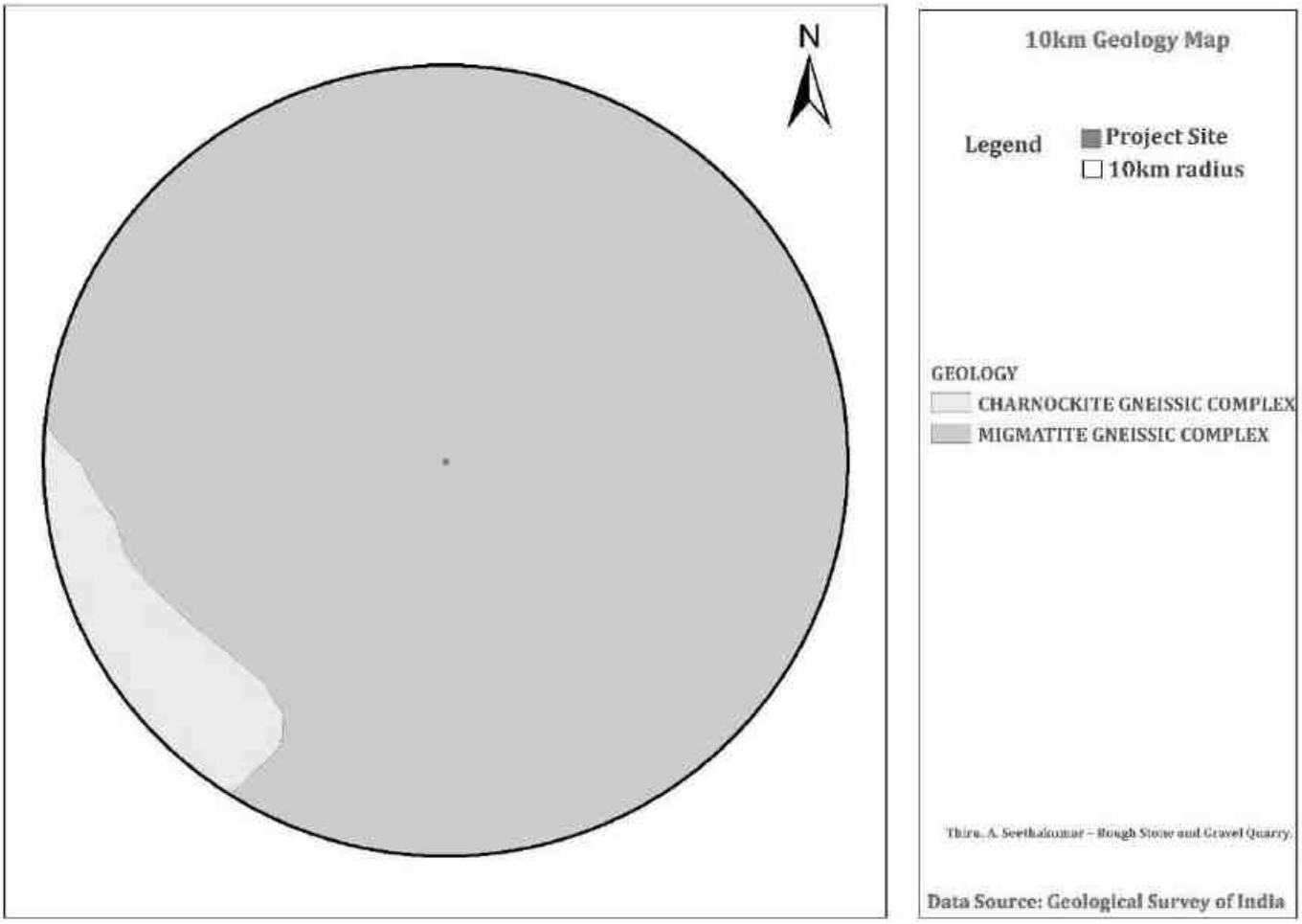


Figure 3.5 Geology within 10km from the project site

3.3.4 *Hydrogeology*

The district is underlain by both porous and fissured formations (Plate-II). Unconsolidated & Semi-consolidated formations and Weathered, Fissured and Fractured crystalline rocks constitute the important aquifer systems in the district.

The porous formations in the district include sandstones and clays of Recent to subrecent and Tertiary age (Quaternary). The alluvial formations comprising mainly sands, clays and gravels are confined to major drainage courses in the district. The maximum thickness of alluvium is 35.0 m. whereas the average thickness is about 25.0 m. Ground water occurs under phreatic to semi-confined

conditions in these formations and is being developed by means of dug wells and filter points. Alluvium, which forms a good aquifer system along the Vaippar and Gundar river bed, which is one of the major sources of water supply to the villages.

The water-bearing properties of crystalline formations, which lack primary porosity, depend on the extent of development of secondary intergranular porosity. The occurrence and movement of ground water in these rocks are generally confined to such spaces. These aquifers are highly heterogeneous in nature due to variation in lithology, texture and structural features even within short distances.

Ground water generally occurs under phreatic conditions in the weathered mantle and under semiconfined conditions in the fissured and fractured zones at deeper levels. The thickness of weathered zone in the district is in the range of 4 to 15 m. The depth of dug wells ranged from 10 to 15 m bgl. The yield of large diameter wells in the district, tapping the weathered mantle of crystalline rocks ranges from 40 to 110 lpm and are able to sustain pumping for 2 to 6 hours per day. The Specific capacity of large diameter wells tested in crystalline rocks ranges from 6.26 to 183.8 lpm / m. of drawdown. The yield characteristics of wells vary considerably depending on the topographic set-up, lithology and nature of weathering.

The yield of bore wells drilled down to a depth of 40 to 70 m, by various state agencies mainly for domestic purposes ranged from 10 to 250 lpm. The yield of successful bore wells ranged up to 6 lps for the drawdown varying between 5.76 and 17.56 m and drilled down to a depth of 200 m bgl during the ground water exploration programme of Central Ground Water Board.

The depth to water level in the district varied between 0.67 and 12.12 m bgl during pre-monsoon (May 2006) and varied between 0.49 and 8.78 m bgl during post monsoon (Jan 2007). The seasonal fluctuation shows a rise in water level which ranges from 0.35 to 2.8 m. The piezometric head varied between 3.49 and 16.23 m bgl during pre-monsoon (May 2006) and 1.29 and 8.06 m bgl during post monsoon (Jan 2007).

Aquifer Parameters:

Formation	Transmissivity (m^2/day)	Storability	Specific Yield(%)
Weathered Crystalline	-	-	<2
Fractured Crystalline	1-548	$3.41X10^{-5}$ to $7.0X10^{-3}$	-

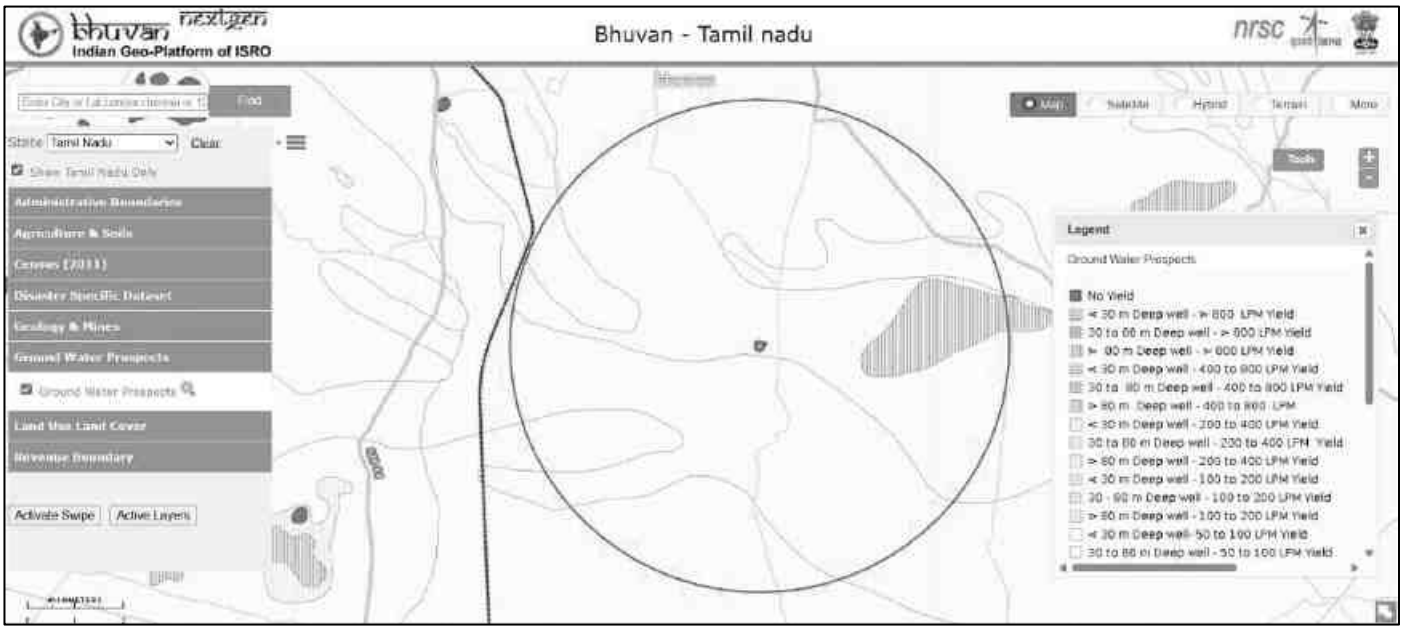


Figure 3.6 Ground water prospects within 5 km radius of the project site

3.3.5 *Ground water quality monitoring*

Ground water quality monitoring is done in the following locations and analysis will be done for physical, chemical & Biological parameters.

Table 3-4 Ground water Quality Analysis

Environmental Parameters: Ground water Quality Analysis	
Monitoring Period	June 2026 to August 2026
Design Criteria	Based on the Environmental settings in the study area
Monitoring Locations	Project site – GW1 New canon assembly Church, Muthanathi – GW2 Thalakkudaiya Ayyanar Temple, Lakshmipuram – GW3 Vadakkathi Amman Temple, Devarayanpatti – GW4 Tamil Nadu Electricity Board, Kalingappatti – GW5

	Sri Ramalinga Sowdambikai Amman Temple – GW6 Valavaitha Amman Temple – GW7
Methodology	Water Samples were collected in 5 Litre fresh cans as per IS 3025 Part I and transported to the laboratory in Iceboxes
Frequency of Monitoring	Once in a season

3.3.5.1 Sampling Procedure

Quality of ground water was compared with IS: 10500: 1991 (Reaffirmed 1993 With Amendment NO -3 July 2010) for drinking purposes. Water samples were collected as Grab sample from five sampling locations in a 5-liter plastic jerry can and 250 ml sterilized clean glass/pet bottle for complete physico-chemical and bacteriological tests respectively. The samples were analyzed as per standard procedure / method given in IS: 3025 (Revised Part) and standard method for examination of water and wastewater Ed. 21st, published jointly by APHA.

Table 3-5: Standard Procedure

S. No	Parameters	Test Method
1	pH (at 25°C)	IS:3025(P -11)1983 RA: 2012
2	Electrical Conductivity	IS:3025(P -14) 2013
3	Colour	IS:3025 (P -4)1983 RA: 2012
4	Turbidity	IS:3025(P -10)1984 RA: 2012
5	Total Dissolved Solids	APHA 22nd Edn.2012-2540-C
6	Total Suspended Solids	IS:3025(P-17)-1984 RA:2012
7	Total Hardness as $CaCO_3$	APHA 22nd Edn.2012-2340-C
8	Calcium as Ca	APHA 22nd Edn2012.3500 Ca-B
9	Magnesium as Mg	APHA 22nd Edn.2012-3500 Mg-B
10	Chloride as Cl	IS:3025(P -32)-1988 RA: 2014
11	Sulphate as SO_4	APHA 22nd Edn.2012-4500 SO_4^--E
12	Total Alkalinity as $CaCO_3$	APHA 22nd Edn.2012-2320-B
13	Iron as Fe	IS:3025(P -53):2003 RA: 2014
14	Silica as SiO_2	IS:3025(P -35)1988 RA: 2014
15	Fluoride as F	APHA 22nd Edn.2012-4500-F-D
16	Nitrate as NO_3	IS:3025(P -34):1988 RA: 2014
17	Sodium as Na	IS:3025(P -45):1993 RA: 2014
18	Potassium as K	IS:3025(P -45):1993 RA: 2014

19	Coliform	IS:1622:1981:RA:2014
20	E.coli	IS:1622:1981:RA:2014

Table 3-6: Ground water sampling results

S. No	Parameters	Units	GW 1	GW 2	GW 3	GW 4	GW 5	GW 6	GW 7
1	pH (at 25°C)	-	7.39	7.79	7.60	7.48	7.13	7.16	7.70
2	Electrical Conductivity	µS/cm	2370	1345	1165	966	2208	703	1110
3	Colour	Hazen Unit	BQL (LOQ:5)	BQL (LOQ:5)	BQL (LOQ:5)	BQL (LOQ:5)	BQL (LOQ:5)	BQL (LOQ:5)	BQL (LOQ:5)
4	Turbidity	NTU	BQL (LOQ:1)	BQL (LOQ:1)	BQL (LOQ:1)	BQL (LOQ:1)	BQL (LOQ:1)	BQL (LOQ:1)	BQL (LOQ:1)
5	Total Dissolved Solids	mg/L	1395	758	755	545	1320	415	655
6	Total Suspended Solids	mg/L	BQL (LOQ:2)	BQL (LOQ:2)	BQL (LOQ:2)	BQL (LOQ:2)	BQL (LOQ:2)	BQL (LOQ:2)	BQL (LOQ:2)
7	Total Hardness as CaCO3	mg/L	798	342	327	328	929	246	245
8	Calcium Hardness as CaCO3	mg/L	790	307	118	165	740	190	170
9	Magnesium Hardness as CaCO3	mg/L	8	34.5	209	163	189	55.8	74.8
10	Calcium as Ca	mg/L	316	123	47.4	66.4	296	76.1	68.1
11	Magnesium as Mg	mg/L	1.94	8.38	50.9	39.7	45.9	13.5	18.2
12	Chloride as Cl	mg/L	413	175	230.4	132	347	85.5	118
13	Sulphate as SO4	mg/L	40.1	105	9.92	10.2	140	44.5	209
14	Total Alkalinity as CaCO3	mg/L	240	212	222	228	228	161	143
15	Iron as Fe	mg/L	BQL (LOQ:0.1)	BQL (LOQ:0.1)	BQL (LOQ:0.1)	BQL (LOQ:0.1)	BQL (LOQ:0.1)	BQL (LOQ:0.1)	BQL (LOQ:0.1)

16	Silica as SiO2	mg/L	89.8	48.8	76.9	24.4	45.6	12.8	43.1
17	Fluoride as F	mg/L	BQL (LOQ:0.2)	BQL (LOQ:0.2)	BQL (LOQ:0.2)	BQL (LOQ:0.2)	BQL (LOQ:0.2)	BQL (LOQ:0.2)	BQL (LOQ:0.2)
18	Nitrate as NO3	mg/L	BQL (LOQ:1)	BQL (LOQ:1)	BQL (LOQ:1)	BQL (LOQ:1)	BQL (LOQ:1)	BQL (LOQ:1)	BQL (LOQ:1)
19	Potassium as K	mg/L	55.5	15.2	6.65	6.65	50.7	3.31	28.2
20	Sodium as Na	mg/L	325	158	202.0	125	267	81.1	86.7

3.3.6 *Interpretation of results:*

3.3.6.1 Physical parameters of water:

The basic physical parameters of water include

Colour:

Value observed in Project Site (True/Apparent Color): BQL (LOQ:5).

Acceptable and permissible limits: 5 Hazen units and 15 Hazen units respectively. The value in the project site is as same as the acceptable limits prescribed by IS 10500: 2012 (referred as "*Standards*" from herein).

pH:

Value observed in the Project Site:7.39

Acceptable and permissible limits: 6.5-8.5. The pH value is the measure of acid – base equilibrium. The value of pH in the project site clearly indicates that water is slightly neutral in nature.

Turbidity:

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

Acceptable and permissible limits: 1 NTU & 5 NTU respectively. The value of turbidity generally indicates the presence of phytoplanktons and other sediments. The value in the project site indicates the water is slightly turbid.

Total Dissolved Solids:

Value observed in the Project Site: 1395 mg/L.

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

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

3.3.6.2 Chemical parameters of water:

The chemical parameters of the drinking water include,

Calcium:

Value observed in the Project Site: 316 mg/L.

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

Calcium is the essential macronutrient. The value of the calcium is within the prescribed permissible standards. The higher level of calcium may cause hardening in domestic equipment and will also reduce detergent efficiency. Higher levels of calcium will lead to constipation, gas, and bloating. Apart from that, extra calcium may also increase the risk of kidney stones. If the calcium deposit in blood is high, it may lead to hypercalcemia.

Magnesium:

Value observed in the Project Site: 1.94 mg/L.

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

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

Chloride

Value observed in the project site: 413 mg/L.

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

The chloride level in the project site is within the acceptable and permissible limit. If the level of chloride is more, it may cause galvanic and pitting corrosion, increases level of metals. It imparts bitter taste to the water.

Total Alkalinity as $CaCO_3$:

Value observed in the project site: 240 mg/L.

Acceptable and permissible limits: 200 mg/L and 600 mg/L respectively.

Total Alkalinity is the measure of the concentration of all alkaline substances dissolved in the water which includes carbonates, bicarbonates and hydroxides. The value of the total alkalinity is slightly greater in the project site, which will impart soda taste to the water.

Hardness:

Value observed in the Project Site: 798 mg/L.

Acceptable and permissible limits:200 mg/L and 600 mg/L respectively.

The value of Hardness in the project site is higher than acceptable limit but within the permissible limit. The increase in the level of hardness may cause corrosion and scaling problems, increased soap consumption and it also contributes to the salty taste of water.

3.3.7 *Surface Water Analysis*

Surface water samples were taken from **Vadakarai Periyakulam Kanmoi and Periyakulam Keelarajakularaman**. The results are summarized below.

Table 3-7: Surface Water Sample Results

S. No	Parameters	Units	Vadakarai Periyakulam Kanmoi	Periyakulam Keelarajakularaman
1	pH (at 25°C)	-	7.70	7.35
2	Electrical Conductivity	µS/cm	576	295
3	Colour	Hazen Unit	BQL(LOQ:5)	BQL(LOQ:5)
4	Turbidity	NTU	BQL(LOQ:1)	BQL(LOQ:1)
5	Total Dissolved Solids	mg/L	352	172
6	Total Suspended Solids	mg/L	BQL(LOQ:2)	BQL(LOQ:2)
7	Total Hardness as $CaCO_3$	mg/L	123	78.6
8	Calcium Hardness as $CaCO_3$	mg/L	96.9	62.5

9	Magnesium Hardness as $CaCO_3$	mg/L	26.2	16.1
10	Calcium as Ca	mg/L	38.9	25.1
11	Magnesium as Mg	mg/L	6.38	3.91
12	Chloride as Cl	mg/L	80.2	48.9
13	Sulphate as SO_4	mg/L	24.2	7.95
14	Total Alkalinity as $CaCO_3$	mg/L	116	16.6
15	Iron as Fe	mg/L	BQL(LOQ:0.1)	BQL(LOQ:0.1)
16	Silica as SiO_2	mg/L	59.9	27.8
17	Fluoride as F	mg/L	0.28	0.31
18	Nitrate as NO_3	mg/L	0.34	0.26
19	Potassium as K	mg/L	11.6	3.65
20	Sodium as Na	mg/L	58.5	39.5
21	Total Kjeldahl Nitrogen as N	mg/L	13.5	3.36
22	Biochemical oxygen Demand @ 27°C	mg/L	2.77	BQL(LOQ:2)
23	Chemical Oxygen Demand	mg/L	12.2	6.5

Inference: The surface water quality is compared with the CPCB Water Quality Criteria against A, B, C, D & E class of water. From the test result, it is found that the both the water does not fit Class A (Drinking Water Source without conventional treatment but after disinfection). But they can be used for outdoor bathing as it meets the requirements shown for class B water.

3.3.7.1 Climatology & Meteorology:

Climate and meteorology of a place can play an important role in the implementation of any developmental project. Meteorology is also the key to understand local air quality as there is an essential relationship between meteorology and atmospheric dispersion involving wind in the broadest sense of the term.

The year may broadly be divided into four seasons:

Winter season : December to February

Pre-monsoon season : March to May

Monsoon season : June to September

Post-monsoon season : October to November

i) Climate

The area experiences a hot and dry tropical climatic condition, typical of the Virudhunagar region. The summer season extends mainly from March to June, with May generally being the hottest month, while December to February constitutes the relatively cooler period. The district-level annual temperature ranges approximately from 18.9°C to 37.6°C. The area receives rainfall from both the Southwest & Northeast Monsoons, with the Northeast Monsoon during October–December contributing significantly to the annual rainfall. The long-term normal annual rainfall of the Virudhunagar region is about 829.6 mm.

Table 3-8: Climate Data for Virudhunagar

Month	Jan	Feb	Mar	Apr	May	Jun
Mean daily Maximum °C (°F)	31.726 (89.11)	34.321 (93.78)	37.871 (100.17)	36.967 (98.54)	38.094 (100.57)	37.6 (99.7)
Mean daily Minimum °C (°F)	19.661 -67.39	20.625 -69.13	22.113 -71.8	24.433 -75.98	24.581 -76.25	24.717 -76.49
Average rainfall mm (inches)	18.5 (0.73)	23.5 (0.93)	37.6 (1.48)	76.8 (3.02)	60.2 (2.37)	18.3 (0.72)

Month	Jul	Aug	Sep	Oct	Nov	Dec	Year
Mean daily Maximum °C (°F)	36.79 (98.22)	36.726 (98.11)	36.15 (97.07)	35.742 (96.34)	30.95 (87.71)	30.097 (86.17)	35.25 -95.46
Mean daily Minimum °C (°F)	25.21 -77.38	24.79 -76.62	24.383 -75.89	23.323 -73.98	21.29 -70.32	22.6 -72.7	23.14 -73.66
Average rainfall mm (inches)	31.1 (1.22)	51.6 (2.03)	80.8 (3.18)	191 (7.5)	175.5 6.91)	64.7 (2.55)	829.6 (32.64)

ii) Temperature

Between April and June and is relatively cooler in December and January. The average daily temperature ranges from a maximum of 38.5˚C (101.3˚F) to a minimum of 30˚C (86˚F). The summer is hot with maximum temperature of 42˚C and winter encounters a minimum temperature of 23˚C.

iii) Rainfall

The area receives an annual average rainfall of 820 mm, which is less than the state average of 1008 mm. The South-west monsoon, which begins in June and lasts until August, brings little rain. Most of the rain is received during the North-east monsoon in the months of October, November and December.

VIRUDHUNAGAR DISTRICT -NORMAL AND ACTUAL RAINFALL

Actual Rainfall in mm						Normal Rainfall in mm
2019	2020	2021	2022	2023	2024 (As on 30.09.2024)	
713.7	1303.7	968.4	883.1	1166.8	549.1	773

Source: District survey report

Meterological Data

Gopalapuram Village in Virudhunagar District experiences a hot and dry tropical climate. The summer season generally extends from March to May, with May being the hottest month, while the winter period extends from December to February, with January being comparatively cooler. The district-level temperature generally ranges from about 18°C to 38°C. The area receives rainfall predominantly from the Northeast Monsoon during October–December, with additional rainfall during the Southwest Monsoon from June–September. The climatic conditions are characterized by relatively low humidity during the dry season and increased humidity during the monsoon period. Wind conditions exhibit seasonal variations corresponding to the monsoon circulation. For EIA purposes, site-specific wind speed, wind direction, temperature and relative humidity data should be obtained from the project-site meteorological monitoring station, and the windrose should be used to establish the predominant wind direction.

vi) Wind Rose Diagram

The wind rose denotes a class of diagrams designed to display the distribution of wind direction at a given location over a period of time. Wind roses are also useful as they project a large quantity of data in a simple graphical plot.

The wind speed & wind direction data are taken and wind rose is plotted for June to August 2025.

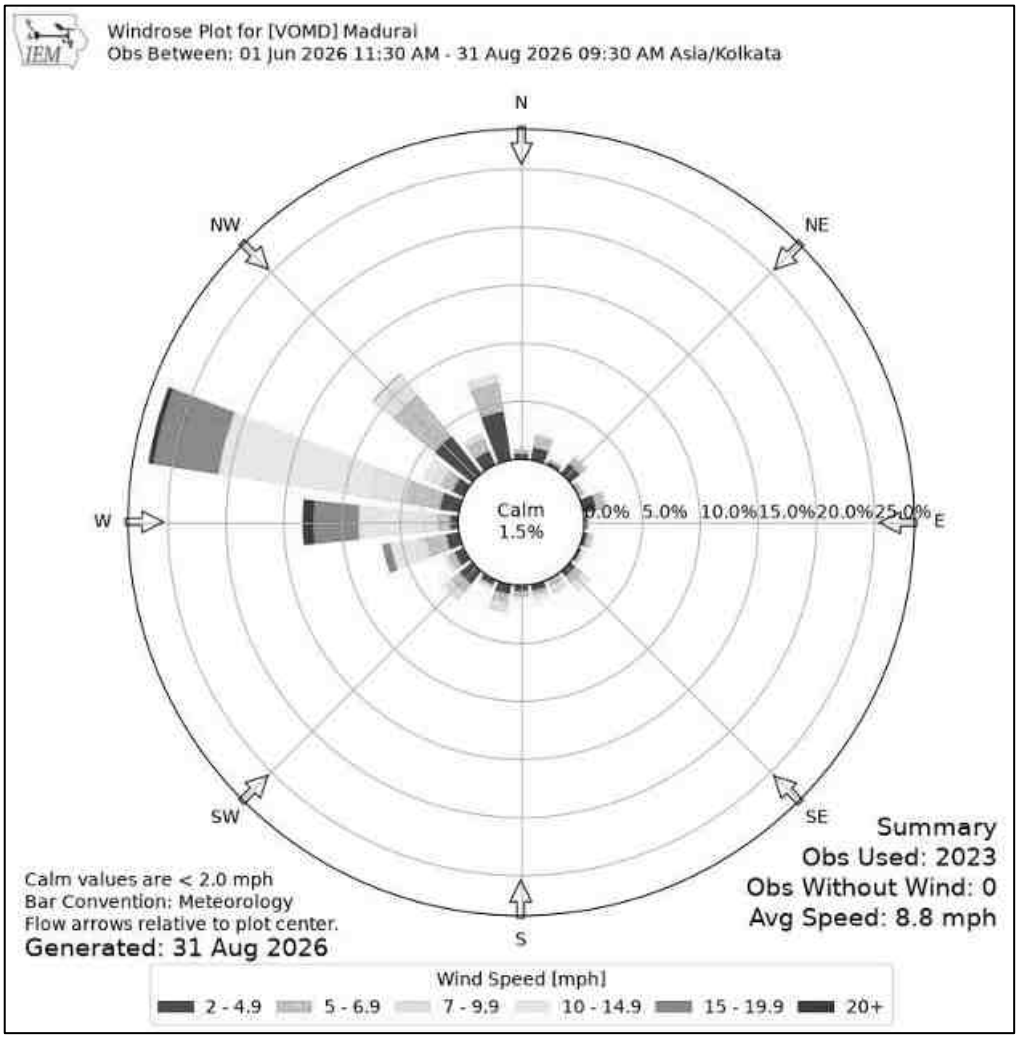


Figure 3.7 Wind rose

3.3.8 *Selection of Sampling Locations:*

Four Monitoring locations along with the project site is selected based on Wind Direction & Wind Speed. All the monitoring locations are chosen in the downwind direction.

3.4 AMBIENT AIR QUALITY

Table 3-9: Selection of Sampling Location

Environmental Parameters*: Ambient Air*	
Monitoring Period	June 2026 to August 2026
Design Criteria	The monitoring stations are selected based on factors like topography/terrain, prevailing meteorological conditions like predominant wind direction (June 2026 to August 2026), etc, play a vital role in the selection of air sampling stations. Based on these criteria, 7 air sampling stations were selected in the area as shown below.
Monitoring Locations	
Methodology	Respirable Particulate Matter (PM10) - Gravimetric (IS 5182: Part 23:2006) Particulate Matter PM2.5 - Gravimetric (Fine particulate matter) Sulphur Dioxide - Calorimetric (West & Gaeke Method) (IS 5182: Part 02: 2001) Nitrogen Dioxide - Calorimetric (Modified Jacob & Hocheiser Method) (IS 5182: Part 06:2006)
Frequency of Monitorir	2 days a week, 4 weeks in a month for 3 months in a season.

Project site	-	-
New canon assembly Church, Muthanathi	2.56 km	Upwind W
Thalakkudaiya Ayyanar Temple, Lakshmipuram	5.70 km	Downwind E
Vadakkathi Amman Temple, Devarayanpatti	1.27 km	Crosswind N
Tamil Nadu Electricity Board, Kalingappatti,	8.09 km	Crosswind S
Sri Ramalinga Sowdambikai Amman Temple	3.52 km	Crosswind NE
Valavaitha Amman Temple	4.21 Km	Crosswind SW

3.4.1 *Ambient Air Quality: Results & Discussion*

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

Table 3-10 Ambient Air Quality

Code	Location	PM 10 (µg/m$^{3)}$			PM 2.5 (µg/m^3)			SO_2 (µg/m^3)			NOx (µg/m^3)		
		Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
AAQ 1	Project Site	41	55	47.7	16	23	19.8	5	8	6.5	41	55	47.7
AAQ 2	New canon assembly Church, Muthanathi	46	55	51.2	19	26	22.7	6	13	8.7	12	25	16.8
AAQ 3	Thalakkudaiya Ayyanar Temple,	54	63	58.0	24	33	28.3	12	18	14.2	18	31	24.2
AAQ 4	Vadakkathi Amman Temple, Devarayanpatti	43	53	48.8	18	25	22.0	5	13	8.0	8	25	15.6
AAQ 5	Tamil Nadu Electricity Board, Kalingappatti	40	50	45.8	16	23	20.0	7	15	10.0	12	29	19.4
AAQ 6	Ramalinga Sowdambikai Amman Temple	44	56	51.2	19	27	23.3	6	13	9.2	12	23	16.2
AAQ 7	Valavaitha Amman Temple,	49	59	53.5	19	30	24.0	9	16	11.7	16	27	20.6
NAAQ Standards - Residential Area		100 (µg/m^3)			60(µg/m^3)			80 (µg/m^3)			80 (µg/m^3)		

3.4.2 *Interpretation of ambient air quality:*

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

Observation:

The Maximum value of PM10 (63(µg/m^3), PM 2.5 (33 (µg/m^3), SOx (18 (µg/m^3), NOx (55 (µg/m^3) is observed in different places.

Inference:

The monitoring results for PM10, PM2.5, Sox, NOx was found to be high in Thalakkudaiya Ayyanar Temple, Lakshmipuram which is due to the movement of vehicles .

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

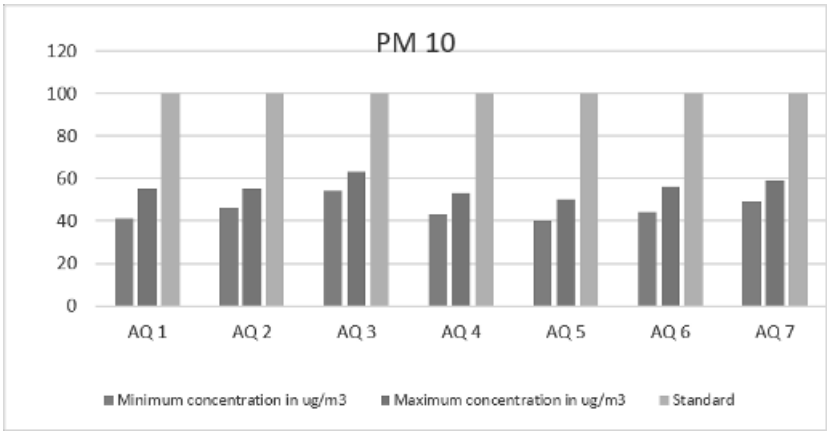


Figure 3.8 Concentration of PM10 (µg/m^3) in Study Area

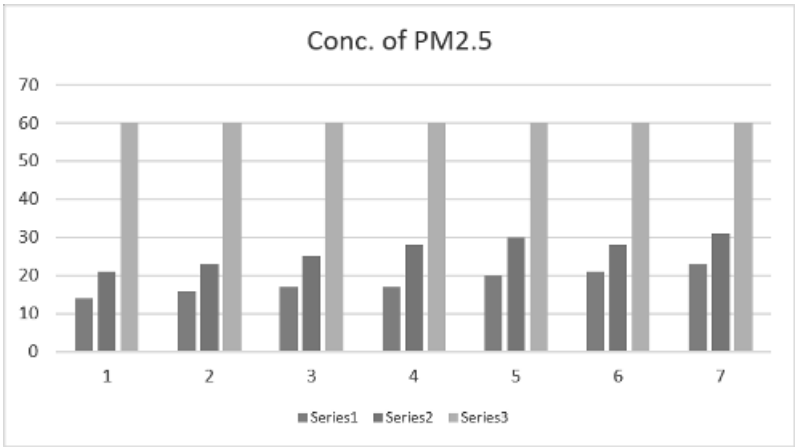


Figure 3.9 Concentration of PM2.5 (µg/m^3) in Study Area

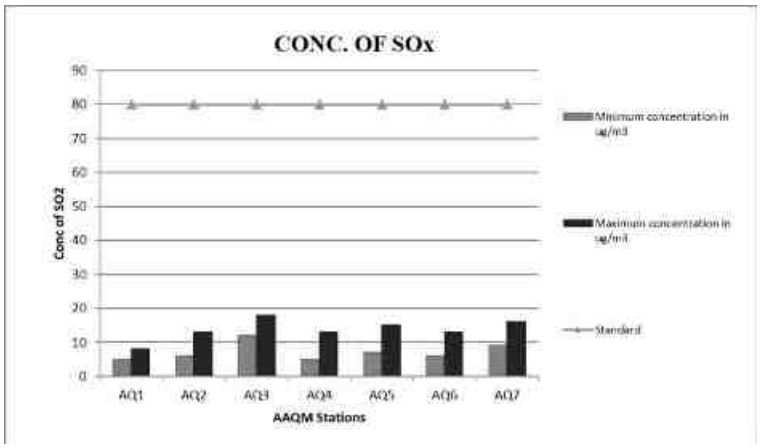


Figure 3.10 Concentration of SOx (µg/m^3) in Study Area

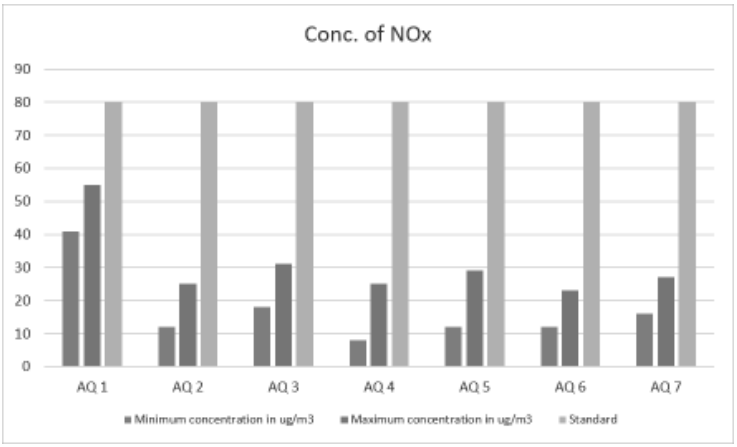


Figure 3.11 Concentration of NOx (µg/m3) in Study Area

3.5 NOISE ENVIRONMENT:

Table 3-11 Noise Analysis

Environmental Parameters*: Noise Analysis*	
Monitoring Period	June 2026 to August 2026
Design Criteria	Based on the Sensitivity of the area
Monitoring Locations	Project site. – N1 New canon assembly Church, Muthanathi – N2 Thalakkudaiya Ayyanar Temple, Lakshmipuram – N3 Vadakkathi Amman Temple, Devarayanpatti – N4

	Tamil Nadu Electricity Board, Kalingappatti – N5 Sri Ramalinga Sowdambikai Amman Temple – N6 Valavaitha Amman Temple – N7
Methodology	Noise level measurements were taken at the selected locations using noise level meter both during day and nighttime. Noise level measurements were taken continuously for 24 hours at hourly intervals
Frequency of Monitoring	Noise samples were collected from 7 locations - Once in a season

Ambient Noise Levels are monitored in the chosen 7 Locations including the project Site, and the monitoring results are summarized below

3.5.1 *Day Noise Level (Leq day)*

Table 3-12 Day Noise Level (Leq day)

Location	**Leq day in dB(A)**		
	Max	**Min**	**Average**
Project site	50	40	47
New cannan assembly Church	53	43	49
Thalakkudaiya Ayyanar Temple, Lakshmipuram	56	47	53
Vadakkathi Amman Temple, Devarayanpatti	54	44	51
Tamil Nadu Electricity Board, Kalingappatti	59	50	54
Sri Ramalinga Sowdambikai Amman Temple	60	51	56
Valavaitha Amman Temple	60	52	57

3.5.2 *Night Noise Level (Leq Night)*

Table 3-13 Night Noise Level (Leq Night)

Location	**Leq day in dB(A)**		
	Max	**Min**	**Average**
Project site	39	32	35
New cannan assembly Church	42	33	37

Thalakkudaiya Ayyanar Temple, Lakshmipuram	45	38	41
Vadakkathi Amman Temple, Devarayanpatti	45	36	40
Tamil Nadu Electricity Board, Kalingappatti,	49	41	45
Sri Ramalinga Sowdambikai Amman Temple	50	42	46
Valavaitha Amman Temple,	52	44	48

Observation:

The maximum Day noise and Night noise were found to be 60 dB(A) and 52 dB(A) respectively in Valavaitha Amman Temple. The minimum Day Noise and Night noise were 40 dB (A) and 32 dB(A) respectively which was observed in Project site. The observed values are all well within the Standards prescribed by CPCB.

3.6 SOIL ENVIRONMENT

Soil environment is studied for 10 km radius from the project site. The 5 km radius image shows that the soil is not affected by any kind of erosion.

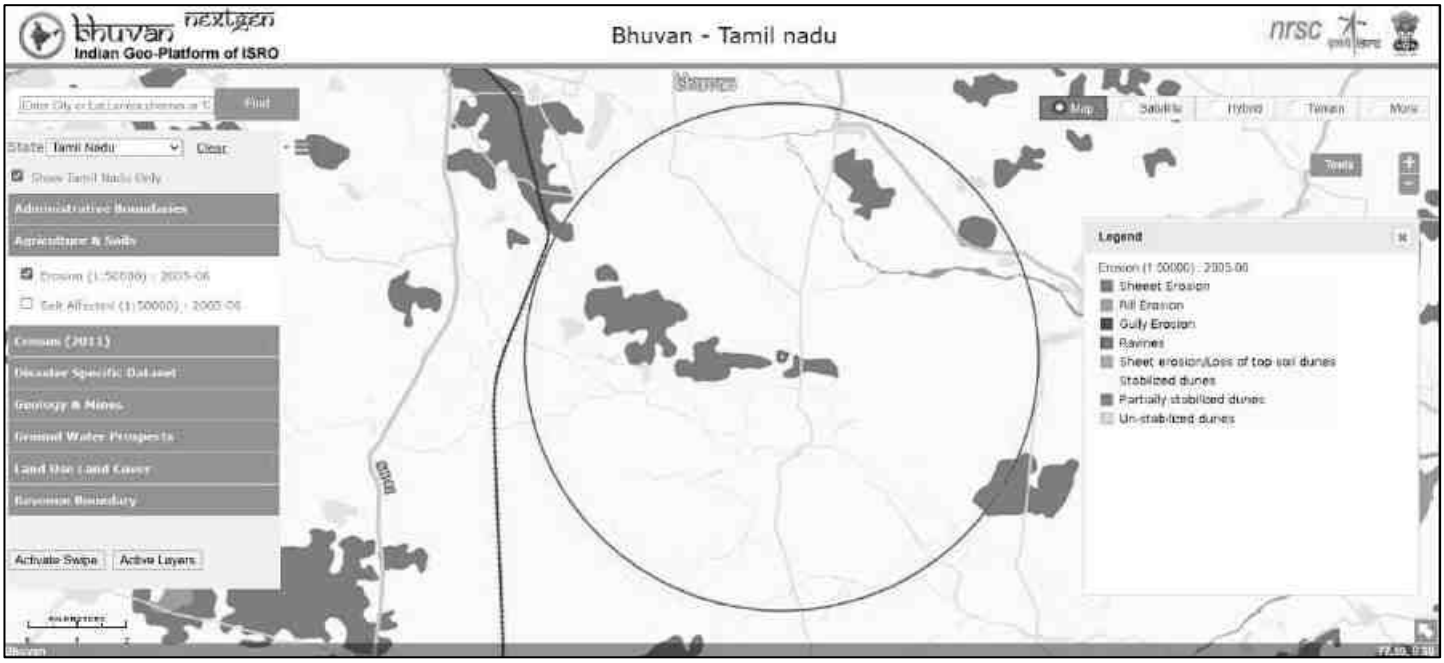


Figure 3.12: Soil Erosion pattern within 5 km radius of the project site

3.6.1 *Baseline Data:*

The present study of the soil quality establishes the baseline characteristics which will help in future in identifying the incremental concentrations if any, due to the operation Phase of the proposed project. The sampling locations have been identified with the following objectives:

- To determine the impact of proposed project on soil characteristics and
- To determine the impact on soils more importantly from agricultural productivity point of view.

Table 3-14 Soil Quality Analysis

Environmental Parameters*: Soil Quality Analysis*	
Monitoring Period	June 2026 to August 2026
Design Criteria	Based on the environmental settings of the study area
Monitoring Locations	Project site – SQ1 New canon assembly Church, Muthanathi – SQ2 Thalakkudaiya Ayyanar Temple, Lakshmipuram – SQ3 Vadakkathi Amman Temple, Devarayanpatti – SQ4 Tamil Nadu Electricity Board, Kalingappatti – SQ5 Sri Ramalinga Sowdambikai Amman Temple – SQ6 Valavaitha Amman Temple – SQ7
Methodology	Composite soil samples using sampling augers and field capacity apparatus
Frequency of Monitoring	Soil samples were collected from 7 locations Once in a season

To assess the soil quality of the study area, 7 monitoring stations were selected and the results are summarized below.

Table 3-15 Soil Quality Analysis

Parameters	Unit	SQ 1	SQ 2	SQ 3	SQ 4	SQ5	SQ6	SQ7
pH (at 25°C)	-	7.23	8.11	8.76	8.46	8.02	7.89	7.23
Specific Electrical Conductivity	mS/cm	0.43	0.27	0.28	0.17	0.08	0.44	0.52
Water Holding Capacity	ml/l	5.1	4.8	4.3	4.5	1.35	4.3	4.5
Chloride	g/cm^3	162	102	181	114	89.6	106	95.6
Soluble Calcium	mg/kg	115	88.5	58.7	66.6	84.4	74.5	82.7
Soluble Sodium	mg/kg	1057	881	784	872	937	880	782
Soluble Potassium	mg/kg	1342	876	846	764	856	793	755
Organic matter	%	0.19	0.36	0.08	0.42	0.17	0.07	1.21
Soluble Magnesium	mg/kg	37.7	17.9	16.38	12.8	16.3	15.6	18.5
Total Soluble Sulphates	%	171	75.2	32.1	60.4	50.5	12.2	10.9
CEC	mg/kg	10.2	9.65	11.1	13.6	8.65	14.5	16.6
Total Nitrogen	%	0.08	0.14	0.1	0.21	0.09	0.21	0.16
Bulk Density	meq/100g	1.31	1.21	1.34	1.24	1.08	1.21	1.19
Phosphorous	meq/kg	54.2	47.1	40.1	68.5	48.6	76.9	78.4
Sand	%	61.5	50	50	60	71.4	46.1	64.7
Clay	mg/kg	15.4	18.6	10	10	7.18	30.8	11.8
Silt	mg/kg	23.1	31.3	40	30	21	23.1	23.5
SAR	mg/kg	21.9	22.3	23.3	25.7	24.5	24.2	20.2
Silicon	%	0.089	0.095	0.086	0.089	0.091	0.094	0.086

3.6.1.1 Physical Properties:

Regular cultivation practices increase the bulk density of soils thus inducing compaction. This results in reduction in water percolation rate and penetration of roots through soils. The soils with low bulk density have favorable physical conditions whereas those with high bulk density exhibit poor physical conditions for agriculture crops. The bulk density of the soil in the study area ranged between 1.08 to 1.34 meq/100g which indicates favorable physical condition for plant growth. The water holding capacity was found in the range of 1.35 ml/l to 5.10 ml/l.

3.6.1.2 Chemical Properties:

Chemical characteristics of soils include pH, exchangeable cations and fertility status in the form of NPK values and organic matter. The value of the pH ranges from 7.23 to 8.76, which indicates majority of pH of the soil is slightly alkaline. The soil in the project site is sodic in nature, which challenges because they tend to have very poor structure which limits or prevents water infiltration and drainage. The organic matter varies from 0.07 to 1.21 %, which indicates the soil is slightly unfertile.

3.7 ECOLOGY AND BIODIVERSITY

Ecology and Biodiversity is studied for 10 km radius around the project site. Project site and 2 km around the project site is considered as core zone and from 2 km to 10 km radius, it is considered as buffer zone.

- A primary field survey is carried out for the assessment of flora and fauna in the core zone
- Secondary data from Journals/Literature were studied and compiled to understand the species present in the buffer zone

3.7.1 *Methods available for floral analysis:*

3.7.1.1 Plot Sampling Methods

- Quadrat – 2D shape (e.g. square or rectangle, or other shape) used as a sampling unit
- Transect
    - Line transects feature only a length dimension, usually defined by a tape stretched across the area to be sampled.

- Belt transects have a width as well as length.
- Pace-transects are established when the observer strides along an imaginary line across the sample site and uses their foot placement to determine specific sampling points.

3.7.1.2 Plot less Sampling Methods

- Closest individual method - Distance is measured from each random point to the nearest individual.
- Nearest neighbour method - Distance is measured from an individual to its nearest neighbour.
- Random pairs method - Distance is measured from one individual to another on the opposite side of the sample point.
- Point-centered quarter (PCQ) method - Distance is measured from the sampling point to the nearest individual in each quadrat.

3.7.2 *Field study & Methodology adopted:*

To assess the suitability of the methodology, random field survey was done. Field survey was conducted around 2 km radius from the project site and five locations were chosen based on the species density. Quadrat method is chosen for the proposed study as compared to other sampling methods, because they are relatively simple to use. Quadrat plots are uniform in size and shape and distributed randomly throughout the sample area, which makes the study design straightforward. They are also one of the most affordable techniques because they require very few materials.

3.7.3 *Study outcome:*

Phyto-sociological parameters, such as ***Density, Frequency, Basal Area, Abundance and Importance Value Index*** of individual species (Trees) were determined in randomly placed quadrate of different sizes in the study area. Relative frequency, relative basal area and relative density were calculated and the sum of these three represented Importance Value Index (IVI) for various species. For shrubs, herbs and grasses, ***Density, Frequency, Relative Density & Relative Frequency were found***.

Sample plots were selected in such a way to get maximum representation of different types of vegetation and plots were laid out in different part of the study area of 2 km radius. Analysis of the

vegetation will help in determining the relative importance of each species in the study area and to reveal if any economically valuable species is threatened in the process.

Table 3-16 Calculation of Density, Frequency (%), Dominance, Relative Density, Relative Frequency, Relative Dominance & Important Value Index

Parameters	Formula
Density	Total No. of individuals of species/ Total No. of Quadrats used in sampling
Frequency (%)	(Total No. of Quadrats in which species occur/ Total No. of Quadrats studied) * 100
Dominance	Total Basal Area /Total area sampled
Abundance	Total No. of individuals of species/ No. of Quadrats in which they occur
Relative Density	(Total No. of individuals of species/Sum of all individuals of all species) * 100
Relative Frequency	(Total No. of Quadrats in which species occur/ Total No. of Quadrats occupied by all species) * 100
Relative Dominance	Dominance of a given species/Total Dominance of all species
Important Value Index	Relative Density + Relative Frequency + Relative Dominance

Table 3-17 Tree Species in the core Zone

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with	Total No. of Quadrants	Density	Frequency (%)	Abundance	Dominance	Relative Density	Relative Frequency	Relative Dominance	IVI	IUCN Conservation Status
1	Ficus Carica	Athi Maram	2	2	6	0.33	33.33	1	0.28	1.68	2.17	4.45	8.31	Least Concern
2	Cocos nucifera	Thennai	10	6	6	1.67	100.0	1.67	0.15	8.40	6.52	2.39	17.32	Not assessed
3	Azadirachta indica	Veppam	17	6	6	2.83	100.0	2.83	0.13	14.29	6.52	1.98	22.79	Not assessed
4	Tamarindus indica	Puli	10	6	6	1.67	100.0	1.66	0.20	8.40	6.52	3.09	18.02	Not assessed
5	Mangifera indica	Mamaram	7	6	6	1.17	100.0	1.16	0.07	5.88	6.52	1.11	13.52	Data insufficient
6	Morinda pubescens	Nuna	6	6	6	1.00	100.0	1	0.24	5.04	6.52	3.74	15.31	Not assessed
7	Couroupita guianensis	Nagalingam	5	3	6	0.83	50.00	1.67	0.14	4.20	3.26	2.18	9.64	Not assessed
8	Bombax ceiba	Sittan	4	4	6	0.67	66.67	1	0.08	3.36	4.35	1.27	8.98	Not assessed
9	Acacia nilotica	Karuvelai	4	4	6	0.67	66.67	1	0.28	3.36	4.35	4.45	12.16	Least Con5,00,n
10	Bambusa vulgaris	Moongil	4	4	6	0.67	66.67	1	0.50	3.36	4.35	7.92	15.63	Not assessed
11	Syzygium cumini	naval	5	1	6	0.83	16.67	5	0.11	4.20	1.09	1.79	7.07	Not assessed
12	Carica papaya	Papaya	3	3	6	0.50	50.00	1	0.09	2.52	3.26	1.43	7.21	Not assessed
13	Psidium guajava	Guava	3	3	6	0.50	50.00	1	0.23	2.52	3.26	3.61	9.39	Not assessed

14	Cassia siamea	ManjalKonrai	3	2	6	0.50	33.33	1.5	0.07	2.52	2.17	1.11	5.81	Least Concern
15	Ficus religiosa	Arasa maram	3	3	6	0.50	50.00	1	0.09	2.52	3.26	1.35	7.13	Not assessed
16	Musa paradise	Vaazhai	3	3	6	0.50	50.00	1	0.08	2.52	3.26	1.19	6.97	Not assessed
17	Prosopis juliflora	Vaelikaruvai	3	3	6	0.50	50.00	1	0.21	2.52	3.26	3.34	9.13	Not assessed
18	Tectona grandis	Thekku	3	3	6	0.50	50.00	1	0.12	2.52	3.26	1.88	7.66	Not assessed
19	Thespesia populnea	Poovarasam	3	3	6	0.50	50.00	1	0.15	2.52	3.26	2.39	8.18	Not assessed
20	Causuarina equisetifolia	Savukku	2	2	6	0.33	33.33	1	0.21	1.68	2.17	3.34	7.20	Not assessed
21	Alstonia scholaris	Elilaipalai	2	2	6	0.33	33.33	1	0.27	1.68	2.17	4.31	8.16	Least Concern
22	Anacardium occidentale	Cashew	1	1	6	0.17	16.67	1	0.44	0.84	1.09	6.96	8.88	Not assessed
23	Artocarpus heterophyllus	Palaa	2	2	6	0.33	33.33	1	0.18	1.68	2.17	2.85	6.70	Not assessed
24	Aegle marmelos	Vilvam	1	1	6	0.17	16.67	1	0.16	0.84	1.09	2.50	4.43	Not assessed
25	Delonix elata	Perungondrai	1	1	6	0.17	16.67	1	0.17	0.84	1.09	2.62	4.54	Least Concern
26	Pithecellobium dulce	Kodukapuli	1	1	6	0.17	16.67	1	0.14	0.84	1.09	2.18	4.11	Not assessed
27	Citrus medica	Elumichai	2	2	6	0.33	33.33	1	0.23	1.68	2.17	3.61	7.46	Not assessed
		Total	**110**	**83**					**5.02**					

Table 3-18 Shrubs in the Core Zone

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IUCN Conservation Status
1	Jatropagossypifolia	Kaatamanaku	32	17	24	1.17	0.71	1.65	14.43	17.17	Not Assessed
2	Calotropis gigantea	Erukam	16	12	24	0.58	0.50	1.17	7.22	12.12	Not Assessed
3	Tabernaemontanadivaricata	Crepe Jasmine	4	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
4	Catharanthus roseus	Nithyakalyani	4	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
5	Datura metal	Ummattangani	7	4	24	0.21	0.17	1.25	2.58	4.04	Not Assessed
6	Robiniapseudoacacia	Black locust	15	5	24	0.71	0.21	3.4	8.76	5.05	Least Concern
7	Acalypha indica	Kuppaimeni	18	8	24	0.83	0.33	2.5	10.31	8.08	Not Assessed
8	Stachytarpheaurticifolia	Rat tail	13	9	24	0.63	0.38	1.67	7.73	9.09	Not Assessed
9	Woodfordiafruiticosa	Velakkai	4	3	24	0.13	0.13	1	1.55	3.03	Least Concern
10	Hibiscus rosa sinensis	Sembaruthi	3	2	24	0.13	0.08	1.5	1.55	2.02	Not Assessed
11	Lantana camara	Unnichedi	8	6	24	0.38	0.25	1.5	4.64	6.06	Not Assessed
12	Parthenium hysterophorous	Vishapoondu	45	13	24	2.08	0.54	3.85	25.77	13.13	Not Assessed
13	Euphorbia geniculata	Amman Pacharisi	5	3	24	0.13	0.13	1	1.55	3.03	Not Assessed

Table 3-19 Herbs & Grasses in the core zone

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IUCN Conservation status
1	Helicteresisora	Valampuri	4	2	30	0.07	0.07	1	0.79	2.15	Not assessed
2	Tridax procumbens	Vettukaayathalai	7	4	30	0.17	0.13	1.25	1.98	4.30	Not assessed
3	Heraculem spondylium	Hog Weed	19	10	30	0.67	0.33	2	7.94	10.75	Not assessed
4	Tridax procumbens	Cuminipachai	18	4	30	0.50	0.13	3.75	5.95	4.30	Not assessed
5	Senna occidentalis	Nattamsakarai	30	4	30	0.83	0.13	6.25	9.92	4.30	Not assessed
6	Plumbago zeylanica	Chittiramoolam	12	3	30	0.10	0.10	1	1.19	3.23	Not assessed
7	Scrophularia nodosa	Sarakkothini	18	7	30	0.50	0.23	2.14	5.95	7.53	Not assessed
8	Viburnum dentatum	Viburnum	7	5	30	0.17	0.17	1	1.98	5.38	Least concern
9	Cynodondactylon	Arugu	15	6	30	0.40	0.20	2	4.76	6.45	Not assessed
10	Euphorbia hirta	Amman Pacharisi	7	4	30	0.17	0.13	1.25	1.98	4.30	Not assessed
11	Sida cordifolia	Maanikham	50	4	30	1.50	0.13	11.25	17.86	4.30	Not assessed
12	Sida acuta	Malaidangi	12	3	30	0.33	0.10	3.33	3.97	3.23	Not assessed
13	Laportea canadensis	Peruganchori	28	20	30	1.00	0.67	1.5	11.90	21.51	Not assessed
14	Sporobolus fertilis	Giant Parramatta Grass	10	4	30	0.30	0.13	2.25	3.57	4.30	Not assessed
15	Tephrosia purpurea	Kavali	23	4	30	0.67	0.13	5	7.94	4.30	Not assessed

3.7.4 *Calculation of species diversity by Shannon – wiener Index, Evenness and richness by Margalef:*

Biodiversity index is a quantitative measure that reflects how many different type of species, there are in a dataset, and simultaneously takes into account how evenly the basic entities (such as individuals) are distributed among those types of species. The value of biodiversity index increases both when the number of types increases and when evenness increases. For a given number of type of species, the value of a biodiversity index is maximized when all type of species are equally abundant. Interpretation of Vegetation results in the study area is given below.

Table 3-20 Calculation of species diversity

Description	Formula
Species diversity – Shannon – Wiener Index	$H=\Sigma[(p_i)*\ln(p_i)]$ Where p_i : Proportion of total sample represented by species i:number of individuals of species i/ total number of samples
Evenness	H/H_{max} H_{max} = ln(s)= maximum diversity possible S=No. of species
Species Richness by Margalef	RI = S-1/ln N Where S = Total Number of species in the community N = Total Number of individuals of all species in the community

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

i. Species Diversity

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Ficus Carica	Athi Maram	2	0.018182	-4.00733	-0.07286
Cocos nucifera	Thennai	10	0.090909	-2.3979	-0.21799
Azadirachta indica	Veppam	17	0.154545	-1.86727	-0.28858
Tamarindus indica	Puli	10	0.090909	-2.3979	-0.21799

Mangifera indica	Mamaram	7	0.063636	-2.75457	-0.17529
Morinda pubescens	Nuna	6	0.054545	-2.90872	-0.15866
Couroupita guianensis	Nagalingam	5	0.045455	-3.09104	-0.1405
Bombax ceiba	Sittan	4	0.036364	-3.31419	-0.12052
Acacia nilotica	Karuvelai	4	0.036364	-3.31419	-0.12052
Bambusa vulgaris	Moongil	4	0.036364	-3.31419	-0.12052
Syzygium cumini	naval	5	0.045455	-3.09104	-0.1405
Carica papaya	Papaya	3	0.027273	-3.60187	-0.09823
Psidium guajava	Guava	3	0.027273	-3.60187	-0.09823
Cassia siamea	ManjalKonrai	3	0.027273	-3.60187	-0.09823
Ficus religiosa	Arasa maram	3	0.027273	-3.60187	-0.09823
Musa paradise	Vaazhai	3	0.027273	-3.60187	-0.09823
Prosopis juliflora	Vaelikaruvai	3	0.027273	-3.60187	-0.09823
Tectona grandis	Thekku	3	0.027273	-3.60187	-0.09823
Thespesia populnea	Poovarasam	3	0.027273	-3.60187	-0.09823
Causuarina equisetifolia	Savukku	2	0.018182	-4.00733	-0.07286
Alstonia scholaris	Elilaipalai	2	0.018182	-4.00733	-0.07286
Anacardium occidentale	Cashew	1	0.009091	-4.70048	-0.04273
Artocarpus heterophyllus	Palaa	2	0.018182	-4.00733	-0.07286
Aegle marmelos	Vilvam	1	0.009091	-4.70048	-0.04273
Delonix elata	Perungondrai	1	0.009091	-4.70048	-0.04273
Pithecellobium dulce	Kodukapuli	1	0.009091	-4.70048	-0.04273
Citrus medica	Elumichai	2	0.018182	-4.00733	-0.07286
Total		110			-3.02215005

H (Shannon Diversity Index) =3.02

Shrubs

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Jatropagossypifolia	Kaatamanaku	32	0.183908	-1.69332	-0.31142
Calotropis gigantea	Erukam	16	0.091954	-2.38647	-0.21945
Tabernaemontanadivaricata	Crepe Jasmine	4	0.022989	-3.77276	-0.08673
Catharanthus roseus	Nithyakalyani	4	0.022989	-3.77276	-0.08673
Datura metal	Ummattangani	7	0.04023	-3.21315	-0.12926
Robiniapseudoacacia	Black locust	15	0.086207	-2.45101	-0.21129
Acalypha indica	Kuppaimeni	18	0.103448	-2.26868	-0.23469
Stachytarpheaurticifolia	Rat tail	13	0.074713	-2.59411	-0.19381
Woodfordiafruiticosa	Velakkai	4	0.022989	-3.77276	-0.08673
Hibiscus rosa sinensis	Sembaruthi	3	0.017241	-4.06044	-0.07001
Lantana camara	Unnichedi	8	0.045977	-3.07961	-0.14159
Parthenium hysterophorous	Vishapoondu	45	0.258621	-1.35239	-0.34976
Euphorbia geniculata	Amman Pacharisi	5	0.028736	-3.54962	-0.102
Total		174			-2.2234

H (Shannon Diversity Index) =2.22

Herbs

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Helicteresisora	Valampuri	4	0.015385	-4.17439	-0.06422
Tridax procumbens	Vettukaayathalai	7	0.026923	-3.61477	-0.09732
Heraculem spondylium	Hog Weed	19	0.073077	-2.61624	-0.19119
Tridax procumbens	Cuminipachai	18	0.069231	-2.67031	-0.18487
Senna occidentalis	Nattamsakarai	30	0.115385	-2.15948	-0.24917
Plumbago zeylanica	Chittiramoolam	12	0.046154	-3.07577	-0.14196
Scrophularia nodosa	Sarakkothini	18	0.069231	-2.67031	-0.18487
Viburnum dentatum	Viburnum	7	0.026923	-3.61477	-0.09732
Cynodondactylon	Arugu	15	0.057692	-2.85263	-0.16457
Euphorbia hirta	Amman Pacharisi	7	0.026923	-3.61477	-0.09732
Sida cordifolia	Maanikham	50	0.192308	-1.64866	-0.31705
Sida acuta	Malaidangi	12	0.046154	-3.07577	-0.14196
Laportea canadensis	Peruganchori	28	0.107692	-2.22848	-0.23999
Sporobolus fertilis	Giant Parramatta Grass	10	0.038462	-3.2581	-0.12531
Tephrosia purpurea	Kavali	23	0.088462	-2.42519	-0.21454
Total		260			-2.51

H (Shannon Diversity Index) =2.51

i. Species diversity calculation

Details	H	Hmax	Evenness	Species Richness (Margalef)
Trees	3.02	3.36	0.89	5.95
Shrubs	2.22	2.56	0.86	2.32
Herbs	2.51	2.70	0.92	2.51

From the above, it can be interpreted that herb community has higher diversity. While the tree community shows less diversity. It is also observed that most of the quadrates have controlled generation of plant species with older strands. Higher herb species diversity can be interpreted as a greater number of successful species and a more stable ecosystem where more ecological niches are available, environmental change is less likely to be damaging to the ecosystem. Species richness is high for herb community when compared with tree and shrubs.

3.7.6 *Floral study in the Buffer Zone:*

Economically important Flora of the study area

Agricultural crops: The important crops of this district are Paddy, Maize, Ragi, Banana, Sugarcane, Cotton, Tamarind, Coconut, Mango, Groundnut, Vegetables and Flowers also grown by the local people.

Medicinal species: The nearby area is also endowed with the several medicinal species which are commonly available in the shrub forest and waste lands. The common medicinal species of the region are Asparagus racemosus (satamulli), Azadirachta indica (Neem) etc.

Rare and endangered floral species: There are no rare or endangered or threatened (RET) species of in the study area. During the vegetation survey, there are no any species which are endangered or threatened under IUCN (International Union for Conservation of Nature and Natural resources) guidelines.

3.7.7 *Faunal Communities*

Both direct and indirect observation methods were used to survey the fauna.

- Point Survey Method: Observations were made in each site for 15 minutes duration.

Roadside Counts: The observer traveled by motor vehicles from site to site, all sightings were recorded (this was done both in the day and night time). An index of abundance of each species was also established.

Pellet and Track Counts: All possible animal tracks and pellets were identified and recorded (South Wood, 1978).

Additionally, survey of relevant literature was also done to consolidate the list of fauna distributed in the buffer zone.

Based on the Wildlife Protection Act, 1972 (WPA 1972, Anonymous. 1991, Upadhyay 1995, Chaturvedi and Chaturvedi 1996) species were short-listed as Schedule II or I and considered herein as endangered species. Species listed in Ghosh (1994) are considered as Indian Red List species.

Methodology Adopted:

Point Survey method was adopted for this development project where observations were made in each site for 15 minutes duration (10 times).

Study in the core zone:

Point Survey method was adopted for the study within 2 km radius and the following species were observed.

Mammals: No wild mammalian species was directly sighted during the field survey. Discussion with local villagers located around the study area also could not confirm presence of any wild animal in that area. Three stripped Palm Squirrel, Common Indian Hare, Common mongoose, Common Mouse etc were observed during primary survey.

Avifauna: Since birds are considered to be the indicators for monitoring and understanding human impacts on ecological systems (Lawton, 1996) attempt was made to gather quantitative data on the avifauna by walk through survey within the entire study area and surrounding areas. From the primary survey, a total of 26 species of avifauna were identified and recorded in the study area. The diversity of avifauna from this region was found to be quite high and encouraging.

The list of fauna species found in the study area is mentioned in Table below.

Table 3-21 List of flora species in Core zone

Sl. No	Category	Species Name	Common Name	Family
1	Trees	*Acacia nilotica*	Karuvelan	Fabaceae
2	Trees	*Azadirachta indica*	Vembu	Meliaceae
3	Trees	*Acacia leucophloea*	Valvelam	Fabaceae
4	Shrubs	*Calotropis gigantea*	Erukku	Apocynaceae
5	Shrubs	*Datura metel*	Umatai	Solanaceae
6	Shrubs	*Cassia auriculata*	Aavarampoo	Fabaceae
7	Herbs	*Sida acuta*	Palambasi	Malvaceae
8	Herbs	*Sida cordifolia*	Palambasi	Malvaceae

Sl. No	Category	Species Name	Common Name	Family
9	Herbs	*Achyranthes aspera* L.	Nayuruvi	Amaranthaceae
10	Herbs	*Tridax procumbens*	Vettukai poondu	Asteraceae
11	Grasses	*Cyperus rotundus*	Korai pullu	Cyperaceae
12	Grasses	*Cynodon dactylon*	Arugampullu	Poaceae

Table 3-22 List of flora species in Buffer Zone

Sl.No.	Species Name	Family	Local Name
Trees			
1	Thespesia populnea	Malvaceae	Puvarasu
2	Saraca asoca	Caesalpinaceae	Asogam
3	Polyalthia longifolia	Annonaceae	Nietlingam
4	Musa paradisiaca	Musaceae	Valzhai
5	Morinda pubescens	Rubiaceae	Manjanathi
6	Mangifera indica	Anacardiaceae	Maamaram
7	Delonix regia	Fabaceae	Gulmohar
8	Delonix elata	Fabaceae	Perungondrai
9	Casuarina equisetifolia	Casuarinaceae	Savukku
10	Anacardium occidentalae	Anacardiaceae	Munthiri
11	Acacia auriculiformis	Fabaceae	Pencil tree
12	Bombax ceiba	Malvaceae	Ilavu
13	Terminalia arjuna	Combretaceae	Marudha Maram
14	Psidium guava	Myrtaceae	Koyya
15	Phyllanthus emblica	Euphorbiaceae	Neli
16	Moringa oleifera	Moringaceae	Murungai
17	Leucaena leucocephala	Fabaceae	Subabul
18	Gmelina arborea	Lamiaceae	Kumalaamaram
19	Carica papaya	Caricaceae	Pappali
20	Bauhinia purpurea	Caesalpinaceae	Mantharai

21	Albizia amara	Fabaceae	Vagai
22	Acacia nilotica	Fabaceae	Karuvelan
23	Azadirachta indica	Meliaceae	Vembu
24	Annona squamosa	Annonaceae	Siththa
25	Tectona grandis	Verbenaceae	Tekku
26	Samanea saman	Fabaceae	Amaivagai
27	Tamarindus indica	Fabaceae	Puli
28	Prosopis juliflora	Fabaceae	Seemai karuvel
29	Morinda tinctoria	Rubiaceae	Nuna
30	Madhuca longifolia	Sapotaceae	Iluppai
31	Lannea coromandelica	Anacardiaceae	Oti
32	Ficus religiosa	Moraceae	Poarasamaram
33	Ficus benghalensis	Moraceae	Aalamaram
34	Cocus nucifera	Arecaceae	Thennai
35	Caesalpinia pulcherrima	Fabaceae	Mayilkondrai
36	Atalantia monophylla	Rutaceae	Kattu Elumeachi
37	Albizia lebbeck	Fabaceae	Vagai
38	Acacia leucophloea	Fabaceae	Valvelam
39	Aegle marmelos	Rutaceae	Vilvam
40	Borassus flabelliformis	Arecaceae	Panna-maram
41	Cassia fistula	Fabaceae	Konrai
42	Citrus limon	Rutaceae	Lemon
43	Ipomoea carnea	Convolvulaceae	Pink morning glory
44	Ficus hispida	Moraceae	Aaras u
45	Manilkara zapota	Sapotaceae	Sappota
46	Mimusops elengi	Sapotaceae	Magizhamboo
47	Murraya koenigii	Rutaceae	Curry leaf
48	Peltophorum pterocarpum	Fabaceae	Kilikuluppai
49	Pongamia pinnata	Fabaceae	Pungai
50	Pithecellobium dulce	Fabaceae	Kodukkapuli

51	Phoenix sylvestris	Arecaceae	Eachamaram
52	Syzygium cumini	Myrtaceae	Naval
53	Senna siamea	Fabaceae	Manjal konrai
Shrubs			
1	Sida cordifolia	Malvaceae	Sida plant
2	Lantana camara	Verbenaceae	Putus
3	Jatropha glandulifera	Euphorbiaceae	Vellaikattukottai
4	Datura metel	Solanaceae	Umatai
5	Cassia auriculata	Fabaceae	Aavarampoo
6	Calotropis gigantea	Apocynaceae	Erukku
7	Aloe vera	Asphodelaceae	Chotthu kathalai
8	Ziziphus jujuba	Rhamnaceae	Elanthai
9	Nerium indicum	Apocynaceae	Arali
10	Hibiscus rosa-sinensis	Malvaceae	Semparuthi
11	Boerhaavia diffusa	Nyctaginaceae	Kagithapoo
12	Plumeria acuminata	Apocynaceae	Alari
13	Vitex negundo	Verbenaceae	Vanili
14	Tecoma stans	Bignoniaceae	Yellow trumpetbush
15	Ricinus communis	Euphorbiaceae	Amanakku
16	Lawsonia inermis	Lythraceae	Maruthani
17	Justicia adhatoda	Acanthaceae	Adathoda
18	Ixora casei	Rubiaceae	Idlipoo
19	Rosa indica	Rosaceae	Rose
Herbs			
1	Achyranthes aspera	Amaranthaceae	Nayuruvi
2	Tridax procumbens	Asteraceae	Vettukai poondu
3	Solanum xanthocarpum	Solanaceae	Kandankattari
4	Leucas aspera	Lamiaceae	Thumbai
5	Amaranthus viridis	Amaranthaceae	Green amaranth
6	Acalypha indica	Amaranthaceae	Kuppameni keeri

7	Ocimum tenuiflorum	Lamiaceae	Thulasi
8	Sida acuta	Malvaceae	Palambasi
9	Andrographis paniculata	Acanthaceae	Kirayt
10	Sida rhombifolia	Malvaceae	Kurundotti
11	Solanum nigrum	Solanaceae	Manathakkali
12	Vinca rosea	Apocynaceae	Nithiyakalyni
13	Acanthospermum hispidum	Asteraceae	Gokul kanta
14	Anisomeles indica	Lamiaceae	marutti
15	Argemone mexicana	Papaveraceae	Mexican poppy
16	Solanum incanum	Solanaceae	Karimulli
17	Anisomeles malabarica	Lamiaceae	Peyimarutti
18	Cleome viscosa	Cleomaceae	Naai velai
19	Parthenium hysterophorus	Asteraceae	Parthenium
20	Phyllanthus niruri	Phyllanthaceae	Keelzhanelli
Climber			
1	Coccinia indica	Cucurbitaceae	Kovai
2	Convolvulus arvensis	Convolvulaceae	Bhoomi Chakra Poondu
3	Cissus quadrangularis	Vitaceae	Pirandai
4	Abrus precatorius	Fabaceae	Kundumani
5	Asparagus racemosus	Asparagaceae	Tannir-vittan
Agricultural Crops			
1	Sesbania grandiflora	Fabaceae	Agati
2	Solanum melongena	Solanaceae	Kaththari
3	Musa paradisiaca	Musaceae	Valzhai
4	Capsicum annuum	Solanaceae	Red chilli
5	Gossypium hirsutum	Malvaceae	Paruththi
Grasses			
1	Kyllinga nemoralis	Cyperaceae	Velutta nirbasi
2	Cyperus rotundus	Cyperaceae	korai pullu
3	Cynodon dactylon	Poaceae	Arugampullu

4	Chloris barbata	Poaceae	Kodai pullu

Table 3-23 List of fauna species

S.No	Common Name	Scientific Name	IUCN
Mammals			
1	Common Indian Hare	Lepus ruficaudatus	LC
2	Indian Palm Squirrel	Funambulus palmarum	LC
3	Indian Grey Mongoose	Herpestes edwardsii	LC
Birds			
1	Black Drongo	Dicrurus macrocercus	LC
2	Cattle Egret	Bubulcus ibis	LC
3	Common Babbler	Turdoides caudatus	LC
4	Common Crow	Corvus splendens	LC
5	Common Kingfisher	Alcedo atthis	LC
6	Common Myna	Acridotheres tristis	LC
7	Common Quail	Coturnix coturnix	LC
8	House Sparrow	Passer domesticus	LC
9	Indian Cuckoo	Cuculus micropterus	LC
10	Little Cormorant	Phalacrocorax niger	LC
11	Little Egret	Egretta garzetta	LC
12	Purple-rumped Sunbird	Nectarinia zeylonica	LC
13	Red-vented Bulbul	Pycnonotus cafer	LC
14	Rose-ringed Parakeet	Psittacula krameri	LC
15	Spotted Dove	Streptopelia chinensis	LC
Reptiles			
1	Common Indian krait	Bungarus caeruleus	LC
2	Rat Snake	Ptyas mucosa	LC
3	Garden Lizard	Calotes versicolor	LC
Amphibians			

1	Common Indian toad	Bufo melanostictus	LC
Butterfly			
1	Lime butterfly	Papilio demoleus	LC
2	Common crow	Euploea core	LC
3	Small grass yellow	Eurema brigitta	LC

3.8 DEMOGRAPHY AND SOCIO ECONOMICS

The demography survey study is done within 10km radius from the project site.

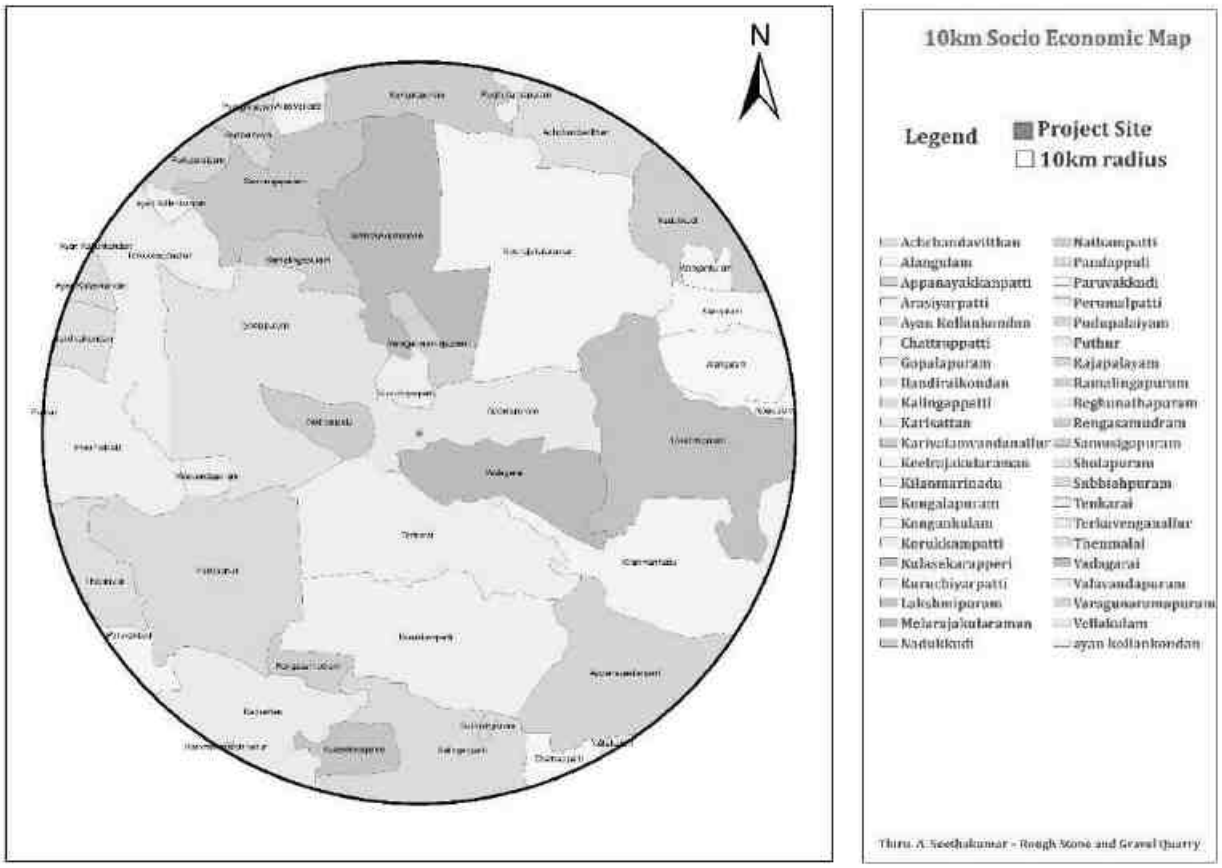


Figure 3.13 Socio Economic map surrounding the project site.

The population, Household, Sex ratio, Literacy rate, SC, ST details for all the villages in the study area is listed below:

Table 3-24: Demography Survey Study

Source: Census of India, 2011

Village Name	Households	Population	Sex Ratio (F/1000 M)	Literacy – Male (%)	Literacy – Female (%)	SC Population	ST Population
Achchandavilthan	1,881	6,365	995	74.29	58.71	1,419	0
Alangulam	508	1,924	916	89.33	77.67	480	0
Appanayakkanpatti	1,017	4,594	1,152	83.81	73.23	1,086	0
Arasiyarpatti	1,050	3,784	1,021	84.48	69.09	1,172	0
Gopalapuram	423	1,461	1,064	88.41	69.83	385	0
Ilandiraikondan	959	3,422	1,025	80.36	57.35	1091	0
Kalingappatti	1,775	6,537	1,016	74.93	58.2	1573	0
Karisattan	1,409	5,032	1,014	75.58	59.47	1420	0
Karivalamvandanallur	2,981	10,581	1,025	85.65	67.21	3,119	36
Keelrajakularaman	2,575	8,986	1,003	84.9	69.43	2,319	40
Kilanmarinadu	637	2,388	1,007	85.1	65.91	525	0
Kongalapuram	675	2,336	1,031	84.84	66.85	17	0
Kongankulam	285	1,156	927	83.67	71.58	467	0
Korukkampatti	521	1,935	941	76.26	52.56	1,307	0
Kulasekarapperi	914	3,394	1,077	74.6	58.47	341	0
Kuruchiyarpatti	205	741	1,053	87.26	71.84	115	0
Lakshmipuram	1,603	5,610	1,025	85.56	67.29	1,032	5
Melarajakularaman	5,238	16,652	984	89.31	71.03	2,978	96
Nadukkudi	1,348	4,797	1,013	82.27	65.81	2,439	0
Nathampatti	590	2,143	961	78.04*	57.81	328	0
Pandappuli	109	5,954	1,019	89	71.95	2,306	0
Paruvakkudi	919	3161	1583	71.81	81.61	1061	0
Perumalpatti	162	491	254	73.24	52.56	371	0
Pudupalaiyam	2241	7,922	3907	90.50	78.52	677	0
Puthur	2,306	8,230	977	87.16	69.4	1,794	137
Rajapalayam	756	2617	1336	78.63	60.73	1228	128
Ramalingapuram	501	1,487	1,103	75.56	85.50	570	0
Rengasamudram	119	388	1,021	50.52	43.37	14	0
Sholapuram	3,248	11,607	991	86.07	69.73	3,283	0
Tenkarai	272	918	1,023	89.63	76.19	296	0
Terkuvenganallur	1,678	5,745	1,051	84.06	66.39	3,576	0
Vadagarai	992	3,454	1,009	90.35	71.54	91	0

Varagunaramapuram	385	1,357	950	77.74	57	97	0
Vellakulam	1,152	3,946	1,074	85.39	69.07	553	0

3.9 TRAFFIC IMPACT ASSESSMENT

Traffic data collected continuously for 12 hours (6.00 AM to 6.00 PM) by visual observation and counting of vehicles under three categories, viz., heavy motor vehicles, light motor vehicles and two/three wheelers. As traffic densities on the roads are high, two skilled persons were deployed simultaneously at each station during each shift- one person on each of the two directions for counting the traffic. At the end of each hour, fresh counting and recording was undertaken. Total numbers of vehicles per hour under the three categories were determined.



Figure 3.14: Site Connectivity

Table 3-25: No. of Vehicles per Day

S. No	Vehicles Distribution	Number of Vehicles Distribution/Day	Passenger Car Unit (PCU)	Total Number of Vehicle in PCU
		Village Road	**-**	**Village Road**
1	Cars	102	1	102
2	Buses	68	3	204
3	Trucks	124	3	372
4	Two wheelers	508	0.5	254
5	Three wheelers	128	1.5	192
Total		**930**	**-**	**1124**

Table 3-26: Existing Traffic Scenario and LOS

Road	V (Volume in PCU/hr)	C (Capacity in PCU/hr)	V/C Ratio	LOS
Village Road (Existing)	930/12=77.5	900	0.1	**A**
Village Road (Proposed)	1124/12=91	900	0.11	**A**

Note: The existing and proposed level will be "Excellent" for the above mentioned Village road.

V/C	LOS	Performance
0.0-0.2	A	Excellent
0.2-0.4	B	Very Good
0.4-0.6	C	Good/ Average/ Fair
0.6-0.8	D	Poor
0.8-1.0	E	Very Poor

4 Anticipated Environmental Impacts & Mitigation Measures

This chapter describes the anticipated impacts on the environment and mitigation measures. The method of assessment of impacts including studies carried out, modeling techniques adopted to assess the impacts where pertinent should be elaborated in this chapter. It should give details of the impacts on the baseline parameters, both during the construction and operational phases and suggests the mitigation measures to be implemented by the proponent.

4.1 INTRODUCTION

An environmental impact is defined as any change to the environment, whether adverse or beneficial, resulting from a facility's activities, products, or services. The anticipation of the possible & potential Environmental impact due to the proposed project is a key step in EIA. Based on the impacts assessed, appropriate mitigation measures should be adopted to maintain the environment with less or no damage.

Environmental Impacts can be group into Primary impacts & Secondary Impacts

Primary Impacts: These impacts are directly attributed by the project

Secondary Impacts: These are those which are induced by primary impacts and include the associated investments and changed patterns of social and economic activities by the action.

Assessment of impacts is done for the following Environmental Parameters:

- Land Environment
- Water Environment
- Air Environment
- Noise Environment
- Biological Environment
- Socio Economic Environment

4.2 LAND ENVIRONMENT:

<table>
<tr><th>Aspect</th><th>Impact</th><th>Mitigation Measures</th></tr>
<tr>
<td>Mining of rough stone and Gravel</td>
<td>The proposed 2.12.50 Ha mine located in Gopalapuram Village having 872919 MT of Rough stone and 129988 MT of Gravel. The quarry operation is proposed to carry out with conventional open cast mechanized mining with 6.0-meter vertical bench and bench width of 5.0 meter. At the end of 5 years, mining lease area will be converted into ultimate pit.
<table>
<tr><th>Description End of the lease period</th><th>Length (Max) (m)</th><th>Width (Max) (m)</th><th>Depth (Max) (m)</th></tr>
<tr><td>A-A’ & B-B’</td><td>50.0</td><td>143.5</td><td>49.6</td></tr>
<tr><td>A-A’ & C-C’</td><td>88.5</td><td>132.5</td><td>49.6</td></tr>
</table>
The main impact of open cast mining on land-use is land degradation. The land is bound to be excavated for mining of Rough Stone Quarry.

Impact on soil of the study area will be minimal as there are no wastewater generated, heavy metal infusion, stack emissions.</td>
<td>The proposed project site is not prone to any kind of soil erosion (Source: Bhuvan).

In addition, garland drainage of 1m x 1m will be provided to avoid storm water run-off.

It is proposed to plant 1100 No’s of local tree species (Neem, Vilvam Vaagai, Pungam, Magizha maram, Eachai, etc.,) along the roads, outer periphery of the mining area which enhances the binding property of the soil.

It is proposed to improve the affected land wherever possible for better land use, so as to support vegetation and creation of water reservoir in the ultimate pit after quarrying.

The source of dust generation is majorly due to drilling, blasting, loading & unloading of the mined-out mineral, the</td>
</tr>
</table>

	Impact due to transformation of terrain characteristics over the large area results in soil degradation.	impact will be mitigated by water sprinkling regularly once in 3hrs. The proposed mining activity is carried out in plain terrain.
	Solid waste will be generated from the mining activity as there will be refuse also generation of domestic waste. If it is not properly managed, may cause odor and health problem to the workers.	After removal of minerals, undulating portion will be created. Excavated area or ultimate pit at the end of the mine period will be converted into water reservoir. Two tier tree belts will be planted along the safety distance. The 100% recovery is achieved by extracting the entire mineable reserve. Hence there will be no refuse generation due to the mining activity. Apart from that, a very meagre quantity of domestic waste will be generated in the project, which will be handed over to the local body on daily basis.

4.3 WATER ENVIRONMENT:

Aspect	Impact	Mitigation Measures
Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.	The mining in the area may cause ground water contamination due to intersection of the water table and mine runoff.	The water table will not be intersected during mining, as the ultimate depth is limited upto 49.6m (below ground level), whereas the ground water table is at 60m below the ground level. The municipal wastewater will be disposed into septic tanks of 5 cum and soak pit. No chemicals consisting of toxic elements will be used for carrying out mining activity.
	The ground water depletion may occur due to mining activity	The ground water table is at a depth of 60m BGL, the mining operation will not affect the aquifer. The ultimate pit at the end of the mining operation will be used for rainwater storage, the stored water will be used for green belt development and further the stored water will be used for domestic purposes (other than drinking) after proper treatment.
	Chemicals consisting of nitrate used for blasting may pollute the surface run off.	Further, the run-off water will be stored in sumps and after proper treatment; water will be

	Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labours.	used in the mining operation for dust suppression. Provision of urinals/Latrines along with septic tank followed by soak pit arrangement will be provided in the Mine Lease area for the proper management of wastewater

4.4 AIR ENVIRONMENT:

Aspect	Impact	Mitigation Measures
Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.	***Impacts during Operation Phase*** During mining operation, fugitive dust and other air pollutants like particulate matter (PM10 & PM 2.5) will be generated. The main source of pollutants arises due to drilling and blasting. 2 Nos of Tipper will be used for loading and unloading, 1 No of Hydraulic Excavator (0.90m^3) bucket capacity and 2 Nos Jack Hammer will be used for excavation of the mineral which	***Mitigation Measures during Operation Phase*** It is proposed to plant 1100 Nos of local species along the haul roads, outer periphery within the lease area to prevent the impact of dust in consultation with Forest department for the plantation of trees (Neem, Magizham, Tamarind, Elandhai and Vilvam) in two tier to combat air pollution and with herbs (Nerium) in between the tree species. Planning transportation routes of the mined-out

	contributes to the generation of fugitive dust. In addition, blasting will be done using explosives leading to the generation of dust. *Effect on Human* • Adverse effect on human health of working labourers and neighbouring villagers like effect on breathing and respiratory system, damage to lung tissue, influenza or asthma. • Dust generation due to loading and unloading of mineral and due to transportation can also affect the workers as well as nearby villagers. *Effect on Plants* • Stomatal index may be minimized due to dust	mineral, so as to reach the nearest paved roads (an approach road) by shortest route connecting to Gopalapuram and Mettuvadakarai village road. Alternatively, gravelled road may be constructed between mine lease area and nearest paved road connectivity. The speed of trucks plying on the haul road will be limited to 20km/hr to avoid generation of dust. The trucks will be covered by tarpaulin. Overloading will be avoided. Personal Protective Equipments (PPEs) like eye goggles, dust mask, leather gloves, safety shoes & boots will be provided to the workers engaged at dust generation points like excavation and loading points. 2.0 KLD of water will be proposed for sprinkling on unpaved roads to avoid dust generation during transportation.

	deposit on leaf.	

Air Quality Modeling:

The AERMOD is actually a modeling system with three separate components:

- AERMOD (AERMIC Dispersion Model),
- AERMAP (AERMOD Terrain Preprocessor)
- AERMET (AERMOD Meteorological Preprocessor)

4.4.1 *Source Characterization*

A detailed listing of all emission sources and their corresponding modelling input release parameters and emission rates is listed in this report. A general description of how each source type was treated is presented below.

The emission Sources from the proposed operation are

Point Sources:

Point sources for mining operations typically include dust collectors, hot water heaters, and emergency generator(s). Since the present project the following sources are anticipated.

1. Hydraulic excavator – 0.90 Cum Bucket Capacity (with Rock Breaker Attachment)
2. Jack Hammer 32 mm Dia
3. Tipper
4. Tractor Mounted - Compressor
5. Drilling and excavation with Accessories

Road Sources:

A road network was developed to depict the anticipated haul truck routes and truck discharge locations during the mine operations. The anticipated emissions from the road sources and corresponding anticipated impact during the monitoring period of May 2026 to July

2026 emissions were estimated. Emissions due to haul road and general plant traffic on the unpaved road network were modelled as volume sources. The model volume source parameter for the haul roads initially utilized USEPA developed emission factors for hauling trucking. The haul road sources utilized source to source spacing 6 meters along the simulated haul roads. The initial lateral dimensions of the sources were set to 3 m and were used as an input to replicate a 2-truck travel adjacent for a typical mining scenario.
The parameters considered for the hauling operation include the following,

- size of haul trucks commonly used
- degree of dust control/compaction of permanent haul roads

Other fugitive particulate emission sources:

Other fugitive particulate emission sources that were modelled as volume sources include the following:

- Fugitive emissions from trucks unloading at the primary crusher were represented by a single volume source. The release height was set to 0 meters (dump pocket is at grade level).
- Fugitive emissions due to wind erosion is not considered as the mining area is predominately rocky surface with minimal wind erosion. If an wind erosion is anticipated to occur, it would be localized.
- Fugitive emissions from transfer points were represented by single volume sources. The release heights for these sources were set to the actual height of the truck transfer process.

Post Project Scenario

Emissions from operations will result from process equipment and mining operations. Process equipment was modeled at maximum capacity. Emissions from mining were based upon the mining rate and haul truck travel necessary to transport the stones and waste from the pit to the storage area.

Predicted maximum ground level concentrations considering micro meteorological data of June to August 2022 are superimposed on the maximum baseline concentrations obtained during the study period to estimate the post project scenario, which would prevail at the post operational phase. The overall scenario with predicted concentrations over the maximum baseline concentrations is shown in the following table along with isopleths.

Table 4-1 Emission Factors for uncontrolled mining

Activity	Emission Factor		References	
Topsoil handling	Scraper	0.029 Kg TSPM/ average time between spray application	**USEPA (2008)**	Jose I. Huertas & Dumar A. Camacho & Maria E. Huertas, Standardized emissions inventory methodology for open-pit mining areas, Environmental Science Pollution Research, 2012.
	Bulldozing	15.048 kg PM10/ Hr excavation	**USEPA (2008)**	
	Loading	2.3237E-04 kg PM10/ average time between spray application	**USEPA (2006a)**	
	Haulage	0.69718 kg PM10/VKT	**USEPA (2006a) Cowherd (1988)**	
Rough stone mining	Wet drilling	8.00E-5 lbs PM10/ Ton produce	**EPA. August, 2004. Section 11.19.2, Crushed Stone Processing and Pulverized Mineral Processing. In: Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Fifth Edition, AP-42. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. Research Triangle Park, North Carolina.**	
	Loading	1.00E-4 lbs PM10/ Ton produce		

4.5 NOISE ENVIRONMENT:

Aspect	Impact	Mitigation Measures
Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.	Usage of Equipments (Excavator, Tipper, Jack Hammer), Machinery and trucks used for transportation will generate noise. Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc due to prolonged exposure. Number of vehicles will be increased due to the proposed mining activity hence vehicle may collate which may result in unwanted sound and can also cause impact on human health like breathing and respiratory system, damage to lung tissue, influenza or asthma.	• The machinery will be maintained in good running condition so that noise will be reduced to minimum possible level. • Awareness will be imparted to the workers once in six months about the permissible noise level and effect of maximum exposure to those levels. Adequate silencers will be provided in all the diesel engines of vehicles. • It will be ensured that all transportation vehicles carry a valid PUC Certificates. • Speed of trucks entering or leaving the mine will be limited to moderate speed (20km/hr) to prevent undue noise from empty vehicles. The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipments.

		• It is proposed to plant 1100 Nos. of local species (Neem, Mandharai, Athi, Tamarind, Ashoka, Casuarinas and Villam) to reduce the impact of noise in the study area. The development of green belts around the periphery of the mine will be implemented to attenuate noise. • The trucks will be diverted on two roads viz. Gopalapuram & Mettuvadakarai village road and a District Road to avoid traffic congestion. • Health check-up camps will be organized once in six months. • Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas. • Provision of quiet areas, where employees can get relief from workplace noise.

4.6 BIOLOGICAL ENVIRONMENT:

Aspect	Impacts	Mitigation Measures
Site Clearance	Loss of habitat due to site clearance which may lead to ecological disturbance.	The proposed mining lease is already dry land hence no site clearance is required. Only few shrubs and herbs like parthenium sp., prosopis juliflora were present.
Planting of trees	Development of afforestation in the mine lease area will have a positive impact as the land was initially a barren.	Safety distances will be provided all along the boundary of the mine lease area and safety. Around 0.50.30 Ha of land is utilized for greenbelt development (1100 Nos – 5 years). This will attract avifauna thus enhancing the existing ecological environment.

4.7 SOCIO ECONOMIC ENVIRONMENT:

Aspect	Impact	Mitigation Measures
Proposed implementation of Mining activity	Land acquisition for the implementation of the project may result in loss of assets, which in return will make the PAP to shift, losing their normal routine and livelihood	The proposed project is a patta land of **Thiru.A.Seethakumar** and the land is vacant where there are no human settlement within 300m radius. Hence the project does not involve Rehabilitation and resettlement

Drilling, Blasting, Loading and Transportation of the mined-out mineral	The mining activities may cause dust emission, noise pollution thereby causing disturbance to the local habitat	No human activity is envisaged near the project site. The nearest human settlement is observed in Gopalapuram village, which is 0.40 km, N from site
Grazing and Rearing activities in the nearby villages	The Grazing and rearing of local animals like Sheep, Goat and cows is observed in the nearby villages, which may be affected due to the project as the movement of the vehicles may affect/injure the animals	It is proposed to use gravelled road and nearest paved road and preferred not to use unpaved roads. In addition to that, the speed of trucks will be limited to 20km/hr to avoid any accidents.
Employment opportunity	The project will improve the livelihood of the local people	After the development of the proposed mine, it will improve the livelihood of local people and also provide the direct and indirect employment opportunities. The rough stone for the infrastructural development in the area will be made available from the local markets at reasonably lower price.
Corporate Environmental Responsibility	The proposed project will help in natural resource augmentation & Community resource development.	We have provided the CER activity at a total cost of Rs. 5,00,000/- (Rupees Five Lakhs only) by completing the work of laying paver block pavements within the premises of Panchayat Union Middle School, Gopalapuram, Virudhunagar District – 626136, in accordance with the commitment made in the existing Environmental Clearance.

4.8 OTHER IMPACTS:

S. No	Aspect	Impact	Mitigation measure
1.	Risk due to the proposed mining	Accidents may occur in the mine area	Proper PPE kit (Safety jacket, Helmet, Safety Shoes, Gloves) etc will be provided to each and every employee in the mine lease concerning the safety of each labour
2.	Blasting	Injury to the labours due to the blasting activity	Alarm system in the form of Siren will be engaged in the project site to caution the blasting activity. In addition to that, the blasting activity will be scheduled at time – 12.00-2.00 PM / 4.30-5.30 PM (or whenever required) so that the employees will be aware of the activity. Smoking will be banned in the site, and sign boards will be displayed in various places at site.
3.	Screening of Labors	Labors will be checked for health condition before employing them in mining activity	All the labours will be checked and screened for health before employing them. After employing them, periodical medical checkups will be held once in every six months.

5 Analysis Of Alternatives

5.1 GENERAL

An analysis of alternatives is a significant aspect in planning and designing any project. Cost benefit analysis should be worked out along with other parameters while choosing an alternative in such a way that the production is maximum and the mining operation is environmentally friendly and cost effective. The mine plan and mine closure plan Mining Plan was approved by The Assistant Director, Geology & Mining, Virudhunagar District prior to submission of the Form-1 and PFR. ToR issued by the SEIAA-TN vide File No.13716 dated: 25.06.2026 & ToR Identification number is TO26B0108TN5856033N. The study for alternative analysis involves in-depth examination of site and technology.

5.1.1 *Analysis for Alternative Sites and Mining Technology*

5.1.1.1 Alternative Site

The proposed project is the mining of Rough Stone Quarry and is proposed after prospecting the area. In other words, these can be implemented in the mineral available zone. Since the mining block has been allotted in principal by the State Government, there is no case for studying and exploring any other site as an alternative.

5.1.1.2 Alternative Technology

The open cast mining could be manual/mechanized depending upon the geological and topographical setup of the mineral (ROM) to be won and the daily/annual targeted production.

Table 5-1: Alternative for Technology and other Parameters

S.No	Particular	Alternative option 1	Alternative option 2	Remarks
1.	Technology	Opencast semi mechanized mining	Opencast mechanized mining	Opencast semi mechanized Involving drilling and blasting are preferred. Benefits: Material is hard so to make it loose and to bring it to appropriate size.
2.	Employment	Local employment.	Outsource employment	Local employment is preferred Benefits: Provides employment to local people along with financial benefits No residential building/ housing is required.
3.	Labour transportation	Public transport	Private transport	Local labours will be deployed from Gopalapuram village so they will either reach mine site by bicycle or by foot. Benefits: Cost of transportation of labors will be negligible
4.	Material transportation	Public transport	Private transport	Material will be transported through trucks/trolleys on the contract basis Benefits: It will give indirect employment.
5.	Water	Tanker supplier	Ground water/	Tanker supply will be preferred. Water will be sourced from Gopalapuram village which is 0.40 km, N from site.

6 Environmental Monitoring Program

6.1 GENERAL:

This chapter covers the planned environmental monitoring program. It also includes the technical aspects of monitoring the effectiveness of mitigation measures.

Monitoring is important to measure the efficiency of control measures. Post project monitoring of environmental parameters is of key importance to assess the status of environment. The monitoring program will serve as an indicator for identifying environmental degradation due to operation of the project and help in selecting appropriate mitigation measures to safeguard the environment.

Regular monitoring is as important as control of pollution since the efficacy of control measures can only be determined by monitoring. The project proponent has awarded **M/s. Ecotech Labs Pvt Ltd** for carrying out the post project environmental monitoring (PPM) and timely compliance report submission to various regulatory authorities.

Therefore, regular monitoring programme of the environmental parameters is essential to take into account the changes in the environmental quality. The objectives of monitoring are to: -

- Verify effectiveness of planning decisions;
- Measure effectiveness of operational procedures;
- Confirm statutory and corporate compliance; and
- Identify unexpected changes.

Table 6-1: Environmental Monitoring Programme

Parameters	Sampling	Frequency	Location
Air environment – Pollutants PM 10 PM 2.5 SO_2	7 locations	24 hourly twice a week 4 hourly. Twice a week, One non monsoon season	Project site. New cannan assembly Church Thalakkudaiya Ayyanar Temple, Lakshmipuram Vadakkathi Amman Temple, Devarayanpatti

NO_x		8 hourly, twice a week 24 hourly, twice a week	Tamil Nadu Electricity Board, Kalingappatti, Tirunelveli Sri Ramalinga Sowdambikai Amman Temple Valavaitha Amman Temple
Noise	7 locations	24 hourly Once in 7 locations	Project site. New cannan assembly Church Thalakkudaiya Ayyanar Temple, Lakshmipuram Vadakkathi Amman Temple, Devarayanpatti Tamil Nadu Electricity Board, Kalingappatti, Tirunelveli Sri Ramalinga Sowdambikai Amman Temple Valavaitha Amman Temple
Water (Ground water) • pH • Temperature • Turbidity • Magnesium Hardness • Total Alkalinity • Chloride • Sulphate • Fluoride • Nitrate • Sodium • Potassium • Salinity • Total nitrogen • Total Coliforms • Fecal Coliforms	7 locations	Once in 7 locations	Project site. New cannan assembly Church Thalakkudaiya Ayyanar Temple, Lakshmipuram Vadakkathi Amman Temple, Devarayanpatti Tamil Nadu Electricity Board, Kalingappatti, Tirunelveli Sri Ramalinga Sowdambikai Amman Temple Valavaitha Amman Temple

Water (surface water) • pH • Temperature • Turbidity • Magnesium Hardness • Total Alkalinity • Chloride • Sulphate • Fluoride • Nitrate • Sodium • Potassium • Salinity • Total nitrogen • Total Coliforms • Fecal Coliforms	Sample from nearby lakes/river	One time Sampling	Vadakarai Periyakulam Kanmoi Periyakulam Keelarajakularaman
Soil (Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	7 locations	Once in 7 locations	Project site. New cannan assembly Church Thalakkudaiya Ayyanar Temple, Lakshmipuram Vadakkathi Amman Temple, Devarayanpatti Tamil Nadu Electricity Board, Kalingappatti, Tirunelveli Sri Ramalinga Sowdambikai Amman Temple Valavaitha Amman Temple
Ecology and biodiversity Study	Study area covering 7 km radius	One time Sampling	

Socio- Economic study (Population, Literacy Level, employment, Infrastructure like school, hospitals & commercial establishments)	Villages around 10 km radius	One time Sampling	

Table 6-2: Monitoring Schedule during Mining

S. No.	Attributes	Parameters	Frequency	Location
1.	Ambient Air Quality at Mine Site & Fugitive Dust Sampling	PM 10 PM 2.5 SO_2 NO_X	Once in a Month	Project Site
2.	Ground water Quality	Drinking Water Parameters, As per IS - 10500: 2012	Half yearly	Project Site
3.	Surface Water Quality	Class will be assessed as per the CPCB Guidelines	Half yearly	Project Site
4.	Soil Quality	(Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	Half yearly	Project Site
5.	Noise Level Monitoring	Noise level in dB(A) Quaterly/half yearly	Half yearly	Project Site

7 Additional Studies

7.1 GENERAL

This chapter covers the details of the additional studies viz. Risk assessment, Disaster Management, Public Hearing, Rehabilitation and Resettlement.

7.1.1 *Public Hearing:*

As the proposed mining project falls under 1(a), Category B1 – Cluster Mining (includes

Existing Quarries- M/s.Lakshmi Blue Metals – 4.85.0 Ha.

Abandoned /Old Quarries – Thiru.V.Rajmohan – 1.14.5 Ha & Thiru.Mayilsamy

Proposed Quarries – Thiru.A.Seethakumar – 2.12.50 Ha

Hence under 7(III) of EIA notification 2006 and its subsequent amendments, the project involves Public Consultation and the same will be conducted under SPCB (TN) in Virudhunagar District. The proceedings of the same will be incorporated in the Final EIA Report.

7.1.2 *Risk assessment:*

For mining projects to be successful, it should meet not only the production requirements but also maintain the highest safety standards for all the workers. The industry has to identify the hazards, assess the associated risks and bring the risks to tolerable level regularly. Mining has considerable safety risk to miners. Unsafe conditions and practices in mines lead to a number of accidents and causes loss and injury to human lives, damages the property, interrupt production etc. Risk assessment is a systematic method of identifying and analyzing the hazards associated with an activity and establishing a level of risk. The hazards cannot be completely eliminated, and thus there is a need to define and estimate an accident risk level possible to be presented either in quantitative or qualitative way.

7.1.3 *Identification of Hazard*

7.1.3.1 Blasting Pattern:

The quarrying operation will be carried out in conjunction with conventional method of mining using Jack hammer drilling and blasting for shattering effect and loosen the Rough stone.

7.1.3.2 Drilling and Blasting:

Drilling and Blasting parameters are as follows:

Diameter of the hole	:	32-36 mm
Spacing	:	0.5m
Depth	:	1.2m to 1.5m
Burden per hole	:	0.5m
Pattern of hole	:	Zig Zag Staggered in 2 to 3 rows
Inclination of holes	:	80^0 from the horizontal.
Use of delay detonators	:	25 milli-second delays
Detonating fuse	:	NONEL "Detonating" Cord

a. Types of explosives to be used:

Slurry Class 3 explosives, type of nitro compound, are proposed to be used for shattering and heaving effects for removal and winning of Rough Stone. No deep hole drilling or Primary blasting is proposed. Detonators of Class 3 and Safety fuse of Class 6 are used.

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

The quarry is situated more than 1.0 km from the nearby villages. Controlled blasting measures will be adopted for minimizing ground vibration and fly of rock. Shallow depths jackhammer drilling & blasting is proposed to be carried out with minimum use of explosive mainly to give the shattering effect in rough stone for easy excavation and to control fly of rocks.

Diameter of Holes	=	30-32mm
Depth	=	1.2 to 1.5 m

Storage and safety measures to be taken while blasting: The proponent will engage an authorized explosive agency to carry out the small amount of blasting, and it will be supervised by competent and statutory Foreman/Permit Mines Manager.

Heavy Machineries: The following heavy machinery will be used in the proposed area:

- For Mining – Excavator of 0.90 Cum Bucket capacity, Jack Hammers (30-32 mm Dia) of 2 Nos.
- Loading Equipment – Excavator of 0.9 Cum Bucket Capacity 1 No.
- Transportation (includes within the mine and mine to destination) – Tipper 2 Nos of 10 M.T capacity (from quarry to needy peoples and local crushers)

a. Risk:

Most of the accidents during transport of mined out mineral using other heavy vehicles are often attributed to mechanical failures and human errors.

b. Mitigation measures to minimize the risk

- At the time of loading no person will be allowed within the swing radius of the excavation.
- The dumpers/ trucks will stand near the loading equipment and fully braked when the muck is filled in it.
- The truck would be brought to a lower level so that the loading operation suits to the ergonomic condition of the workers.
- The workers will be provided with helmets, gloves and safety boots; loading and unloading operations will be carried out only during daylight
- All the mining machineries will be regularly maintained and checked such as brakes, lights and horns to keep in the efficient working order.

7.1.4 *General Precautionary measures for the Risk involved in the proposed mine:*

- In order to take care of above hazard/disaster, the following control measures will be adopted:
- All safety precautions and provisions of Mine Act,1952, Metalliferous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations;
- Entry of unauthorized persons will be prohibited;
- Firefighting and first-aid provisions in the ECC and mining area;
- Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the workers (18 Nos.) and regular inspection for their use;
- In case of eventuality, first aid will be given by the senior safety office in the mine area initially to the injured person. The safety officer will give notice of accident as per Rule-23 of Mines Act-1952;
- The safety officer (common for 3 mines within 500m radius) will be responsible for coordination between management district authorities/DGMS etc. Regarding general safety as per Rule-181 of MMR 1961, "No person shall negligently or will fully do anything likely to endanger life or limb in the mine, or negligible or will fully omit to do anything necessary for the safety of the mine or of the persons employed there in". The workers will be provided with protective foot wear and safety helmets;
- Cleaning of mine faces will be regularly done;
- Handling of explosives, charging and blasting will be carried out by highly skilled labors only;
- Regular maintenance and testing of all mining equipment as per manufacturer's guidelines;
- Suppression of dust by sprinkling water on the haulage roads;

7.1.5 *Safety Team:*

The effective implementation of compliance of Safety Rules/ Statutory Provisions will be ensured. The safety officer will be engaged, meeting the requirement of Mines Act and their duties and responsibilities. The safety officer will be responsible for identification of the hazardous conditions and unsafe acts of workers and advice on corrective actions, conduct safety audit, organize training programs and provide professional expert advice on various issues related to occupational safety and health. Organizing safety training will be conducted to employees and contractor labors periodically.

7.1.6 *Emergency Control Centre*

The emergency control center will be provided to handle the emergency. The site main controller, key personnel and the senior officers of the fire and police services will attend it. The center will be equipped to receive and transmit information and directions from and to the incident controller and other areas of the works, as well as outside. The emergency control center will be sited in an area of minimum risk. This common Emergency control centre will be used for the mines around the 500m radius

7.2 DISASTER MANAGEMENT

The possible risks in the case of stone along with associated minor minerals mining projects are fly rock, vibration failure of pit, slope and waste dump, accidents due to transportation. Mining and allied activities are associated with several potential hazards to both the employees and the public at large. Safety of the mine and the employees is taken care of by the mining rules & regulations, which are well defined with laid down procedure for safety, which when scrupulously followed, safety is ensured not only to manpower but also to machines & working environment.

7.2.1 Emergency Management Plan For Proposed Mines On Site- Offsite Emergency Preparedness Plan:

The emergency plan delineates the procedures for dealing with accidents or unexpected events and natural calamities arising from mining activity. An experience of any accidents that have occurred in other manufacturing/mining projects is considered to prepare this plan. This Emergency plan should be periodically reviewed and modified. It should also be changed based on the observations of emergency mock drills and experience of handling actual emergencies.

Major objectives of this onsite – offsite emergency plan are:

- To take necessary proactive and preventive actions to avoid emergencies.

The main aim of any emergency plan should be to prevent emergency situations.

To train the manpower to handle the emergencies of the following nature:

• Onsite (Within ML boundary)

• Offsite (Outside ML boundary)

7.2.1 *Onsite off-site emergency Plan:*

1- Emergency on account of:

- Fire
- Explosion
- Major accidents involving man-made collapse of the mining edges.
- Snake bites, attack by honeybees or attack by wild animals.

2- Disaster due to natural calamities like:

- Flood/ heavy rains which can involve natural landslides.
- Earth quake
- Cyclone
- Lightening

7.2.2 *Emergency Plan:*

- The mining operations should be immediately stopped in case of any emergency. A siren will be sounded during emergency time.
- An emergency assembly point will be created and all the workers will guide visitors or contractors to approach assembly point.
- Emergency vehicle (Ambulance) will be available in the nearby place, in proximity to the three mines and will rush to the emergency control centre at the blowing of emergency siren. The driver of emergency vehicle will follow the instructions of Incident Controller/Site Main Controller.
- Workers will be trained for the precautions to be taken during natural disasters like heavy rain, floods, earthquake and cyclone.
- All escape routes from mines to the assembly point or any other safe location will be made and the escape plan will be displayed in many places in the mine area

7.2.3 *Emergency Control:*

- Shut down of mining operations: Raising the alarm or siren followed by immediate safe shut down of the power supply, and isolation of affected areas.

- Treatment of injured: First aid and hospitalization of injured persons
- Protection of environment and property: During mitigation, efforts will be made to prevent impacts on environment and property to the extent possible.
- Preserving all evidences and records: This will be done to enable a thorough investigation of the true causes of the emergency.
- Ensuring safety of personnel prior to restarting of operations: Efforts required will be made to ensure that work environment is safe prior to restarting the work.

7.3 NATURAL RESOURCE CONSERVATION

There are no natural resources within the premises. The conservation strategies for energy will be followed in the proposed mine lease area. The pollutants of the mine will be minimized by adopting appropriate mitigation measures as mentioned in Chapter 5 to prevent the effects on nearest water bodies. No surface runoff from the project site will be let into the nearest water bodies.

7.4 RESETTLEMENT AND REHABILITATION:

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

8 Project Benefits

8.1 GENERAL

This chapter covers the benefits accruing to the locality, neighborhood, region and nation as a whole. It brings out the details of benefits by way of improvements in the physical infrastructure, social infrastructure, employment potential and other tangible benefits.

8.1.1 *Physical Benefits*

The opening of the proposed project will enhance the following physical infrastructure facilities in the adjoining areas:

Market: Generating useful economic resources for construction. Due to the demand supply chain, excavated mineral (Rough stone) will be sold in the market in the affordable price.

Infrastructure: The excavated rough stone will be used for ***Laying Roads, Building & Construction Projects, Bridges*.**

Enhancement of Green Cover & Green Belt Development: As a part of reclamation plan, native tree species will be planted along the safety boundary of the mine lease area. A suitable combination of trees that can grow fast and also have good leaf cover will be adopted to develop the green belt. It is proposed to plant 1100 native species along with some fruit bearing and medicinal trees during the mining plan period.

8.2 SOCIAL BENEFITS

The mining in the area will create rural employment. During site visit, it has been observed that the economic conditions of the villages in the study area is quite normal. After the development of the proposed mine, it will improve the livelihood of local people and also provide the indirect employment opportunities. The rough stone for the infrastructural development in the area will be made available from the local markets at reasonably lower price.

As a part of CER, i.e., 5 Lakhs has been spent as per earlier Ec. We have provided the CER activity at a total cost of Rs. 5,00,000/- (Rupees Five Lakhs only) by completing the work of laying paver block pavements within the premises of Panchayat Union Middle School, Gopalapuram, Virudhunagar District – 626136, in accordance with the commitment made in the existing Environmental Clearance.

8.3 PROJECT COST / INVESTMENT DETAILS

Project Cost

a. Investment Cost

S. No	DETAILS	COST in Rs. /-
i)	Lease rent / Land Cost	6,50,000
ii)	Machinery to be used	Hired machinery
iii)	Fencing	1,50,000
iv)	Labourers Shed	50,000
v)	Sanitary facility	25,000
vi)	Other Items	25,000
TOTAL		**8,00,000**

b. Expenditure/ Production Cost. (1Unit= 2.83m³)

Drilling and Blasting cost/ MT production including loading and breaking =Rs.20/-

i. Mining cost fir rough stone upto 7.5 years planned production quantity

Total Mineable Quantity in MT - 872919 MT

Total Cost of Mining Rough stone - 872919 x 20/-

= **Rs.1,74,58,380/-**

ii. Mining Cost for gravel planned production quantity

Total Mineable quantity in MT - 129988 MT

Total cost of Mining – Gravel = 129988 x Rs.10/-

= **Rs.12,99,880/-**

Total cost for Mining - Rs.1,87,58,260/-

Say - **Rs.1,87,58,000/-**

Total Project Cost (a+b) = Rs.1,95,58,000/-

Environmental Management Plan Cost:

	Mitigation Measure	**Provision for Implementation**	**Capital**	**Recurring**
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	21250	21250
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	200000	50000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sandbags / steel mesh / old tyres / used conveyor belts	0	5000
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance	100000	10000
	No overloading of trucks/ tippers/ tractors	Manual Monitoring through Security guard	0	1968035
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed	10000	1000
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5000

	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	42500
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0

	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Competent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced controlling Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	865875
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	25000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Mine Closure	1. Progressive Closure Activity - Surface Runoff Management	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	21250	5000
	2. Progressive Closure Activity Barbed Wire Fencing to quarry area will be Provisioned	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	425000	10000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - (200 Inside Lease Area & 300 Outside Lease Area)	Site clearance, preparation of land, digging of pits/ trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	85000	12750

	(Total of 1062 Trees to be planted in Inside lease area – 425 Trees and Outside Lease Area – 637 Trees)	Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	191250	19125
	4. Implementation of Final Mine Closure Activity as per Approved Mining Plan on Last Year.	For Final Closure activities 15% of the proposed closure cost will be spent during final mine closure stage - Last year	115406	0
	5. Contribution towards Green Fund. As per TNMMCR 1959, Rule 35 A.	The Contribution towards Green Funds @ 10% of Seigniorage fee are indicated as part of EMP Budget and not necessarily implemented in the Project Site	3220791	0
	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	10000	1000
	Air, Water, Noise and Soil Quality sampling every 6 Months for Compliance Report of EC Conditions	Submission of 2 Half Yearly Compliance - Lab Monitoring Report as per CPCB norms	0	50000
	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee)	72000	18000
	Health check-up for workers will be provisioned	IME & PME Health check-up @ Rs. 1000/- per employee	0	18000

Implementation of EC, Mining Plan & DGMS Condition	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	4250
	Slope Stability Action Plan	Slope Stability action plan in the end of fourth year plan period	200000	0
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000
	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	106250	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000
	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1st Class / 2nd Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR,1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0	780000
Total (Rs)			**1612000**	**3958434**
Grand Total (Rs)			**5570434**	

Year	**Cost (@ 5% per year inflation adjustment) in Rs.**
3rd Year Remaining 6 Months	2784957
4th Year	5570434
5th Year	4156356

6th Year	4364173
7th Year	4582382
8th Year	4811501
9th Year	5052076
10th Year	5304680
Total EMP	**3,66,26,560**

TOTAL PROJECT COST: Rs. 1,95,58,000/- (One Crore Ninety-Five Lakhs and Fifty-Eight Thousand Rupees Only).

Total Environmental Management Plan Cost: Rs. 3,66,26,560/- (Three Crore Sixty-Six Lakhs Twenty-Six Thousand and Five Hundred and Sixty rupees only).

9 Environmental Management Plan

9.1 INTRODUCTION

This chapter comprehensively presents the Environmental Management Plan (EMP), which includes the administrative and technical setup, summary matrix of EMP, and the cost involved to implement the EMP, during various Mining activities and provisions made towards the same in the cost estimates of project. This chapter describes the proposed monitoring scheme as well as inter-organizational arrangements for effective implementation of the mitigation measures.

9.2 SUBSIDENCE

Mining will be carried out by opencast mechanized mining method with drilling & blasting as per mining plan approved by Department of Mining and Geology, Virudhunagar. Subsidence/slope failures are not envisaged because there are no loose strata overlying the deposit (mineral to be excavated). The bench height will be 5m. The individual bench slope has been proposed to be kept at 60^0 from horizontal. Moreover, all safety standards/ safeguards will be implemented as per guidelines prescribed by Director General of Mines Safety.

9.3 MINE DRAINAGE

9.3.1 *Storm water Management*

The following measures will be taken with respect to the prevailing site conditions.

- Storm water drains with silt traps of size 1m x 1m will be suitably constructed all along the periphery of the pit area to collect the run-off from the mine area and divert into the pit.
- All measures will be taken not to disturb the existing drainage pattern adjacent to the mine lease area.
- The storm water collected from the mine area will be utilized for dust suppression on haul roads, plantation within the premises, etc.,

9.3.2 *Drainage*

Local workers will be deployed for the project. But, urinals and Latrines will be provided and the same will be connected to septic tank followed by soak pit arrangement. No domestic waste will be deposited into the nearby area. Regular checking will be carried out to find any

blockage due to silting or accumulation of loose materials. The drains will also be checked for any damage in lining / stone pitching, etc.

9.3.3 *Administrative and Technical Setup*

The Environment Management Plan (EMP) will consist of all mitigation measures for each component of the environment due to the activities increased during mining operation to minimize adverse environmental impacts resulting from the activities of the project.

To carry out the above activities, Thiru.A.Seethakumar will work in association with M/s.Ecotech Labs Pvt Ltd.

Table 9-1: Impacts and mitigation measures

S. No	Impacts on Environment	Activity /Aspect	Anticipated impacts	Mitigation measures
1.	Air	Fugitive Emission	During mining operation, fugitive dust and other air pollutants like particulate matter (PM10 & PM 2.5) will be generated.	Planting of trees along the safety distance of the Mine Lease Area Water will be sprinkled in the site as dust suppression measure.
2.	Water	Wastewater Generation	Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labors	Provision of urinals/Latrines along with septic tank followed by soak pit arrangement will be provided in the Mine Lease area for the proper management of wastewater.
3.	Noise	Mining activities like drilling, blasting, loading and transportation	Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc due to prolonged exposure. Apart from Mining activities like drilling, blasting may generate noise	Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas.
4.	Land	Improper management of Storm water Runoff	Storm water Runoff may result in Soil Erosion	Garland drainage of 1m x 1m will be provided to avoid storm water run- off.

5.	Social Responsibility	Mining workers	Unhygienic site sanitation facilities may cause health damage to workers.	The objective is to ensure health and safety of the workers with effective provisions for the basic facilities of sanitation, drinking water, safety of equipments or machinery etc. The following will be done in the site ✓ By complying with the safety procedures, norms and guidelines (as applicable) as outlined in the National Building Code of India, Bureau of Indian Standards. ✓ Provide adequate number of decentralized latrines and urinals ✓ Providing Septic tank along with Soak pit arrangement ✓ Providing First Aid room, conducting frequent health checkups to labor and conducting free medical camps ✓ Providing safety helmet, Gloves, Jacket & Boots

				✓ Providing measures to prevent fires. Fire fighting extinguishers and buckets of sand will be provided in the construction site
6.	Building materials resource conservation	Building Material consumption	Use of farfetched construction materials than the locally available construction materials may lead to over exploitation of natural resources & increase in carbon footprint.	• Use of locally available construction materials.

10 Summary & Conclusion

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

10.1 INTRODUCTION

Thiru.A.Seethakumar site is a cluster of four mining projects. Total cluster area is 6.97.50 Ha. The individual mine lease area is 2.12.50 Ha of Rough Stone and Gravel Quarry located at S.F.Nos. 532/2C and 533/1, 2, 3 & 4 of Gopalapuram Village, Vembakottai Taluk and Virudhunagar District, Tamil Nadu.

10.2 PROJECT OVERVIEW

Table 10-1: Project Overview

S. No.	Description	Details
1	Project Name	Thiru. A.Seethakumar Rough Stone and Gravel Quarry
2	Proponent	Thiru.A.Seethakumar
3	Mining Lease Area Extent	2.12.50 Ha
4	Location	SF. Nos: 532/2C and 533/1,2,3 & 4 in Gopalapuram Village, Vembakottai Taluk, Virudhunagar District.
5	Latitude	09°21'12.90" N to 09°21'18.70" N
6	Longitude	77°37'14.60" E to 77°37'20.50" E
7	Topography	Plain terrain
8	Site Elevation above MSL	The altitude of the lease area is 120m above MSL.
9	Topo sheet No.	58 G/11
10	Minerals of Mine	Rough Stone and Gravel Quarry
11	Proposed production	8,72,919 MT of Rough stone and Gravel 1,29,988 MT
12	Ultimate depth of Mining	49.6m below ground level
13	Method of Mining	Open cast mechanized mining

14	Water demand	4.0 KLD
15	Source of water	Water will be supplied through tankers supply
16	Manpower	18 Nos.
17	Mining Plan Approval	Mining Plan was approved by The Assistant Director, Dept. of Geology & Mining, Virudhunagar vide Roc.No.KV1/638/2020, Dated: 07.10.2025.
18	Precise area communication let	Precise area communication letter received from The Assistant Director, District Collectorate Office, Dept. of Geology & Mining, Virudhunagar vide Na.Ka.En.KV1/638/2020 Kanimam Dt: 02.02.2021.
19	Production details	Geological reserves: 28,22,787 MT of Rough stone and 1,62,100 MT of Gravel. Proposed year wise reserves: Rough stone 8,72,919 Metric Tons of Rough Stone and 1,29,988 Metric Tons of Gravel for the period of 7 Years and 6 Months.
20	Boundary Fencing	7.5 m barrier all along the boundary for adjacent patta lands and 10 m safety distance for Govt. Lands. Fencing will be provided.
21	Disposal of overburden	The overburden is in the form of gravel formation. It will be quarried for filling purposes to nearby end users and part of soil will be preserved all along the boundary as barrier for afforestation. This will be done only after obtaining permission and paying necessary seigniorage fees to the Government.
22	Ground water	Depth of water table (based on nearby wells and water bodies) The water table is below 60 mts from below ground level in this area. The quarry operation is proposed up to a depth of 49.6 mts below the ground level.

23	Habitations within 300m radius of the Project Site	There is no Habitation within 300m radius of the project site.
24	Drinking water	Water will be supplied through tankers from Gopalapuram village which is about 0.40 km, N from the project site

10.3 JUSTIFICATION OF THE PROPOSED PROJECT

The said project plays a significant role in the domestic as well as infrastructural market. To achieve a huge infrastructure being envisaged by Government of India, particularly in road and housing sector, there is a need for basic building materials. The rough stone form the primary building material.

Rough stone is one of the most valuable natural building materials. Aggregates are mostly used for building roads and footpaths Aggregates – stone used for its strong physical properties – crushed and sorted into various sizes for use in concrete, coated with bitumen to make asphalt or used 'dry' as bulk fill in construction. Mostly used in roads, concrete and building products. Aggregates represent about 98% of quarry output, most of which is used in road construction, maintenance and repair. Much of this goes to the production of asphalt; the remainder is used 'dry' without the addition of other materials to provide a sturdy base for roads.

The most of the area in Virudhunagar District is covered by a vast tract of black soil with residual hills and knolls. Since the area is covered by thick pediments, the geology of the area is studied in available exposure and quarry section opened up for limestone, dimension stone and blue metals for various purposes. The area exposes Khondalite Group of rocks and migmatite gneisses of Precambrian (V.R.Sowmi Narayanan, etal.,). The Khondalite Group of rocks comprises Charnockite, crystalline limestone/calc gneiss, garnetiferousquartzofeldspathic gneiss (leptynite), all these litho units probably represent a sequence of metamorphosed sedimentary units of arenaceous, calcareous and argillaceous composition with various intermixtures of different proportions (V.R.Sowmi Narayanan, etal.,). Granite and quartz veins form the younger intrusive.

Table 10-2: Anticipate Impacts & Appropriate Mitigation Measures

S. No.	Potential Impact	Mitigation Measure
1	The main impact in the air environment is dust emission during various mining activities such drilling, blasting, excavation, loading and transportation. The dust emission may affect the quality of ambient air in the and around the mine area. The increased emission may cause respiratory & Cardiovascular problems in human health	Proper mitigation measures like water sprinkling on haul roads will be adopted to control dust emissions. To control the emissions regular preventive maintenance of equipments will be carried out on contractual basis. Plantation will be carried out along approach roads & mine premises.
2	Waste water will be generated due to mining activity and from other domestic activities. These may contaminate the ground water leading to ground water. The mining activity may affect the ground water table	No waste water will be generated from the mining activity of minor minerals as the project only involves lifting of over burden from mine site. The wastewater generated from the domestic activity will be disposed off safely through the proposed septic tank. Mining will not intersect ground water table. Hence the water table will not be impacted due to the proposed project
3	Noise will be generated in the mine area during various mining activities such as blasting, drilling, excavation. During transportation of the mined out mineral, there may be noise generation due to the movement of vehicles. This may impact the health condition of the workers by creating headache	Periodical monitoring of noise will be done. No other equipments except the transportation vehicles and Excavator (as & when required) for loading will be allowed at site.

		Noise generated by these equipments shall be intermittent and does not cause much adverse impact. Plantation will be carried out along approach roads. The plantation minimizes propagation of noise and also arrest dust.
4	Solid waste will be generated from the mining activity as there will be refuse after 95% recovery and also generation of domestic waste	The 100% recovery is achieved by extracting the entire mineable reserve. Hence there will be no refuse generation due to the mining activity. Apart from that, a very meagre quantity of domestic waste will be generated in the project, which will be handed over to the local body on daily basis.
5	During mining activities, there are chances of workers getting health issues or may be prone to accidents	Dust masks will be provided as additional personal protection equipment to the workers working in the dust prone area. Periodical trainings will be conducted to create awareness about the occupational health hazards due to activities like blasting, drilling, excavation Workers health related problem if any, will be properly addressed.

11 Disclosure of Consultant

11.1 INTRODUCTION

This chapter presents the details of the environmental consultants engaged, their background and the brief description of the key personnel involved in the project. Specific studies on the mining project have been carried out by engaging engineers/experts of Ecotech Labs Pvt. Ltd, Chennai. Ecotech Labs Pvt. Ltd (ETL), Chennai is NABET accredited consultancy organization. ETL is equipped with in-house, spacious laboratory, accredited by NABL (National Accreditation Board for Testing & Calibration Laboratories), Department of Science & Technology, Government of India and MoEF & CC.

11.2 ECO TECH LABS PVT. LTD – ENVIRONMENT CONSULTANT

Eco Tech Labs Pvt. Ltd is a multi-disciplinary testing and research laboratory in India. Eco Tech labs provides high-quality services in environmental consultancy, engineering solution, chemical and microbiological laboratory analysis of food, water and environment (Air, Water, Soil) with highest accuracy.

The Quality policy

•We at Eco Tech Labs Pvt. Ltd. engaged in providing Environmental consulting services and we are committed to strengthen our capabilities in all areas of our operations in line with customer requirements &expectations, applicable legal requirements & stakeholders expectations.

•We are committed to establish and maintain Quality Management System (QMS) for continual improvement in processes and Services

•We are committed to provide customized solutions in realistic, time bound and cost effective to achieve highest degree of customer satisfaction and Environmental improvement.

•We shall establish, maintain & periodically review our documented management systems, objectives and performance in consultation with our employees and prevailing best practices.

•Effective communication of organization's policy and objectives to employees and seeking feedbacks from all our employees and concerned stakeholders for continual improvement.

ANNEXURE-I

ToR & ToR Conditions and Compliance

File No: 13716

State Environment Impact Assessment Authority (SEIAA), Tamil Nadu

(Constituted as per the provision of EIA Notification, 2006, as amended by the Ministry of Environment, Forest and Climate Change, Government of India)

Dated: **25/06/2026**

To,

Thiru. A. SEETHAKUMAR
S/o.ARUMUGAM, D.No.543, MAPPILLAI SUBBIAH ROAD, RAJAPALAYAM TOWN & TALUK, VIRUDHUNAGAR - 626117. TAMIL NADU.
seethamadhu100@gmail.com

Subject: Grant of Terms of Reference along with Public Hearing under the provision of the EIA Notification 2006 as amended-regarding.

Sir/Madam,

Sub: SEIAA, Tamil Nadu – Existing Rough Stone and Gravel Quarry over an Extent of 2.12.50 Ha in S.F.No: 532/2C and 533/1,2,3 & 4, Gopalapuram Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu by Thiru. A. Seethakumar – "B1" of Item 1(a) "Mining of Minerals" of the Schedule to the EIA Notification, 2006 as amended – ToR issued along with Public Hearing- preparation of EIA report – Regarding.

Ref: 1. Online proposal No. SIA/TN/MIN/578368/2026, Dated: 08.05.2026.
2. Minutes of the 720th Meeting of SEAC held on 22.05.2026.
3. Minutes of the 1019th Meeting of Authority held on 19.06.2026.

2. The particulars of the proposal are as below:

(i) TOR Identification No.	TO26B0108TN5856033N
(ii) File No.	13716
(iii) Clearance Type	TOR
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vi) Name of Project	Thiru. A.Seethakumar Rough Stone and Gravel Quarry
(vii) Name of Company/Organization	SEETHAKUMAR A
(viii) Location of Project (District, State)	VIRUDHUNAGAR, TAMIL NADU
(ix) Issuing Authority	SEIAA
(x) Applicability of General Conditions	no
(xi) Applicability of Specific Conditions	no

1.In view of the particulars given in the Para 1 above, the project proposal interalia including Form-1(Part A and B) were submitted to the SEIAA for an appraisal by the SEAC under the provision of EIA notification 2006 and its subsequent amendments.
2.The above-mentioned proposal has been considered by SEIAA in the meeting held on 19.06.2026. The minutes of the meeting and all the Application and documents submitted [viz. Form-1 Part A, Part B] are available on PARIVESH portal which can be accessed by scanning the QR Code above.
3.The State Expert Appraisal Committee (SEAC), based on the information & clarifications provided by the project proponent and after detailed deliberations on all technical aspects recommended the proposal for grant of Terms of Reference with public hearing under the provision of EIA Notification, 2006 and as amended thereof subject to the stipulation of specific and general conditions as detailed in Annexure (2).
4.The SEIAA has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the SEAC hereby decided to issue the following Terms of Reference with public hearing for instant proposal of **Thiru. A. Seethakumar** under the provisions of EIA Notification, 2006 and as amended thereof.
5.The Ministry/SEIAA-TN reserves the right to stipulate additional conditions, if found necessary.
6.The Terms of Reference with public hearing to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.
7.This issues with the approval of the Competent Authority.
8.The TORs with public hearing prescribed shall be valid for a period of three years from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.

Copy To

N/A

Annexure 1

Specific Terms of Reference s for (Mining Of Minerals)

1. Seac Conditions - Site Specific

S. No	Terms of Reference
1.1	1. A Cluster Management Committee (CMC) shall be constituted including all the mines in the cluster as Committee Members for the effective management of the mining operation in the cluster through systematic & scientific approach with appointment of statutory personnel, appropriate environmental monitoring, good maintenance of haul roads and village/panchayat roads, authorized blasting operation etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal: i) Copy of the agreement forming CMC. ii) The Organization chart of the Committee with defining the role of the members iii) The 'Standard Operating Procedures' (SoP) executing the planned activities. 2. The PP shall ensure the installation of CCTV at the proposed quarry site and ensure its inclusion during the EIA presentation.

2. Seiaa Specific Conditions :

S. No	Terms of Reference
2.1	After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant

S. No	Terms of Reference
	Terms of Reference (ToR) along with Public Hearing for the quantity of 8,72,919 MT of Rough Stone & 1,29,988 MT Gravel upto the depth of 49.6m from ground level and the annual peak production shall not exceed 1,90,493 MT of Rough Stone & 37,990 MT Gravel as per the approved mining plan, under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions & SEIAA Specific & Standard conditions.. 1. The production period specified in the Modified Mining Plan, covering 7 years and 6 months (from 11.10.2025 to 10.04.2033), is nearing completion. Therefore, the Project Proponent (PP) shall furnish a revised/modified Mining Plan for the subsequent plan period for consideration during the appraisal of the Environmental Impact Assessment (EIA) proposal.

3. Seiaa Standard Conditions :

S. No	Terms of Reference
3.1	**<u>Cluster Management Committee</u>** 1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry. 2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc., 3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines. 4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network. 5. The committee shall deliberate on risk & emergency management plan, fire safety & evacuation plan and sustainable development goals pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan. 6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the Environmental policy devised shall be given in detail in the EIA Report. 7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner. 8. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity. **<u>Agriculture & Agro-Biodiversity</u>** 9. Impact on surrounding agricultural fields around the proposed mining Area. 10. Impact on soil flora & vegetation around the project site. 11. Details of type of vegetation including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetation all along the boundary of the proposed mining area shall committed mentioned in EMP. 12. The Environmental Impact Assessment should study the agro-biodiversity, agro- forestry, horti-cultural plantations, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem. 13. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.

S. No	Terms of Reference
	14. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock. **Forests** 15. The project proponent shall detailed study on impact of mining on Reserve forests and free ranging wildlife. 16. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna. 17. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection. 18. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site. **Water Environment** 19. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period. 20. Erosion Control measures. 21. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas. 22. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir. 23. The project proponent shall study and furnish the details on potential fragmentation impact on natural Environment, by the activities. 24. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts. 25. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components. 26. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites. 27. The EIA shall include the impact of mining activity on the following: a) Hydrothermal/Geothermal effect due to destruction in the Environment. b) Bio-geochemical processes and its foot prints including Environmental stress. c) Sediment geochemistry in the surface streams. **Energy** 28. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished. **Climate Change** 29. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities. 30. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock, soil health and physical, chemical & biological soil features. 31. Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood. **Mine Closure Plan** 32. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued. **EMP**

S. No	Terms of Reference
	33. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued and the scope for achieving SDGs. 34. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan. **Risk Assessment** 35. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining. **Disaster Management Plan** 36. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued. **Others** 37. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc. 38. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan. 39. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the Environment. The ecological risks and impacts of plastic & microplastics on aquatic Environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

SEAC Standard conditions

1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:
    (i) Original pit dimension
    (ii) Quantity achieved Vs EC Approved Quantity
    (iii) Balance Quantity as per Mineable Reserve calculated.
    (iv) Mined out Depth as on date Vs EC Permitted depth
    (v) Details of illegal/illicit mining
    (vi) Violation in the quarry during the past working.
    (vii) Quantity of material mined out outside the mine lease area
    (viii) Condition of Safety zone/benches
    (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.
2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.
3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.
4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the water bodies like lake, water tanks, etc are located within 1 km of the proposed quarry.
5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.
6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.
7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-

Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.

8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.
9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.
10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.
11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.
12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,
13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
14. Quantity of minerals mined out.
    - Highest production achieved in any one year
    - Detail of approved depth of mining.
    - Actual depth of the mining achieved earlier.
    - Name of the person already mined in that leases area.
    - If EC and CTO already obtained, the copy of the same shall be submitted.
    - Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the

mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).

16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,
17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.
19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
20. The Project Proponent shall conduct t he hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.
22. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.

24. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.
26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.
27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
28. Impact on local transport infrastructure due to the Project should be indicated.
29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.
30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with

GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner

34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detail ed.
37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.
42. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.
43. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this

Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

STANDARD TERMS OF REFERENCE

1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.

8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.

17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.

18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.

19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.

20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).

21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s)

including their R&R and socio-economic aspects should be discussed in the Report.

22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.

23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.

24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.

25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.

26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.

27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.

28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary

permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.

29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.

30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.

31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted cle arly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.

32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.

33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.

34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.

35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.

36) Public health implications of the Project and related activities for the population in the

impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.

37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.

38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.

39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.

40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.

41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.

42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.

43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.

44) Besides the above, the below mentioned general points are also to be followed:-

    a) Executive Summary of the EIA/EMP Report
    b) All documents to be properly referenced with index and continuous page numbering.
    c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
    d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
    e) Where the documents provided are in a language other than English, an English translation should be provided.
    f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
    g) While preparing the EIA report, the instructions for the Proponents and

instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.

h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.

i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.

j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

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

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

1. Project name and location (Village, District, State, Industrial Estate (if applicable).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, “A” register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing

that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.

10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of is acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest , eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.

29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.
31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

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

a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
b. All documents may be properly referenced with index, page numbers and continuous page numbering.
c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF& CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -l1013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website http://www.moef.nic.in/ may be referred.
    - After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent willtake further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.

- The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.
- The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.

COMPLIANCE OF TOR CONDITIONS

Point wise compliance of TOR points issued by SEIAA, TN vide TOR Identification: TO26B0108TN5856033N Dated: 25.06.2026 for Mining of Minor Minerals in the Mine of "Thiru.A.Seethakumar Rough stone and Gravel Quarry" over a total extent of 2.12.50 Ha in S.F. Nos: 532/2C and 533/1, 2, 3 & 4. of Gopalapuram Village, Vembakottai Taluk and Virudhunagar District, Tamil Nadu State.

STANDARD CONDITION:

ToR Ref.	Description	Response	Page Ref. in EIA Report
1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification, 1994 came into force w.r.t. the highest production achieved prior to 1994.	Precise area communication letter received from The Assistant Director, District Collectorate Office, Dept. of Geology & Mining, Virudhunagar vide Na.Ka.En.KV1/638/2020 Kanimam Dt: 02.02.2021. As area is being exploited for the first time quarrying activities, since the lease period started from 11.04.2023 and hence Year-wise production details since 1994 and before 1994 are not relevant or applicable. Modified Mining Plan was approved by The Assistant Director, Dept. of Geology & Mining, Virudhunagar vide Roc.No.KV1/638/2020, Dated: 07.10.2025 for the expansion / enhancement production. .	Chapter-2 Table No.2.2 Page No.41

<table>
<tr><td></td><td></td><td>Proposed Production of Rough Stone & Gravel for the remaining 7 years & 6 Months proposed in the EIA/EMP in chapter no-2.

<table><tr><th>Year</th><th>Rough Stone (MT)</th><th>Gravel (MT)</th></tr><tr><td>III- remaining period</td><td>67692</td><td>23628</td></tr><tr><td>IV</td><td>185881</td><td>30379</td></tr><tr><td>V</td><td>190493</td><td>37990</td></tr><tr><td>VI</td><td>183976</td><td>37990</td></tr><tr><td>VII</td><td>184292</td><td>-</td></tr><tr><td>VIII</td><td>20611</td><td>-</td></tr><tr><td>IX</td><td>19250</td><td>-</td></tr><tr><td>X</td><td>20724</td><td>-</td></tr><tr><td>Total</td><td>8,72,919</td><td>1,29,988</td></tr></table></td><td></td></tr>
<tr><td>2.</td><td>A copy of document in support of the fact that the Proponent is the rightful lessee of the mine should be given.</td><td>The mine lease area of 2.12.50 hectare in Gopalapuram Village for Rough stone and Gravel quarry approved by Assistant Director, Dept. of Geology & Mining, Virudhunagar vide Roc.No.KV1/638/2020, Dated: 07.10.2025.</td><td>Annexure - III</td></tr>
<tr><td>3</td><td>All documents including approved mine plan, EIA and public hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management and mining</td><td>All the documents i.e., Mining Plan, EIA and public hearing are compatible with each other in terms of ML area production levels, waste generation and its management and mining technology are compatible with one another.</td><td>Annexure-VI
Chapter II</td></tr>
</table>

	technology and should be in the name of the lessee.	The mining plan of the project site has been submitted to The Assistant Director, Dept. of Geology & Mining, Virudhunagar	
4	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/toposheet should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Details of coordinates of all corners of proposed mining lease area have been incorporated in mining plan and Chapter 2 of EIA/ EMP Report.	Chapter-2, Fig no. 2.2 Page. no. 43
5	Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, important water bodies, streams and rivers and soil characteristics	Topo map as attached in Chapter 2	Chapter-2, Fig no. 2.4 Page. no. 45
6.	Details about the land proposed for mining activities should be given with information as to whether conforms to the land use policy of the state; land diversion for mining should have approval from State land use board or the concerned authority	Details about the land proposed for mining activities should be given Chapter 2.	Chapter 2 Page 48

7	It should be clearly stated whether the proponent company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non- compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large may also be detailed in the EIA report.	Noted.	
8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in	It is an open cast mining project. Blasting details are incorporated in chapter 2	Chapter-2, Page no.58

	case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.		
9	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc should be for the life of the mine / lease period.	Study area comprises of 15 km radius from the mine lease boundary. Key Plan showing core zone (ML area).	Chapter-2 Fig no. 2.5 Page no.46
10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land Use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, National Park, migratory routes of fauna, water bodies, human settlements and other ecological features has been prepared and incorporated in Chapter-2 of EIA/ EMP Report. There is no wildlife sanctuary and national park, migratory routes of fauna in the study area.	Chapter-2, Table no. 2.4 Page no.48

11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	The overburden is in the form of gravel formation. It will be quarried for filling purposes to nearby end users, and part of soil will be preserved all along the boundary as barrier for afforestation. This will be done only after obtaining permission and paying necessary seigniorage fees to the Government.	Chapter-2, Page no.57
12	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.	The proposed mining lease area is not falling under forest land.	

13	Status of forestry clearance for the broken-up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	The proposed mining lease area is not falling under forest land.	
14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	Not Applicable. There is no involvement of forest land in the project area.	
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	Details of flora have been discussed in Chapter-3 of the EIA/EMP Report.	Chapter-3
16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.	There is a relatively poor sighting of animals in the core and buffer areas of the mining lease. No significant impact is anticipated	

17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger/Elephant Reserves/ (existing as well as proposed), if any, within 10km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the State Wildlife Department/Chief Wildlife Warden under the	There is no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger / Elephant Reserves / Critically Polluted areas within 10 km radius of the mining lease area.	
18	A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in	Details biological study (flora & fauna) within 10 km radius of the project site have been incorporated in Chapter-3 of EIA/ EMP Report. No flora & fauna listed in scheduled I have been found in study area so there is no need of conservation plan. However, all care will be taken for protection of flora & fauna, if any in the lease hold area.	Chapter – 3 Pg No. 102

	the study area, the necessary plan for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.		
19	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.	The proposed mining lease area is not falling under critically polluted area.	
20	Similarly, for coastal projects, A CRZ map duly authenticated by one of the authorized agencies Similarly, for coastal projects, A CRZ map duly authenticated by one of the authorized agencies	There is no Coastal Zone within 15km radius of the project site.	

	demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority)		
21	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village	There is no Rehabilitation and resettlement is involved. Land classified as Patta land	

	located in the mine lease area will be shifted or not. The issues relating to shifting of Village including their R&R and socio-economic aspects should be discussed in the report.		
22	One season (non-monsoon) and (Summer Season), (Post monsoon) primary baseline data on ambient air quality CPCB Notification of 2009 water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within	Baseline data collected during Pre-Monsoon Season and Monsoon (June 2026 to August 2026) has been incorporated in EIA/EMP report. The key plan of monitoring station has been discussed in Chapter - 3. Locations of the monitoring stations have been selected keeping in view the pre-dominant downwind direction and location of the sensitive receptors and also that they represent whole of the study area.	Chapter 3

	500m of the mine lease in the pre- dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.		
23	Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing predominant wind direction may also be indicated on the map.	Air quality modelling & Impact of Air quality will be furnished in Final EIA report Transportation of mineral during operation of mines will be done by Village Road which connects Gopalapuram & Mettuvadakarai villages through dumpers and the impact of movement of vehicles are incorporated in EIA/EMP report. Air quality modelling & Impact of Air quality will be furnished in Final EIA report	Chapter-4 Page No.121

24	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.	Total water requirement: 4.0 KLD Dust Suppression: 2.0 KLD Domestic Purpose: 1.0 KLD Plantation :1.0 KLD Domestic Water will be sourced from nearby Gopalapuram village, which is about 0.40 km, N from the project site.	Chapter-2 Page no.60
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Not Applicable Water will be taken from nearby villages	
26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	At the last stage of mining operation, almost complete area will be worked to restore the land to its optimum reclamation for future use as water reservoir.	
27	Impact of the project on the water quality, both surface and groundwater should be assessed and necessary safeguard measures, if any required, should be provided.	Impact of the project on the water quality & its mitigation measures has been incorporated in Chapter 4 of EIA/EMP report.	Chapter 4 Page No.126
28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In	Depth of water table (based on nearby wells and water bodies) The water table is below 60 mts from below ground level in this area. The quarry operation is proposed up to a depth of 49.6 mts below the ground level.	Chapter-2 Page no. 62

	case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.		
29	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	There is no any stream crossing in the proposed quarry	Executive Summary
30	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.	The altitude of the lease area is 120m above MSL.	Chapter-2 Table no. 2.2 Page no. 40
31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and	Green Belt Development plan is proved given in Chapter 2.	Chapter-2

	submitted, keeping in mind, the same will have to be executed up front on commencement of the project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant pollution		
32	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by	Impact on local transport infrastructure due to the project has been assessed. There shall not be much impact on local transport. Traffic density from the proposed mining activity has been incorporated in EIA/EMP report.	Chapter-3 Page No.121

	other agencies such as State Government) should be covered. Project proponent shall conduct impact of Transportation study as per Indian Road Congress Guidelines		
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA report.	Adequate infrastructure & other facilities shall be provided to the mine workers. Details are given in chapter-2 of EIA/EMP	Chapter-2
34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	Conceptual post mining land use and Reclamation and restoration sectional plates are given in Mining Plan followed by Scheme of mining.	Mining plates Plate-VI
35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre- placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project in the mining area may be detailed	Suitable measure will be adopted to minimize occupational health impacts of the project. The project shall have positive impact on local environment. Details are given in chapter 10 of EIA/EMP.	Chapter 10 Pg No. 166

36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Suitable measure will be adopted to minimize occupational health impacts of the project.	Chapter-10 Pg No. 146
37	Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Suitable measures has been discussed in Chapter 4	Chapter 4 Pg No. 119
38	Detailed environmental management plan to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.	Environment Management Plan has been described in detail in Chapter 9 of the EIA/EMP Report.	Chapter 9 Pg No. 158
39	Public hearing points raised and commitment of the project proponent on the same along	Public Hearing proceedings will be furnished in Final EIA report	

<table>
<tr><td></td><td>with time bound action plan to implement the same should be provided and incorporated in the final EIA/EMP Report of the Project.</td><td></td><td></td></tr>
<tr><td>40</td><td>Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the project should be given.</td><td>Not applicable

No. litigation is pending against the project in any court.</td><td></td></tr>
<tr><td>41</td><td>The cost of the project (capital cost and recurring cost) as well as the cost towards implementation of EMP should clearly be spelt out.</td><td><table><tr><th>S. No</th><th>Description</th><th>Cost</th></tr><tr><td>1</td><td>Investment Cost</td><td>8,00,000</td></tr><tr><td>2</td><td>Expenditure/ Production Cost</td><td>1,87,58,000</td></tr><tr><td></td><td>Total</td><td>1,95,58,000/-</td></tr></table>
EMP Cost: Rs. 3,66,26,560/- for 7 Years and 6 Months.</td><td>Chapter 8
Pg No. 151</td></tr>
<tr><td>42</td><td>Disaster Management Plan</td><td>Disaster Management and Risk Assessment has been incorporated in Chapter 7</td><td>Chapter-7
Pg No. 147</td></tr>
<tr><td>43</td><td>Benefits of the project if the project is implemented should be spelt out. The benefits of the project shall clearly indicate environmental, social economic, employment potential etc.</td><td>Benefits of the project has incorporated</td><td>Chapter 8
Pg No. 150</td></tr>
</table>

44	Besides the above, the below mentioned general points are also to be followed:		
(a)	Executive Summary of the EIA/EMP report	Executive Summary of EIA Report is given from page No.11-31	
(b)	All documents to be properly referenced with index and continuous page numbering.	Complied	
(c)	Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.	Complied	
(d)	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF & CC NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the project.	Complied	
(e)	Where the documents provided are in a language other than English, an English translation should be provided.	Complied	
(f)	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	The complete questionnaire has been prepared	

(g)	While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF vide O.M. No. J- 11013/41/2006-IA. II(I) dated4th August 2009, which are available on the website of this Ministry, should also be followed.	The EIA report has been prepared and complying with the circular issued by MoEF vide O.M. No. J-11013/41/2006-IA. II(I) dated 4th August 2009.	
(h)	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation	There are no changes in prepared EIA as per submitted Form-1 & PFR	
(i)	As per the circular no. J- 11011/618/2010-IA. II(I) dated 30.5.2012, report on the status of compliance of	Will be complied after grant environment clearance from SEIAA, Tamilnadu.	

	the conditions stipulated in the environment clearance for the existing operations of the project by the Regional Office of Ministry of Environment & Forests, if applicable.		
(j)	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections (iii) sections of mine pit and external dumps, if any clearly showing the features of the adjoining area.	All Sectional Plates of Quarry is enclosed in Mining Plan.	

SEAC Condition – Site Specific

S. No	Description	Response
1.	A Cluster Management Committee (CMC) shall be constituted including all the mines in the cluster as Committee Members for the effective management of the mining operation in the cluster through systematic & scientific approach with appointment of statutory personnel, appropriate environmental monitoring, good maintenance of haul roads and village/panchayat roads, authorized blasting operation etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal: (i) Copy of the agreement forming CMC	The Cluster Management Committee will be constituted, and the duly executed affidavit will be submitted along with the final EIA report.

	(ii) The Organization chart of the Committee with defining the role of the members (iii) The 'Standard Operating Procedures' (SoP) executing the planned activities.	
2.	The PP shall ensure the installation of CCTV at the proposed quarry site and ensure its inclusion during the EIA presentation.	CCTV will be installed and the photograph of the same will be furnish during final EIA appraisal meeting.

SEAC Standard Conditions:

ToR Ref.	Description	Response
1	In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated. (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area (viii) Condition of Safety zone/benches (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.	The proposed project is an Expansion Project. The details with respect to the existing/operating quarry are furnished below: • The pit dimensions 51.0 m (L) × 99.0 m (W) × 10.6 m (D) and 30.5 m (L) × 103.1 m (W) × 10.6 m (D). • The rough stone quantity achieved is 32,172m³ (88,473 MT) against the EC-approved quantity of 70,325 m³ (1,93,394 MT). • The proposed expansion quantity is 8,72,919 MT, including the existing quantity, as per the mineable reserve assessment. • The mined-out depth as on date is 10.6 m, against the EC-permitted depth of 15.6 m. • No illegal/illicit mining has been carried out in the quarry. • No violations have been reported during the past working period.

		• No mineral has been mined outside the approved mine lease area. • The safety zone is provided and maintained as per the applicable statutory requirements. • Modified mining plan submitted as per applicable guidelines.
2.	Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.	There is no Habitation within 300m Radius from the applied lease area. VAO Certificate is obtained from Village Administrator, Gopalapuram Village, Virudhunagar District.
3	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.,	Enumerated structures will be submitted along with final Presentation.
4	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.	Hydrological Report will be submitted along with Final EIA Appraisal Presentation.
5	The Proponent shall carry out Biodiversity study through reputed Institution and the same shall be included in EIA Report.	Biodiversity study has been conducted and detailed study is discussed in chapter 3
6	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries,	There is no Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., within 15Km

	Tiger reserve etc., up to a radius of 25 km from the proposed site.	radius. The nearest sensitive area is SMTR – 17.90 Km – NW & ESZ of SMTR – 16.01 km, NW.
7.	In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.	Scientific Slope study will be carryout and submit along with final presentation.
8	However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.	Ultimate Depth of Project is 49.6m BGL and we will conduct Slope Stability Plan submit along with final report.
9	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate,	We have enclosed blasting agreement along with EIA Report.

	mine foreman, II/I Class mines manager appointed by the proponent.	
10	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.	Controlled blasting measures will be adopted for minimizing ground vibration and fly rock. Shallow depths jackhammer drilling and blasting is proposed to be carried out with minimum use of explosive mainly to give shattering effect in rough stone for easy excavation and to control fly rock.
11	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.	The proposed project is an Expansion of the existing quarry operation, for which Environmental Clearance (EC) was obtained on 21.01.2023. The site photographs depicting the existing quarry operations and site conditions are enclosed along with the EIA/EMP Report. The videographic evidence of the quarry operation and site conditions will be furnished along with the Final Appraisal Presentation.
12	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,	The proposed project is an Expansion of the existing quarry operation, for which Environmental Clearance (EC) was obtained on 21.01.2023.
13	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	Quarry lease period and Earlier operation started on 11.04.2023.

14	Quantity of minerals mined out ➢ Highest production achieved in any one year ➢ Detail of approved depth of mining. ➢ Actual depth of the mining achieved earlier. ➢ Name of the person already mined in that leases area. ➢ If EC and CTO already obtained, the copy of the same shall be submitted. ➢ Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	 ➢ 34993 MT Rough stone & 21750 MT Gravel. ➢ 15.6m BGL ➢ 10.6m BGL ➢ Thiru.A.Seethakumar ➢ Attached as Annexure with modified mining plan report. ➢ Yes
15	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show	All corner coordinates of the lease area, Toposheet, Geomorphology, Lithology are incorporated in Chapter 3 of EIA Report.
16	The PP shall carry out Drone video survey covering the cluster, green belt, fencing, Etc.,	Drone video survey will be carried out and incorporated along with final Presentation
17	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved	Photographs of Fencing, Greenbelt along with Periphery safe distance will be incorporated along with final Presentation
18	The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the	We have discussed the Quantity of Geological, Mineable and Yearwise reserve along with Methodology in EIA Report

19	The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	Complied. Manpower requirements table attached in EIA Report Chapter 2
20	The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.	Hydro Geological study report will be submitted during final EIA Presentation.
21	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.	The proponent has furnished the baseline data for the Environmental and ecological parameters with regard to surface water/ Ground water quantity, air quantity, soil quantity & Flora/fauna including traffic / vehicular movement study datils attached in EIA report chapter 3.
22	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the	Noted. Agree to Comply.

	specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	
23	Rainwater harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	Noted. Agree to Comply.
24	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Current land use of the study area has attached in EIA report chapter 3. Operational and post operational land use will be submitted.
25	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.	The overburden is in the form of gravel formation. It will be quarried for filling purposes to nearby end users and part of soil will be preserved all along the boundary as barrier for afforestation. This will be done only after obtaining permission and paying necessary seigniorage fees to the Government.
26	Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities,	Noted.

	such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	
27	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	The ultimate pit at the end of the mining operation will be used for rainwater storage, the stored water will be used for green belt development and further the stored water will be used for domestic purposes (other than drinking) after proper treatment.
28	Impact on local transport infrastructure due to the Project should be indicated.	Traffic impact assessment has given in EIA report chapter 3.
29	A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	No tree species were found inside the project site. only few shrubs and thorny bushes were present. Tree survey study details given in EIA report chapter 3.
30	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	Noted. The mine plan and mine closure plan has been approved by the Assistant Director, Department of Mining and Geology, Virudhunagar District.
31	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	Noted. Agree to Comply.
32	The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise	Noted. Agree to comply.

	generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.	
33	Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner	The Green belt plan enclosed with mining plates in Annexure VII
34	A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	Disaster management plan has prepared and enclosed in Chapter 7.
35	A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	Risk assessment and management plan has prepared and enclosed in chapter 7.
36	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be	Occupational Health impacts of the project has prepared and incorporated in Environmental management plan.

	incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	
37	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Suitable measure will be adopted to minimize occupational health impacts of the project.
38	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	The socio-economic study has been discussed in chapter 3.
39	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	No. litigation is pending against the project in any court.
40	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.,	Benefits of the project has incorporated in EIA report chapter 8
41	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional	Agree to comply.

	Office, Chennai (or) the concerned DEE/TNPCB.	
42	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	The PP will prepare the EMP for the entire life/lease of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.
43	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.	Noted.

SEIAA Specific Condition

1	The production period specified in the Modified Mining Plan, covering 7 years and 6 months (from 11.10.2025 to 10.04.2033), is nearing completion. Therefore, the Project Proponent (PP) shall furnish a revised/modified Mining Plan for the subsequent plan period for consideration during the appraisal of the Environmental Impact Assessment (EIA) proposal.	The Modified Mining Plan, incorporating the remaining mineable quantity and the proposed production schedule for the plan period up to 10.04.2033, was approved on 03.10.2025. A copy of the approved Modified Mining Plan is enclosed as Annexure VI of the EIA/EMP Report for kind consideration.

SEIAA Standard Condition

1	Cluster Management Committee, which must include all the proponents in the cluster as members including the existing as well as proposed quarry.	Noted All the proponents in the cluster are discussed in Chapter 2.
2	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,	Green belt development, water sprinkling, tree plantation will be discussed in general body meeting with all cluster members.
3	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	Agreed to comply.
4	Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.	Agreed to comply.

5	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.	Risk management plan is discussed in Chapter-7.
6	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail in the EIA report.	Agreed to comply.
7	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	Agreed to comply.
8	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity.	Health of workers and staff is discussed in Chapter 9.
9	Impact on surrounding agricultural fields around the proposed mining area.	There are no agricultural fields around the proposed mining area
10	Impact on soil flora & vegetation around the project site	Impact on soil flora & vegetation around the project site discussed in Chapter 4.
11	Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	Type of vegetation no. of trees & shrubs is discussed in Chapter 3.

12	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	Noted and will be complied.
13	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	Noted and will be complied.
14	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.	The detailed study will be carried out and furnished in the Final Presentation.
15	The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.	Study has been conducted and include in reserve forest in final EIA report.
16	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	The biological environment impacts, and its mitigation measures has been given in Chapter 4.
17	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	There is no existing trees in the project site and surrounding the project site. Only thorny shrubs were present.
18	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	Study has been conducted and discussed in chapter 2.
19	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds	The hydro-geological study will be conducted and submitted in EIA presentation.

	etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.	
20	Erosion Control measures.	The soil erosion map 5km surrounding the project site has been given in chapter 3. The soil samples have been collected surrounding the project site and physical, chemical components and microbial components study has been carried out and the results are tabulated in chapter 3
21	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.	The water environment impacts and its mitigation measures has been given in Chapter 4
22	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	There is no water bodies within 0.10 km radius, The Vadakarai Periyakulam Kanmoi located 180m from the project site. Water gets stagnant only during rainy season. Hence there won't be much impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.

23	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.	There is no existing trees in the project site and surrounding the project site. Only thorny shrubs were present.
24	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible landform changes visual and aesthetic impacts.	The water environment impacts and its mitigation measures has been given in Chapter 4
25	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	The soil erosion map 5km surrounding the project site has been given in chapter 3. The soil samples have been collected surrounding the project site and physical, chemical components and microbial components study has been carried out and the results are tabulated in chapter 3
26	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	The biological environment impacts, and its mitigation measures has been given in Chapter 4
27	The EIA shall include the impact of mining activity on the following: a) Hydrothermal/Geothermal effect due to destruction in the Environment. b) Bio-geochemical processes and its footprints including environmental stress. c) Sediment geochemistry in the surface streams.	Noted and agreed to comply.

28	The measures taken to control Noise, Air, Water, Dust control and steps adopted to efficiently utilise the Energy shall be furnished.	Baseline environmental monitoring was carried out during the period from June to August 2026, and the monitoring results have been incorporated in Chapter 3 of the EIA/EMP Report. The recommended environmental management measures will be implemented during the quarry operation and continued throughout the operational period
29	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	Noted and agree to comply.
30	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock, soil health and physical, chemical & biological soil features.	Noted and will be complied.
31	Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood.	Noted. Agree to comply.
32	Detailed Mine Closure Plan covering the entire mine lease period as per precise are communication order issued.	Complied. The mine plan and mine closure plan has been approved by the Assistant Director, Department of Mining and Geology, Virudhunagar District.

33	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued and scope for achieving SDGs.	Environment Management Plan has been described in detail in Chapter-10 of the EIA/EMP Report.
34	The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.	The EMP details has been given in Chapter 8
35	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	Risk assessment and management plan has prepared and enclosed in chapter 7.
36	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	Disaster Management and Risk Assessment has been incorporated in Chapter 7
37	The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.,	Obtained and the same has been attached as Annexure.
38	As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the	Noted and public hearing details are included in chapter 7 of final EIA report.

	concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	
39	The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and freshwater systems due to activities, contemplated during mining may be investigated and reported.	There will not be any plastic and microplastic pollution due to mining activity. Also, we ensure that we won't use any single use plastics in the project site.

ANNEXURE-II

PRECISE AREA COMMUNICATION LETTER

ANNEXURE – III

புவியியல் மற்றும் சுரங்கத்துறை

ந.க. எண்: கேவி1/638/2020-கனிமம்,

மாவட்ட ஆட்சியர் அலுவலகம்,
விருதுநகர்.
நாள் : 02.02.2021



குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - விருதுநகர் மாவட்டம் வெம்பக்கோட்டை வட்டம் - கோபாலபுரம் கிராமம் பட்டா எண்.2007-ல் புலஎண்கள்.532/2C (0.82.0) மற்றும் பட்டா எண்.2008-ல் புலஎண்கள்.533/1 (0.41.50), 533/2 (0.42.0), 533/3 (0.25.0), 533/4 (0.22.0) மொத்தம் 2.12.5 ஹெக்டேர் பரப்பு நிலத்தில் 10 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக்கோரியுள்ளது - சுரங்கத்திட்டம் மற்றும் மாநில அளவிலான சுற்றுச்சூழல் பாதுகாப்பு தாக்க மதிப்பீட்டு ஆணையத்தின் இசைவினைப் பெற்று சமர்ப்பிக்க கோருவது - தொடர்பாக.

பார்வை:
1. திரு.ஆ.சீதாகுமார் த/பெஆறுமுகம், 543, மாப்பிளை சுப்பையா தெரு, இராஜபாளையம் நகர் மற்றும் வட்டம், விருதுநகர் மாவட்டம் என்பவரது மனு நாள்:18.11.2020
2. இவ்வலுவலக கடிதம் எண்.ந.க.கேவி1/638/2020 நாள்:18.11.2020.
3. சாத்தூர் வருவாய் கோட்டாட்சியர் கடிதஎண்.ந.க.அ2/4721/2020 நாள் : 18.12.2020
4. துணை இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை விருதுநகர் அவர்களின் புலத்தணிக்கை அறிக்கை நாள்: 24.12.2020
5. தொடர்புடைய ஆவணங்கள்.

விருதுநகர் மாவட்டம், இராஜபாளையம் வட்டம், 543, மாப்பிளை சுப்பையா தெரு என்ற முகவரியைச் சேர்ந்த திரு.ஆ.சீதாகுமார் த/பெஆறுமுகம் என்பவர் விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், கோபாலபுரம் கிராமம் பட்டா எண்.2007-ல் புலஎண்கள்.532/2C (0.82.0) மற்றும் பட்டா எண்.2008-ல் புலஎண்கள்.533/1 (0.41.50), 533/2 (0.42.0), 533/3 (0.25.0), 533/4 (0.22.0) மொத்தம் 2.12.5 ஹெக்டேர் பரப்பு நிலத்தில் பத்து வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி பணி செய்ய உரிமம் வழங்கக்கோரி பார்வை 1-ல் காணும் மனுவில் விண்ணப்பம் வரப்பெற்றுள்ளது.

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Sathakumar.a

சாத்தூர் வருவாய் கோட்டாட்சியர் மற்றும் உதவி புவியியலாளர் (கனிமம்) ஆகியோர் கீழ்காணும் நிபந்தனைகளுக்குட்பட்டு பரிந்துரை செய்துள்ளனர்.

1) அருகிலுள்ள பட்டா நிலங்களுக்கு **7.5 மீ பாதுகாப்பு இடைவெளி** விடவேண்டும்.
2) கிழக்கு பக்கமாக புலஎண். 498-ல் உள்ள வண்டிப்பாதைக்கும், வடக்கு பக்கமாக உள்ள புலஎண்.531-ல் உள்ள பூமிதான நிலம் ஆகியவற்றிற்கு 10மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.
3) தெற்கு பக்கமாக உள்ள புலஎண்.528/2-ல் செல்லும் நிலவியல் ஓடைக்கு 50மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.
4) அருகிலுள்ள குவாரிகளுக்கு போதுமான பாதுகாப்பு இடைவெளி விட வேண்டும்.
5) குவாரி கழிவுகளை குத்தகை உரிமம் வழங்கப்படும் பகுதிக்கு உள்ளேயே இருப்பு வைக்க வேண்டும்.
6) வெடிமருந்தினை விதிகளின்படி பாதிப்பு ஏற்படா வண்ணம் பயன்படுத்த வேண்டும்.
7) சுரங்கத்திட்டம் மற்றும் சுற்றுச்சூழல் தடையில்லாச் சான்று குத்தகை உரிமம் வழங்குவதற்கு முன் சமர்ப்பிக்க வேண்டும்.

மேற்கூறிய அலுவலர்களின் பரிந்துரையினை ஏற்றும் நிபந்தனைகளுக்குட்பட்டும், விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், கோபாலபுரம் கிராமம் பட்டா எண்.2007-ல் புலஎண்கள்.532/2C (0.82.0) மற்றும் பட்டா எண்.2008-ல் புலஎண்கள்.533/1 (0.41.50), 533/2 (0.42.0), 533/3 (0.25.0), 533/4 (0.22.0) மொத்தம் 2.12.5 ஹெக்டேர் பரப்பு நிலத்திற்கு அனுமதி வழங்கலாம். 1959ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள் விதி எண்: 19 மற்றும் 20-ன்படி பத்து வருட காலத்திற்கு உடைகல் மற்றும் கிராவல் குவாரி பணி செய்ய தகுதி வாய்ந்த நிலப்பரப்பாக கருதப்படுகிறது.

மேலும் தமிழ்நாடு சிறுகனிம சலுகை விதிகள்-1959 விதி எண்:41ன்படி குவாரி பணி மேற்கொள்வது தொடர்பாக வரைவு சுரங்கத் திட்டத்தினை (Mining Plan) 90 தினங்களுக்குள் சமர்ப்பிக்குமாறும், விதி எண்: 42-ன்படி மாநில அளவிலான சுற்றுச்சூழல் பாதுகாப்பு தாக்க மதிப்பீட்டு ஆணையத்தின் (State Level Environmental Impact Assessment Authority Clearance) இசைவினைப் பெற்று சமர்ப்பிக்குமாறும் மனுதாரர் கேட்டுக் கொள்ளப்படுகிறார்.

2/12/2021

துணை இயக்குநர்
புவியியல் மற்றும் சுரங்கத்துறை
விருதுநகர்.

பெறுநர் :
திரு..ஆ.சீதாகுமார் த/பெஆறுமுகம்,
543, மாப்பிளை சுப்பையா தெரு,
இராஜபாளையம் நகர் மற்றும் வட்டம்.

2/12/21

156 Seethakumar.A

ANNEXURE-III

MODIFIED MINING PLAN

APPROVAL LETTER

From
Dr.S.Suhatharahima, M.Sc.,Ph.D.,
Assistant Director,
Geology and Mining,
Virudhunagar.

To
Thiru.A.Seethakumar,
S/o.Arumugam,
D.No.543, Mappilai Subbaiah Road,
Rajapalayam Town and Taluk,
Virudhunagar District – 626 117.

Roc.No:KV1/638/2020, Dated: 07.10.2025.

Sir,

Sub: Mines and Minerals - Minor Mineral - Virudhunagar District – Vembakottai Taluk – Gopalapuram Village – Patta Land - S.F.Nos.532/2C and 533/1,2,3 and 4 over an Extent of 2.12.50 Hectares – Rough Stone and Gravel quarry lease granted in favour of Thiru.A.Seethakumar under rule 19(1) of Tamil Nadu Minor Mineral Concession Rules 1959 for a period of ten years - Modified Mining plan submitted – Approved – Regarding.

Ref: 1. Proceedings of the Assistant Director , Geology and Mining, Virudhunagar Rc.No.KV1/638/2020, Dated: 06.04.2023.

2. Thiru.A.Seethakumar letter, dated: 09.2025.

3. Other connected records.

******

Kind attention is invited to the references cited above.

2) In the reference 1st cited, Thiru.A.Seethakumar, S/o.Arumugam has been granted an application for the grant of quarrying lease to quarry Rough Stone and Gravel over an extent of 2.12.50 Hectares of Patta Land in S.F.Nos.532/2C and 533/1,2,3 and 4 of Gopalapuram Village, Vembakottai Taluk & Virudhunagar District for a period of 10 (Ten) Years Under Rule 19(1) of Tamil Nadu Minor Mineral Concession Rules 1959. The period of lease is 11.04.2023 to 10.04.2033.

3) In this case, the lessee, Thiru.A.Seethakumar, S/o.Arumugam has requested to change mining plan by including the production for a period of **Seven years and six months**. Accordingly, the lessee has submitted three copies of modified Mining Plan for the approval of Assistant Director, Geology and Mining, Virudhunagar as per the provisions contained in Rule

15(1) (a) (b) of Minerals (Other than Atomic, Hydro Carbons Energy Minerals) concession Rules 2016.

4) The lease was granted as per EC quantity to remove 1,93,393 MT of Rough Stone and 91,350 MT of gravel formation upto a depth of 15.6 m below ground level for a period of five years. During the lease period lessee has obtained transport permit for 88,473 MT of Roughstone and 54,873 MT of Gravel for a period of two years and Six months. In the mean time, the lessee has requested in the reference 2nd cited, due to rise in market demand of Roughstone and Gravel, an average production of 8,72,919 MT of Rough Stone and 1,29,988 MT of Gravel is proposed for the period of balance Seven years and six months (11.10.2025 to 10.04.2033) for the above granted patta lands only.

5) The yearwise production of roughstone and gravel are furnished in Table 3 of the mining plan as detailed below.

Year wise - Production Schedule for the balance Period

SECTION	YEAR	BENCH	LENGTH (M)	WIDTH (M)	HEIGHT (M)	Tonnage Factor	ROUGH STONE in MT	GRAVEL in MT
A-A' & B-B'	III-Year 6 months	III	39	82.0	5.0	2.75	43,973	-
		III	23	75.0	5.0	"	23,719	-
Gravel available in 2 Stocks -Total							-	23,628
III - YEAR Balance Period 6-Months PRODUCTION							**67,692**	**23,628**
A-A' & B-B'	IV-Year	I	49	44.0	5.0	2.0	-	21,560
		II	44	39.0	5.0	2.75	23,595	-
		III	39	39.0	5.0	"	20,914	-
		IV	34	111.0	5.0	"	51,893	-
		V	29	101.0	5.0	"	40,274	-
A-A' & C-C'		I	30	29.4	5.0	2.00	-	8,820
		II	28	34.77	5.0	2.75	13,386	-
		III	23	35.0	5.0	"	11,069	-
		IV	18	100.0	5.0	"	24,750	-
IV - YEAR PRODUCTION							**1,85,881**	**30,379**
A-A' & B-B'	V-YEAR	VI	24	91.0	5.0	2.75	30,030	-
A-A' & C-C'		I	29	131.0	5.0	2.0	-	37,990
		II	25	120.0	5.0	2.75	41,250	-
		III	25	110.0	5.0	"	37,813	-
		IV	25	100.0	5.0	"	34,375	-
		V	38	90.0	5.0	"	47,025	-

V – YEAR PRODUCTION							**1,90,493**	**37,990**
A-A' & C-C'	VI-YEAR	I	29	131.0	5.0	2.0	-	37,990
		II	29	120.0	5.0	2.75	47,850	-
		III	29	110.0	5.0	"	43,863	-
		IV	29	100.0	5.0	"	39,875	-
		V	29	90.0	5.0	"	35,888	-
		VI	15	80.0	5.0	"	16,500	-
VI – YEAR PRODUCTION							**1,83,976**	**37,990**
A-A' & B-B'	VII-YEAR	VII	19	81.0	5.0	2.75	21,161	-
		VII	14	71.0	5.0	"	13,668	-
A-A' & C-C'		VI	47	80.0	5.0	"	51,700	-
		VII	57	70.0	5.0	"	54,863	-
		VIII	52	60.0	5.0	"	42,900	-
VII – YEAR PRODUCTION							**1,84,292**	**-**
A-A' & B-B'	VIII-YEAR	IX	9	61.0	5.0	2.75	7,549	-
A-A' & C-C'		IX	19	50.0	5.0	"	13,062	-
VIII – YEAR PRODUCTION							**20,611**	**-**
A-A' & B-B'	IX-YEAR	IX	28	50.0	5.0	2.75	19,250	-
IX – YEAR PRODUCTION							**19,250**	**-**
A-A' & B-B'	X-YEAR	X	4	51.0	4.0	2.75	2,244	-
A-A' & C-C'		X	42	40.0	4.0	"	18,480	-
X – YEAR PRODUCTION							**20,724**	**-**
TOTAL PRODUCTION FOR REMAINIG LEASE PERIOD							**8,72,919**	**1,29,988**

Summary - Year wise Production including two stocks of gravel:

YEAR	ROUGH STONE-MT	GRAVEL -MT
III – remaining Period	67,692	23,628
IV	1,85,881	30,379
V	1,90,493	37,990
VI	1,83,976	37,990
VII	1,84,292	-
VIII	20,611	-
IX	19,250	-
X	20,724	-
Total	8,72,919	1,29,988

5) Hence, as per the powers delegated under Rule 41 of TNMMCR, 1959 and as per the guidelines/instructions issued by the Commissioner of Geology and Mining, vide letter Rc.No.3868/LC/2012 dated.19.11.2012, the modified Mining Plan submitted by the lessee Thiru.A.Seethakumar, S/o.Arumugam is hereby approved subject to the following conditions:

i. The modified Mining Plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.

ii. This approval of the modified Mining Plan does not in any way imply the approval of the Government in terms of any other provisions of Mines and Minerals Development and Regulation) Act 1957, or any other connected laws including Forest (Conservation) Act 1957, or any other connected Laws industry Forest (Conservation) Act 1980, Forest Conservation Rules 1981 Environment protection Act 1980, Indian Explosive Act 1884 (Central Act IV of 1884) and the rules made there under, Minor Mineral Conservation and Development Rules, and the Tamil Nadu Minor Mineral Concession rules, 1959.

iii. The modified Mining Plan is approved without prejudice to any other order or directions from any court of competent jurisdiction.

iv. All the conditions mentioned in the precise area communication letter / lease agreement / Environment Clearance / Tamil Nadu Pollution Control Board conditions etc., should be followed during entire lease period as per rules.

v. The lessee should submit scheme of Mining Plan for the 2nd five year 180 days before the expiry of first five year period of lease.

vi. The earlier instances of irregular / illegal quarrying, if any, shall not be regularized through the approval of this document.

Encl: One copy of Mining Plan.

Assistant Director,
Geology and Mining,
Virudhunagar.

Copy to:
The Member Secretary,
State Level Environmental Impact
Assessment Authority,
State Expert Appraisal Committee
at SEAC Conference Hall 9th Floor,
Metros (CMRL building),
Nandanam,
Chennai-600035.

ANNEXURE-IV

500m Radius Letter With Existing Pit Dimensions Details

From

Dr.S.Suhatharahima, M.Sc.,Ph.D.,
Assistant Director,
Geology and Mining,
Virudhunagar.

To

Thiru.A.Seethakumar,
S/o.Arumugam,
D.No.543, Mappilai Subbaiah Road,
Rajapalayam Town and Taluk,
Virudhunagar District – 626 117.

Roc. No. KV1/638/2020, Dated:27.10.2025

Sir,

Sub: Mines and Minerals - Minor Mineral - Virudhunagar District – Vembakottai Taluk – Gopalapuram Village – Patta Land - S.F.Nos.532/2C and 533/1,2,3 and 4 over an Extent of 2.12.50 Hectares – Rough Stone and Gravel quarry lease granted in favour of Thiru.A.Seethakumar under rule 19(1) of Tamil Nadu Minor Mineral Concession Rules 1959 for a period of ten years - Modified Mining plan submitted -Details of quarries in 500 meter radius - Regarding.

Ref:
1. Proceedings of the Assistant Director , Geology and Mining, Virudhunagar Rc.No.KV1/638/2020, Dated: 06.04.2023.
2. Thiru.A.Seethakumar letter, dated: 09.2025.
3. Other connected records.

*****

2) In the reference 1st cited, Thiru.A.Seethakumar, S/o.Arumugam has been granted an application for the grant of quarrying lease to quarry Rough Stone and Gravel over an extent of 2.12.50 Hectares of Patta Land in S.F.Nos.532/2C and 533/1,2,3 and 4 of Gopalapuram Village, Vembakottai Taluk & Virudhunagar District for a period of 10 (Ten) Years Under Rule 19(1) of Tamil Nadu Minor Mineral Concession Rules 1959. The period of lease is 11.04.2023 to 10.04.2033.

3) In this case, the lessee, Thiru.A.Seethakumar, S/o.Arumugam has requested to change mining plan by including the production for a period of **Seven years and six months**. Accordingly, the lessee has submitted three

copies of modified Mining Plan for the approval of Assistant Director, Geology and Mining, Virudhunagar as per the provisions contained in Rule 15(1) (a) (b) of Minerals (Other than Atomic, Hydro Carbons Energy Minerals) concession Rules 2016.

4) The lease was granted as per EC quantity to remove 1,93,393 MT of Rough Stone and 91,350 MT of gravel formation upto a depth of 15.6 m below ground level for a period of five years. During the lease period lessee has obtained transport permit for 88,473 MT of Roughstone and 54,873 MT of Gravel for a period of two years and Six months. In the mean time, the lessee has requested in the reference 2nd cited, as per the revised conditions for the safety distances to the Nilaviyal odai, an average production of 8,72,919 MT of Rough Stone and 1,29,988 MT of Gravel is proposed for the period of balance Seven years and six months (11.10.2025 to 10.04.2033) for the above granted patta lands only.

5) The applicant Thiru.A.Seethakumar, S/o.Arumugam in the reference 3rd cited has requested to furnish details of quarries situated within 500 m radial distance from the applied area.

6) As per his request the details of quarry situated within 500 meter radius from the proposed area for obtaining Environmental Clearance as detailed below:

Details of quarry situated within 500 meters radius from the applied area

S. No	Quarry detail	Taluk & Village	S.F. No.& Extent (Hect)	Proceedings No. & Lease Period
I	**Existing Quarries:**			
1.	M/s.Lakshmi Blue Mettals (Rajmohan) 540/B, Gopalapuram Main Road, E.B. Sub Office, Nallamanayakkanpatti Post, Rajapalayam Taluk	Vembakottai / Gopalapuram	557/1, 558/1, 558/2, 559, 574, 557/2 Extent - 4.85.00 Hect.,	KV1/232/2021 31.01.2023 Lease period - 01.02.2023 to 31.01.2028

II	**Abandoned Quarry :**			
1.	Thiru.V.Rajmohan S/o. Venkadapathy No: 4A8/1, INTUC Nagar, Rajapalayam, Virudhunagar.	Vembakottai / Gopalapuram	556/2 Extent – 1.14.50 Hect.,	KV1/555/2020 09.11.2020 Lease period – 20.01.2017 to 19.01.2022.
2.	Thiru.Mayilsamy	Vembakottai / Gopalapuram	565,566	Prior 2013.
III	**Present Proposed Quarry :**			
1.	Thiru.A.Seethakumar, S/o.Arumugam, D.No.543, Mappilai Subbaiah Road, Rajapalayam Town and Taluk, Virudhunagar – 626 117.	Vembakottai / Gopalapuram	532/2C and 533/1,2,3 and 4 Extent – 2.12.50 Hect.,	KV1/638/2020

Pit size and quantities Quarried during the period 11.04.2023 to 10.09.2025 & AVAILABLE GRAVEL STOCK:

SECTION	LENGTH M	WIDTH M	DEPTH M	ROUGH STONE in MT	GRAVEL in MT	TOP SOIL in MT (Development)
AA'-BB'	51.0	99.0	10.6	55,660	48,020	5,940
AA'-BB'	30.5	103.10	10.6	32,813	30,480	3,774
TOTAL			**10.6**	**88,473**	**78,500**	**9,714**

GRAVEL STOCK SIZE & QUANTITY

STOCK	LENGTH M	WIDTH M	HEIGHT M	Tonnage Factor	Quantity in MT
I	54.1	32.0	3.6	2.00	12,465
II	49.6	36.3	3.1	2.00	11,163
TOTAL GRAVEL AVAILABLE IN STOCKS					**23,628**

27/10/25

Assistant Director,
Geology and Mining,
Virudhunagar.

Copy to :
The Member Secretary,
State Level Environmental Impact Assessment Authority,
State Expert Appraisal Committee
at SEAC Conference Hall 9th Floor,
Metros (CMRL building),
Nandanam, Chennai-600035.

ANNEXURE-V

LAND DOCUMENT

(PATTA, FMB, ADANGAL, VILLAGE, MAP AND A-REGISTER)

தமிழ்நாடு அரசு

வருவாய் மற்றும் பேரிடர் மேலாண்மைத் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : விருதுநகர் **வட்டம் : வெம்பக்கோட்டை**

வருவாய் கிராமம் : கோபாலபுரம் **பட்டா எண் : 2119**

உரிமையாளர்கள் பெயர்

1. ஆறுமுகம் மகன் சீதாகுமார்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
532	1D	0 - 26.00	0.52	--	--	--	--	2021/0103/26/126560-- ------ Digitally signed:approved through AutoMutation - 03/09/2021 12:15:22:PM
532	2C	0 - 82.00	1.64	--	--	--	--	2021/0103/26/126560-- ------ Digitally signed:approved through AutoMutation - 03/09/2021 12:15:22:PM
533	1	0 - 41.50	0.83	--	--	--	--	2021/0103/26/126560-- ------ Digitally signed:approved through AutoMutation - 03/09/2021 12:15:22:PM
533	2	0 - 42.00	0.84	--	--	--	--	2021/0103/26/126560-- ------ Digitally signed:approved through AutoMutation - 03/09/2021 12:15:22:PM
533	3	0 - 25.00	0.50	--	--	--	--	2021/0103/26/126560-- ------ Digitally signed:approved through AutoMutation - 03/09/2021 12:15:22:PM

533	4	0 - 22.00	0.44	--	--	--	--	2021/0103/26/126560-- ------ Digitally signed:approved through AutoMutation - 03/09/2021 12:15:22:PM
		2 - 38.50	4.77					

குறிப்பு :

1.	மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **26/09/010/02119/100083** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2.	இத் தகவல்கள் 09-01-2025 அன்று 07:30:42 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3.	கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

District : Virudhunagar

Taluk : Vembakkottai

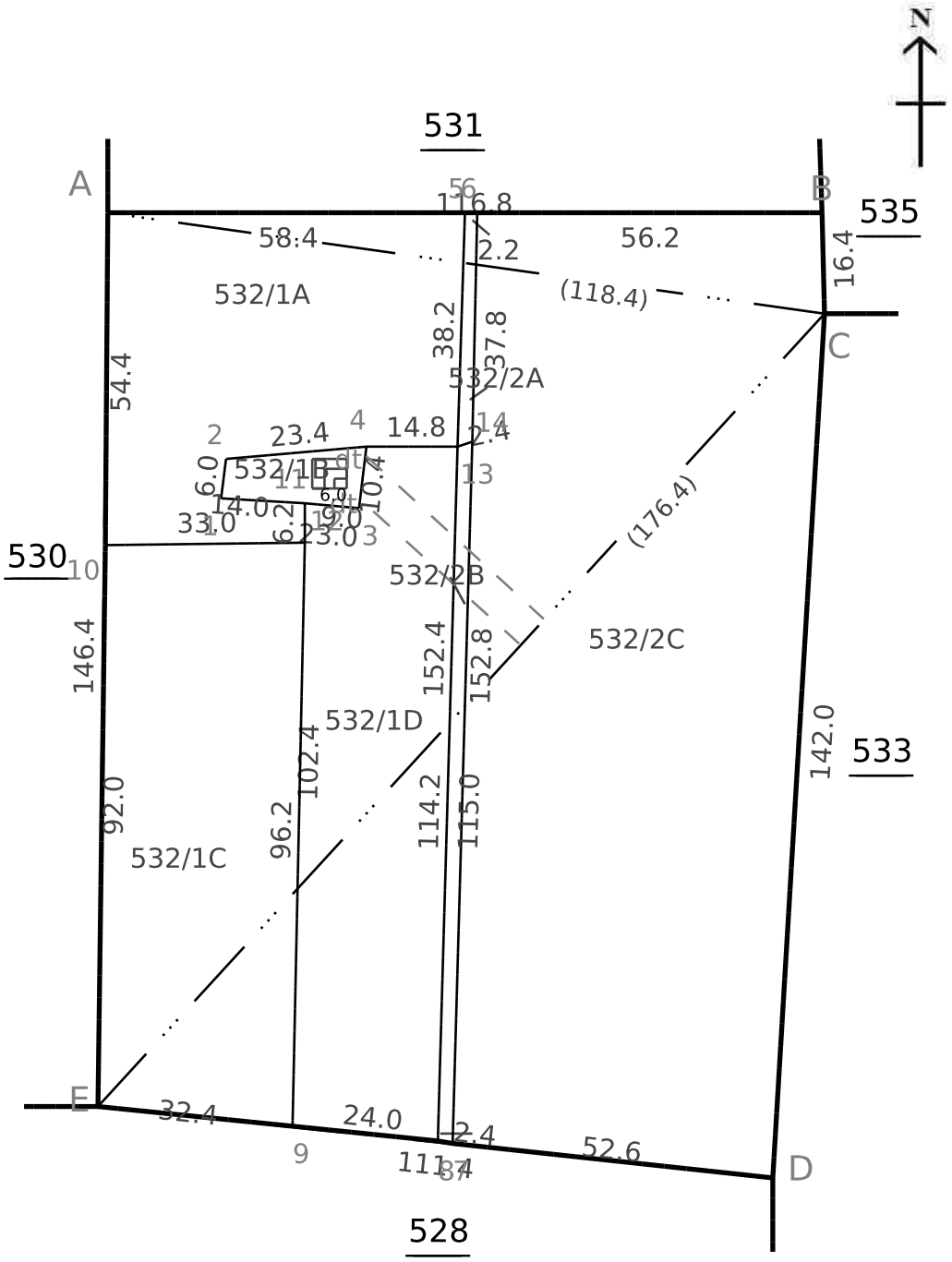
Village : Gopalapuram

[10]

Survey No : 532

Area : Hect 01 Ares 74.50

Scale : 1 : 1144



Signed By Tahsildar

Name of approver : tahve

Date of Approval : 16-02-2018

Date of Issue: 09-01-2025 07:04:27

Survey and Settlement Department, Government of TamilNadu

240 fv.1

District : Virudhunagar

Taluk : Vembakkottai

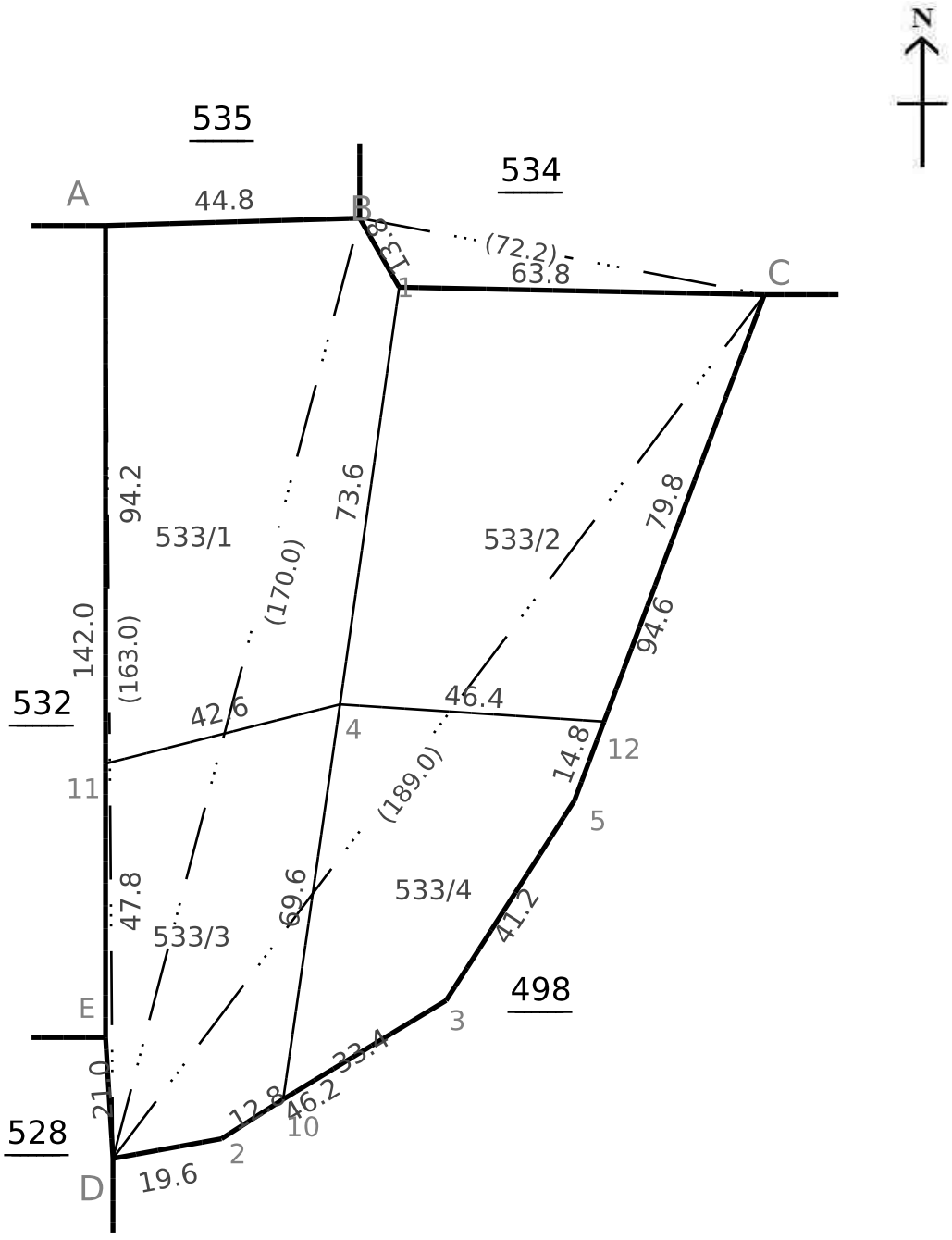
Village : Gopalapuram

[10]

Survey No : 533

Area : Hect 01 Ares 30.50

Scale : 1 : 1222



Signed By Tahsildar

Name of approver : tahvc

Date of Approval : 16-02-2018

Date of Issue: 09-01-2025 07:06:14

Survey and Settlement Department, Government of TamilNadu

240 fv.1

1435- ஆம் பசலியில் விருதுநகர் மாவட்டம் வெம்பக்கோட்டை வட்டம் கிராமக் கணக்கு சேவலாபுரம்

நில வரித் திட்டத்தின்படி பலன்களின் விபரம்.					கைப்பற்று தாரருடைய பெயரும் எண்ணும் அல்லது அனுபோக தாரருடைய பெயர்.	சாகுபடியாளரின் பெயர்.	முதல் போகம்.				
நில அளவை எண். (1)	உட்பிரிவு எண். (2)	பரப்பு. (3)	தீர்வை. (4)	ஒரு போகம் அல்லது இரு போகம். (5)	(6)	நிலத்தின் எந்த பகுதி யாவது சாகுபடியாளரால் பயிரிடப்பட்டுள்ளதா. (7)	எந்த மாதத்தில் பயிர் செய்யப்பட்டது எந்த மாதத்தில் அறுவடை செய்யப்பட்டது. (8)	பயிரின் பெயர். (9)	பயிரான / அறுவடையான பரப்பு. (10)	உண்மையான பாய்ச்சல் ஆதாரம். (11)	விளைச்சல் அளவு விழுக்காடு. (12)
532	2C	0.820	1.64	2119	தேசமைசர்		07	—	இயலி	—	
533	1	0.415	0.83	2119	தேசமைசர்		07	—	இயலி	—	
	2	0.420	0.84	2119	தேசமைசர்		07	—	இயலி	—	
	3	0.250	0.50	2119	தேசமைசர்		07	—	இயலி	—	
	4	0.220	0.44	2119	தேசமைசர்		07	—	இயலி	—	

உண்மை நகல்

30/09/2022

கிராம நிர்வாக அலுவலர்
சேவலாபுரம் கிராமம்
வெம்பக்கோட்டை வட்டம்

380/21-R.F. III-A-10-20,00,000 Cps.-GBP.-Mdu.-7-2022.


N
W
E
S
VILLAGE : GOPALAPURAM
GOPALAPURAM
VILLAGE : VADAKARAI
Puliyankulam
Mettuvadakarai
Vadakarai Periyakulam
0 Feet Deep

-	S31				7-3	4	2	00	0	66.00	1	32	400-புஞ்தாள இயக்கம்		
1A	S32-1A				7-3	4	2	00	0	27.00	0	54	1020-பிரபாகர்		
1B	S32-1B				7-3	4	2	00	0	2.00	0	06	872-அச்சய நாயக்கர் மற்றும் 4 நபர்(கள்)		
1C	S23-1C				7-3	4	2	00	0	30.50	0	61	1020-பிரபாகர்		
1D	S32-1D				7-3	4	2	00	0	26.00	0	52	3-அச்சய நாயக்கர்		
2A	S32-2A				7-3	4	2	00	0	2.00	0	06	1020-பிரபாகர்		
2B	S32-2B				7-3	4	2	00	0	5.00	0	10	9-அச்சய நாயக்கர்		
2C	S32-2C				7-3	4	2	00	0	82.00	1	64	732-பெருமாள்சாமி மற்றும் 1 நபர்(கள்)		
TOTAL FOR SURVEY NUMBER- S32									1	74.50	3	53			
1	S33-1				7-3	4	2	00	0	41.50	0	83	161-அச்சம்மாள் மற்றும் 4 நபர்(கள்)		
2	S33-2				7-3	4	2	00	0	42.00	0	84	161-அச்சம்மாள் மற்றும் 4 நபர்(கள்)		
3	S33-3				7-3	4	2	00	0	25.00	0	50	161-அச்சம்மாள் மற்றும் 4 நபர்(கள்)		
4	S33-4				7-3	4	2	00	0	22.00	0	44	161-அச்சம்மாள் மற்றும் 4 நபர்(கள்)		
TOTAL FOR SURVEY NUMBER- S33									1	30.50	2	61			
-	S34				7-3	4	2	00	1	18.00	2	36	946-கிருஷ்ணவேணி		
1	S35-1				7-3	4	2	00	1	35.00	2	70	621-ஜெகதீஸ்		
2	S35-2				7-3	4	2	00	0	31.00	0	62	1020-பிரபாகர்		
3	S35-3				7-3	4	2	00	0	31.00	0	62	203-சங்கையா		
4	S35-4				7-3	4	2	00	0	29.00	0	58	212-சஞ்சீவி நாயக்கர்		
5A	S35-5A				7-3	4	2	00	0	29.50	0	59	946-கிருஷ்ணவேணி		
5B	S35-5B				7-3	4	2	00	0	43.50	0	87	946-கிருஷ்ணவேணி		
6	S35-6				7-3	4	2	00	0	38.50	0	77	946-கிருஷ்ணவேணி		
TOTAL FOR SURVEY NUMBER- S35									3	37.50	6	75			

துணை இயக்குநர் அலுவலகம் விருதுநகர் மாவட்டம் 31 MAR புலியியல் & சார்நிலை

கிராம நிர்வாக அலுவலர்
கோபாலபுரம் கிராமம்
வெம்பக்கோட்டை வட்டம்

ANNEXURE-VI

RDO & Revenue Department Report for Revised Safety Distances

ANNEXURE 111

அனுப்புநர்:

திரு. சு.க.கனகராஜ், பி.எஸ்.சி.,
வருவாய் கோட்டாட்சியர்,
சாத்தூர்.

பெறுநர்:

மாவட்ட ஆட்சியர்,
விருதுநகர்.



மூ.மு.அ2 / 4573 /2025, நாள்: 12.09.2025.

ஐயா,

பொருள்: கனிமங்களும் குவாரிகளும் - விருதுநகர் மாவட்டம் - வெம்பக்கோட்டை வட்டம் - கோபாலபுரம் கிராமம் - புல எண்கள். புல எண்கள். 532/2C, 533/1, 533/2, 533/3 மற்றும் 533/4 - மொத்த பரப்பு 2.12.50 ஹெக்டேர் பரப்பில் திரு.சீதாகுமார், த/பெ. ஆறுமுகம் என்பவருக்கு கல்குவாரி உரிமம் வழங்கப்பட்டது - மேலும் சில விபரங்கள் கோரியது - அறிக்கை அனுப்புதல் - தொடர்பாக

பார்வை: 1. விருதுநகர் மாவட்ட உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை அலுவலக ந.க.எண்.கேவி1/638/2020, நாள்: 13.08.2025.

2. வெம்பக்கோட்டை வருவாய் வட்டாட்சியர் கடிதம் எண். ந.க. அ6/2747/2025, நாள்: 26.08.2025.

*****

விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், கோபாலபுரம் கிராமம், புல எண்கள். 532/2C, 533/1, 533/2, 533/3 மற்றும் 533/4 மொத்த பரப்பு 2.12.50 ஹெக்டேர்ஸ் பரப்பு பட்டா நிலங்களில் 10 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் 11.04.2023 முதல் 10.04.2033 வரை உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, விருதுநகர் அவர்களின் செயல்முறை ஆணைகள் ந.க. கேவி1/638/2020, நாள்: 11.04.2023 இன்படி வழங்கப்பட்டது என்றும், திரு.சீதாகுமார், த/பெ. ஆறுமுகம் என்பவர் புல எண்.528/2 மணீஸ்வரி என்பவரின் புன்செய் பட்டா நிலத்தில் ஒரு நிலவியல் ஓடை செல்கிறது எனவும், அதற்கு பாதுகாப்பு இடைவெளி 10 மீட்டர் மட்டும் விடுத்து குவாரி பணி செய்ய திருத்தி அமைக்கப்பட்ட சுரங்கத்திட்டம் ஒப்புதல் வழங்குவது தொடர்பாக, மேற்படி புலங்களுக்கு அருகில் உள்ள நிலவியல் ஓடைக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி விடுவது போதுமானதா? இல்லையா என்பது குறித்த அறிக்கையினை அனுப்பி வைக்கக் கோரியது தொடர்பாக, பார்வையில் காணும் கடிதத்தில் வெம்பக்கோட்டை வருவாய் வட்டாட்சியர் கீழ்க்கண்டவாறு அறிக்கை செய்துள்ளார்.

மேற்படி குவாரி உரிமம் கோரும் புல எண்கள் கோபாலபுரம் கிராமக் கணக்கில் கீழ்க்கண்டவாறு தாக்கலாகியுள்ளது.

புல எண்	பரப்பு (ஹெக்)	பட்டா எண்/ பட்டாதாரர் பெயர்
532/2சி	0.82.00	2119 - சீதாகுமார்
533/1	0.41.50	
533/2	0.42.00	
533/3	0.25.00	
533/4	0.22.00	



மேலும், புல எண்.528/2 ஆனது கிராமக் கணக்கில் கீழ்க்கண்டவாறு தாக்கலாகியுள்ளது.

புல எண்	பரப்பு (ஹெக்)	பட்டா எண்/ பட்டாதாரர் பெயர்
528/2	0.53.00	1785 - மணீஸ்வரி (கார்டியனாக பெருமாள்சாமி)

நிலவியல் ஓடையானது புல எண்.532/2சி-க்கு தென்புறம் கிழமேலாக 1.2 மீட்டர் அகலத்தில் உள்ளது. பின்பு ஓடையானது தென்புறமாகத் திரும்பி அதன் பிறகு புல எண்.498 இல் இணைந்து செல்கிறது. எனவே, நிலவியல் ஓடைக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி போதுமானதாகும். குவாரி பணியினால் நிலவியல் ஓடைக்கு எவ்வித பாதிப்பும் ஏற்படாது என அறிக்கை செய்துள்ளார்.

எனவே, புல எண்.528/2 இல் உள்ள நிலவியல் ஓடைக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு மீதமுள்ள புல எண்களில் குவாரி பணி செய்ய திரு.சீதாகுமார், த/பெ. ஆறுமுகம் என்பவருக்கு அனுமதி வழங்க பரிந்துரை செய்கிறேன். இத்துடன் வருவாய் வட்டாட்சியர் அறிக்கை மற்றும் அதனுடன் வரப்பெற்ற ஆவணங்களை இணைத்து அனுப்பியுள்ளேன் என்பதைப் பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

இணைப்பு: மேற்கண்டவாறு.

வருவாய் கோட்டாட்சியர்,
சாத்தூர்.

12/9/25

A. Selvaraj

அனுப்புநர்

ந.கலைவாணி,பி.காம்.,
வருவாய் வட்டாட்சியர்,
வெம்பக்கோட்டை வட்டம்.

6001/821
26/8/2025

பெறுநர்

வருவாய் கோட்டாட்சியர்,
சாத்தூர்.

13 OCT 2025

ந.க.அ6/2747/2025, நாள்: 26.08.2025.

அய்யா,

பொருள்: கனிமங்களும் குவாரிகளும் - விருதுநகர் மாவட்டம் - வெம்பக்கோட்டை வட்டம் - கோபாலபுரம் கிராமம் - புல எண்கள் 532/2C, 533/1, 533/2, 533/3, 533/4 — மொத்த பரப்பு 2.12.50 ஹெக்டேர் பரப்பில் திரு.சீதாகுமார் த/பெ.ஆறுமுகம் என்பவருக்கு கல்குவாரி உரிமம் வழங்கப்பட்டது — மேலும் சில விவரங்கள் கோரியது — அறிக்கை அனுப்புதல் - தொடர்பாக.

பார்வை: 1.சாத்தூர் வருவாய் கோட்டாட்சியர் அலுவலக கடித எண்: ந.க.அ2/4573/2025, நாள்: 18.08.2025
2.கோபாலபுரம் கிராம நிர்வாக அலுவலர் அறிக்கை நாள்:22.08.2025
3.கீழராஜகுலராமன் சார் ஆய்வாளர் அறிக்கை நாள்:20.08.2025
3.கீழராஜகுலராமன் வருவாய் ஆய்வாளர் அறிக்கை நாள்:21.08.2025
4.வெம்பக்கோட்டை மண்டலத்துணை வட்டாட்சியர் அறிக்கை நாள்:22.08.2025

விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், கோபாலபுரம் கிராமம் புல எண்கள். 532/2C, 533/1, 533/2, 533/3, 533/4 — மொத்த பரப்பு 2.12.50 ஹெக்டேர் பரப்பு பட்டா நிலங்களில் 10 வருடங்களுக்கு உடைகல் மற்றும் குவாரி உரிமம் 11.04.2023 முதல் 10.04.2033 வரை உதவி இயக்குநர் புவியியல் மற்றும் சுரங்கத்தறை விருதுநகர் அவர்களின் செயல்முறை ஆணைகள் எண்.கேவி1/638/2020, நாள்:11.04.2023ன் படி வழங்கப்பட்டது என்றும், திரு.சீதாகுமார் த/பெ.ஆறுமுகம் என்பவர் புல எண்.528/2 மணீஸ்வரி என்பவரின் புன்செய் பட்டா நிலத்தில் ஒரு நிலவியல் ஓடை செல்கிறது எனவும், அதற்கு பாதுகாப்பு இடைவெளி 10 மீட்டர் மட்டும் விடுத்து குவாரி பணி செய்ய திருத்தி அமைக்கப்பட்ட சுரங்கத்திட்டம் ஒப்புதல் வழங்குவது தொடர்பாக மேற்படி புலங்களுக்கு அருகில் உள்ள நிலவியல் ஓடைக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி விடுவது போதுமானதா? இல்லையா என்பது குறித்த அறிக்கையினை அனுப்பி வைக்குமாறு பார்வை 1ல் காணும் கடிதத்தில் தெரிவிக்கப்பட்டுள்ளது.

மேற்படி புலத்தினை புல்த்தணிக்கை செய்து எனதறிக்கையினை கீழ்கண்டவாறு சமர்ப்பிக்கிறேன்.

மேற்படி குவாரி உரிமம் கோரும் புல எண்கள் கோபாலபுரம் கிராமக்கணக்கில் கீழ்கண்டவாறு தாக்கலாகியுள்ளது.

புல எண்.	பரப்பு	பட்டா எண் மற்றும் பட்டாதாரர் பெயர்
532/2சி	0.82.00	பட்டா எண்.2119, பட்டாதாரர் பெயர் சீதாகுமார்
533/1	0.41.50	
533/2	0.42.00	
533/3	0.25.00	

533/4	0.22.00	

மேலும் நில எண்.528/2 ஆனது கீழ்கண்டவாறு தாக்கலாகியுள்ளது.

புல எண்.	பரப்பு	பட்டா எண் மற்றும் பட்டாதாரர் பெயர்
528/2	0.53.00	பட்டா எண்.1785 மற்றும் பட்டாதாரர் பெயர் மணீஸ்வரி (கார்டியனாக பெருமாள்சாமி)

நிலவியல் ஒடையானது புல எண்.532/2Cக்கு தென்புறம் கிழமேலாக 1.2மீட்டர் அகலத்தில் உள்ளது, பின்பு ஒடையானது தென்புறமாகத் திரும்பி அதன் பிறகு புல எண்.498ல் இணைந்து செல்கிறது, எனவே நிலவியல் ஒடைக்கு 10மீட்டர் பாதுகாப்பு இடைவெளி போதுமானதாகும். குவாரி பணியினால் நிலவியல் ஒடைக்கு எவ்வித பாதிப்பும் ஏற்படாது.

மேற்படி புலத்தணிக்கையின் படியும் சார்நிலை அலுவலர்களின் அறிக்கையின் படியும் புல எண்.528/2ல் உள்ள நிலவியல் ஒடைக்கு 10மீ பாதுகாப்பு இடைவெளி விட்டு மீதமுள்ள புல எண்களில் குவாரி பணிகள் செய்ய தி/ள்.சீதாகுமார் த/பெ.ஆறுமுகம் என்பவருக்கு அனுமதி வழங்க பரிந்துரை செய்கிறேன் என்பதை பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

இணைப்பு : தொடர்புடைய ஆவணங்கள்.

ஒ.ம்/ந.கலைவாணி
வருவாய் வட்டாட்சியர்
வெம்பக்கோட்டை

/உத்தரவுப்படி/

வட்டாட்சியருக்காக

வெம்பக்கோட்டை வட்டாட்சியர் அவர்களுக்கு மண்டலதுணை வட்டாட்சியர் அறிக்கை பணிந்தனுப்பப்படுகிறது



விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், கோபாலபுரம் கிராம புல எண்கள் 532/2c, 533/1, 533/2, 533/3, 533/4 மொத்த விஸ்தீரணம் 2.12.5 ஹெக் உடைய நிலங்களில் 10 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் 11.04.2023 முதல் 10.04.2023 வரை உதவி இயக்குநர் புவியியல் மற்றும் சுரங்கத்துறை அவர்களின் செயல்முறை ஆணை எண் கேவி1/638/2020 நாள்:11.04.2023-ன்படி வழங்கப்பட்டது. ஆனால், ஷை புலங்களுக்கு அருகில் புல எண் 528/2 மணீஸ்வரி என்பவரின் புன்செய் பட்டா நிலத்தில் நிலவியல் ஓடை செல்வதால், அதற்கு பாதுகாப்பு இடைவெளி 10 மீ மட்டும் விடுத்து குவாரி பணி செய்ய திருத்தியமைக்கப்பட்ட சுரங்கத்திட்டத்தினை ஆறுமுகம் மகன் சீதாகுமார் என்பவர் மனு செய்துள்ளார்.

மேற்படி குவாரி உரிமம் கோரும் புல எண்கள் கோபாலபுரம் கிராமக்கணக்கில் கீழ்கண்டவாறு தாக்கலாகியுள்ளது.

புல எண்	பரப்பு	பட்டா எண். பட்டாதாரர் பெயர்
532/2c	0.820	2119. சீதா குமார்
533/1	0.415	
533/2	0.420	
533/3	0.250	
533/4	0.220	
மொத்தம்	2.12.5 ஹெக்	

மேற்படி புல எண் 528/2 பரப்பு 0.53.0 பட்டா எண். 1785 நிலவியல் ஓடை எனக் குறிப்பிடும் புலமானது மணீஸ்வரி பெயரில் உள்ளது. ஷை நிலவியல் ஓடையானது புல எண் 532/2c-க்கு தென்புறம் கிழமேலாக 1.2 மீ அகலத்தில் உள்ளது. பின்பு, ஓடையானது தென்புறமாகத் திரும்பி அதன் பிறகு புல எண் 498-ல் இணைந்து செல்கிறது. எனவே, நிலவியல் ஓடைக்கு 10 மீ பாதுகாப்பு இடைவெளி போதுமானதாகும். குவாரி பணியினால் நிலவியல் ஓடைக்கு எவ்வித பாதிப்பும் ஏற்படாது என்பதும் புலத்தணிக்கையில் தெரியவருகிறது.

எனவே, புல எண் 528/2-ல் உள்ள நிலவியல் ஓடைக்கு 10 மீ பாதுகாப்பு இடைவெளி விட்டு மீதமுள்ள புல எண்களின் குவாரிப்பணிகள் செய்யலாம் என்பதை பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

24/01/25

மண்டலதுணை வட்டாட்சியர்,
வெம்பக்கோட்டை.

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புல எண்	பரப்பு	வகை
532/2c	0.03.0	புன்செய்
533/1	0.11.5	புன்செய்
533/2	0.11.0	புன்செய்
533/3	0.25.0	புன்செய்
533/4	0.22.0	புன்செய்



அவனம்.

528/2 – 0.53.0 17சட – கிணறுகள்

(காத்தையாக
அனுபவத்தில்)

அவனம் கிராம 10-ல் தாக்கல் செய்வது.

ஆகையால் தாழ்மையாக

தங்கள் கீழ்காணும் அவனம் 532/2c
மற்றும் 533/1, 533/2, 533/3, 533/4 ஆகிய
புன்செய் நிலங்களுக்கு 10ம் வகுப்பு
சான்றிதழ் நிலவரைக்கு பாதிப்பு
இன்றி மாற்றம் செய்து தர்க்கு மனுவை
பரிசீலனைக்கு அனுப்பி வைக்கிறேன்

வருவாய் ஆய்வாளர்
கீழ்பாலகுலராமன் குறுவட்டம்
வெங்கல்கோட்டை வட்டம்

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வேம்பக்குடிகாட்டை வட்டாட்சியர் அவர்களுக்கு திருமாறன்நெறிமன் திருவட்ட அலுவலர் (பொ), ன் அறிக்கை மனுவிற்கு சம்பந்தப்பட்டது:

பார்வை: வேம்பக்குடிகாட்டை வட்டாட்சியர் அலுவலக திருப்பாதணை ந.க.அ6/2747/2025

பார்வையில் கண்ட திருப்பாதணையில் வேம்பக்குடிகாட்டை வட்டம் கோபாலபுரம் கிராமம் புலஎண்கள் 532/2c, 533/1, 2, 3, 4 ஆகியவற்றில் 10 ஏருடல்களுக்கு உடைகள் மற்றும் கிராவல் கொள்ள 11.04.2023 முதல் 10.04.2023 வரை ஏலம்விடப்பட்ட நிலையில் நிர்வாக அனுமதியும் எண்பதவர் புலஎண் 528/2-ல் எல்லை நிலவரை உடையாருக்கு 10 மீட்டர் மட்டும் ஆழத்திற்கு கிராவல் அள்ளக்கூடியதற்கான புலஎண்கள் கிராவல் மண் எவ்விட அனுமதி கோரியதற்கிணங்க அறிக்கை கோரப்பட்டது. அதனடிப்படையில் பெறப்பட்ட புலஎண்கள் குறித்த விவரங்கள் பின்வருமாறு:

புலஎண்	பரப்பு	பட்டா எண் & பட்டாதாரர் பெயர்
532/2c	0.82.00	2119 - நீதிவேலன்
533/1	0.41.50	2119 - நீதிவேலன்
533/2	0.42.00	2119 - நீதிவேலன்
533/3	0.25.00	2119 - நீதிவேலன்
533/4	0.22.00	2119 - நீதிவேலன்

மேற்காணும் நீர்ப்பாசன புன்செய் நிலம்

புலஎண்	பரப்பு	பட்டாதாரர் & பட்டாதாரர் பெயர்
528/2	0.53.00	1785 - மணிவண்ணன் (நீர்ப்பாசனம் அனுபவதாரர்)

மேற்காண் நிலம் புலஎண்கள்

3 OCT 2025

நிருவாக வாரியம், புலவராயபட்டியில் இவரது அனுமந்தன்ன புலஎண்களான
532/2 மற்றும் தெற்காறும் புலஎண் 528/2 ல் நிகழ்வையாக நிலவரையல்
புலத்திலும் புலஎண் 528/2 ல் நிலவரையல் தொட 1.2 மீட்டர்
அகலத்தில் நிகழ்வையாக வைத்து, தெற்கு எல்லையில் நிறுத்த புலஎண்
498 க்கில் நிலைத்து வருகிறது. நிலவரையல் தொடர்ந்து 10 மீட்டர்
அகல கிராம நிலைவை பாதையாக உள்ளது. நிலவரையல் தொடக்கு இவரிடமிருந்து
எவ்வித அறிவிப்பும் இன்றியும் எல்லை அகற்றப்பட்டுள்ளது. அதுமட்டுமல்ல புலஎண்
528/2 ல் வரும் நிலவரை தொடரில் இருந்து 10 மீட்டர் அகலம்
(புலஎண் 532/2C, 533/1, 2, 3, 4 ல்
நிலவரி பயன்பாட்டில் இருந்து வந்த நிலங்களை) இவரிடமிருந்து எல்லை
எல்லை அகற்றப்பட்டுள்ளது.

மேற்கண்டவாறு எனது அறிக்கையை சமர்ப்பித்து கீழ்கையெழுத்திடுகிறேன்.

20/8/25

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13 OCT 2025

மேல்கோபாலபுரம் விருதாவூர் பிர்காவிலுள்ள அரசுக்கு
சொந்தமான கிராம நத்தம் புறம்போக்கு அனைவரின் அனுபவத்தில்
அனுபவித்து வருகிறது.

2) இவ்வூரைச் சேர்ந்த மேல்கோபாலபுரம் கிராமம் புல எண்கள் 532/2C 533/1, 2, 3, 4
மொத்த விஸ்தீரணம் 2.12.5 ஏக்கர் உடைய நிலங்களில்
10 ஏக்கர் நிலத்தை உடைகல் பஞ்சமி கிராமம் ஊராட்சி
உரிமம் 17.04.2023 முதல் 16.04.2028 வரை 5 வருடம்
குத்தகைதாரர் ஆகியுள்ள மனுதாரர் சமூகத்தாரை அவர்களின்
விண்ணப்ப கோரிக்கை எண் கேஎல்1/638/2020 நாள்
17.04.2023ன் படி விழுதுகளாகிய அனைவரும் தற்போது
அருகில் புல எண் 528/2 மனைவியின் சொந்தமான புன்செய்
நிலத்தில் குடியிருந்து தினசரி கூலி வேலை செய்து
பாதுகாத்து கிணற்றில் மழை மட்டும் நம்பி ஏற்ற வேளாண்
பணி செய்ய தொந்தரவு செய்யப்பட்டு வருவதால் தனி பட்டா
அனுமதிக்கும் படிக்கு தாழ்மையான சொந்த ஊரில் வசித்து வருவதாக

கோபாலபுரம் கிராமம் புல எண்கள்

532/2C	- 0.820	ப.எண் 2117 மேற்படி
533/1	- 0.415	சொந்தமான பெயரில் கிராமம்
2	- 0.420	கணக்கில் நத்தமாகி உள்ளது.
3	- 0.250	
4	- 0.220	
மொத்தம்	- 2.12.5 ஏக்கர்	

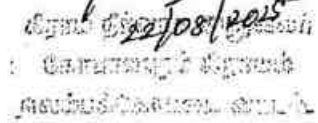
மேலும் மேல் குறிப்பிடும் புல எண் 525/2 - 0.530
ப.எண் 1185 மனைவியின் சொந்தமான உள்ளது.

A. [illegible]

2) நிலையில் நிலையானது புல எண் 532/2 க்கு தெற்கு
திருமலாக உடன் அலகத்தில் உள்ளது. பின்பு நிலையானது
தென்புறமாகத் திரும்பி அதன் பிறகு புல எண் 498-ல்
இணைந்து செல்கிறது. எனவே நிலையான நிலம் மற்றும்
பாதுகாப்பு இடைவெளி தோராயமாகவே இருக்கும். மேலும் நிலையில்
நிலையில் நிலம் எல்லை பாதியும் ஏற்படாது என்பதும்
புலத்தணிக்கையில் தெரிய வருகிறது.



எனவே புல எண் 528/2 - ல் உள்ள நிலையான
நிலம் மற்றும் பாதுகாப்பு இடைவெளி இடம் பிரதிபலிக்கா புல எண்களின்
வரைபடம் என்பதை
மேலும் பணிகள் செயல்படுத்தும் பணித்தல் அனுப்பப்படுகிறது.



A. Selvakumar.

ANNEXURE-VII

MINING PLAN REPORT & PLATES

MODIFIED MINING PLAN

and PROGRESSIVE MINE CLOSURE PLAN

ROUGH STONE and GRAVEL QUARRY

(PREPARED UNDER RULE 12 OF MINOR MINERAL CONSERVATION & DEVELOPMENT RULES, 2010 & AS PER AMENDMENT UNDER RULE No. 41 &42 of TAMILNADU MINOR MINERAL CONCESSION RULES, 1959)

30 OCT 2025

Quarry Lease Period – Ten (10) years

From 11.04.2023 To 10.04.2033

LOCATION OF THE QUARRY LEASE AREA

EXTENT	:	2.12.50 Hectares
SURVEY Nos.	:	532/2C and 533/1,2,3&4.
VILLAGE	:	GOPALAPURAM
TALUK	:	VEMBAKOTTAI
DISTRICT	:	VIRUDHUNAGAR

Applicant

Thiru.A.SEETHAKUMAR,
S/o.ARUMUGAM
D No.543, MAPPILLAI SUBBIAH ROAD,
RAJAPALAYAM TOWN & TALUK,
VIRUDHUNAGAR DISTRICT - 626 117.

Prepared By

T.S.GANESAN, M.Sc.,
QUALIFIED PERSON (RQP/MAS/142/2000/A)

A. Seethakumar

Thiru.A.SEETHAKUMAR,
S/o.ARUMUGAM
D No.543, MAPPILLAI SUBBIAH ROAD,
RAJAPALAYAM TOWN & TALUK,
VIRUDHUNAGAR DISTRICT - 626 117.



CONSENT LETTER OF THE APPLICANT

I hereby request & give my consent to prepare the Modified Mining Plan for the revised safety distances to nilaviyal odai of Minor Minerals Rough Stone & Gravel Quarry Lease for quarrying Rough Stone & Gravel over a total extent of **2.12.5 Hectares** in **SF. Nos.: 532/2C and 533/1,2,3&4 of Gopalapuram Village, Vembakottai Taluk, Virudhunagar District for the granted lease period of Ten years as per Proceedings of Assistant Director, Geology and Mining, Virudhunagar District letter Na.Ka.KV1/638/2020 dated 06.04.2023** and submit for approval before the Competent Authority by

Mr. T.S.Ganesan, M.Sc.,
Qualified Person - RQP/MAS/142/2000/A.

I request the Assistant Director, Geology and Mining, Virudhunagar to make further correspondence regarding the modification of the Modified Mining Plan if any with said Qualified Person in the following address:

No. 57, Mega Raja Nagar 'D' Colony,
K.T.C.Nagar North,
Maharaja Nagar Post,
Tirunelveli – 627 011.
Cell : +91 99527 68494.
E-Mail: rampriya1965@gmail.com

I hereby undertake that all the modifications, if any, made in the Mining Plan by the Qualified Person may be deemed to have been made with my knowledge and consent and shall be acceptable by me and binding on me in all respect.

Place : Virudhunagar
Date : -09-2025

A.Seethakumar
Signature of the Applicant.

Thiru.A.SEETHAKUMAR,
S/o.ARUMUGAM
D No.543, MAPPILLAI SUBBIAH ROAD,
RAJAPALAYAM TOWN & TALUK,
VIRUDHUNAGAR DISTRICT - 626 117.



DECLARATION OF THE APPLICANT

This **Modified Mining Plan** in respect of the quarry lease for quarrying of Rough Stone & Gravel over a total extent of **2.12.5 Hectares** in **SF. Nos.: 532/2C and 533/1,2,3&4 of Gopalapuram Village, Vembakottai Taluk, Virudhunagar District for the remaining period of 10 years** has been prepared and submitted for approval in full consultation with me.

I understand its contents and agree to implement the same in accordance with Laws, Rules and Act applicable to quarry Rough Stone and Gravel.

Place : Virudhungar
Date : -09-2025

A.Seethakumar
Signature of the Applicant.

T.S.Ganesan, M.Sc.,
No. 57, Mega Raja Nagar 'D' Colony,
K.T.C.Nagar North,
Maharaja Nagar Post,
Tirunelveli - 627 011.
Cell : +91 99527 68494.
E-Mail: rampriya1965@gmail.com



CERTIFICATE FROM THE QUALIFIED PERSON

This is to certify that the provisions of the Mines Act, Rules and Regulations, Minor Mineral Conservation and Development Rules, 2010 & as per Amendment Rules under Tamil Nadu Minor Mineral Concession Rules, 1959 etc., made there under have been observed in the preparation of this **Modified Mining Plan** for Rough stone and Gravel quarry for **A.Seethakumar** over an extent **2.12.5 Hectares** in **SF. Nos.: 532/2C and 533/1,2,3&4 of Gopalapuram Village, Vembakottai Taluk, Virudhunagar District for the remaining period of Ten years.**

Where ever the necessary permissions / exemptions / relaxations and approvals are required, the applicant would approach the concerned authorities of State and Central Governments for granting such permissions etc.,

Place : Virudhunagar
Date : .09.2025

T.S. Ganesan
Qualified Person

T.S.GANESAN M.Sc.,
QUALIFIED PERSON
RQP/MAS/142/2000/A

A. Seethakumar.

CERTIFICATE FROM THE QUALIFIED PERSON

3 OCT 2025

This is to Certify that I, T.S.Ganesan, M.Sc.(Applied Geology), having office at **No. 57, Mega Raja Nagar 'D' Colony, K.T.C.Nagar North, Maharaja Nagar Post, Tirunelveli - 627 011.** I am a Post Graduate in Applied Geology from Bharadhidasan University, Tiruchirapalli.

Rule 15(I)(a) and (b) of Minerals (other than Atomic, Hydro Carbons Energy Minerals) Concession Rules 2016 stipulated the eligibility for preparing Mining plans as "(I)(a) a post graduate degree in Geology granted by a University established" and (I)(b) "Professional experience of five years of working in a supervisory capacity in the field of Mining after obtaining the degree". Since my qualification and experience are satisfied the Rule (I)(a) and (I)(b) of 15 of the said Rules, I am eligible to prepare Mining Plans for both Major and Minor minerals.

Accordingly, I prepared this **Modified Mining Plan** for Rough stone and Gravel quarry for **A.Seethakumar** over an extent of **2.12.5 Hectares** in **SF. Nos.: 532/2C and 533/1,2,3&4 of Gopalapuram Village, Vembakottai Taluk, Virudhunagar District for the remaining period of 7 years 6 months out of the total lease period of Ten years(11.04.2023 to 10.04.2033).**

Place : Virudhunagar
Date : .09.2025

Qualified Person

T.S.GANESAN M.Sc.,
QUALIFIED PERSON
RQP/MAS/142/2000/A

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LIST OF ANNEXURES

S.NO	DESCRIPTION	ANNEXURE
1	Copy of Proceedings & Lease Deed	I
2	Copy of part of SEIAA-EC & TNPCB-Consent to Operate	II
3	Copy of RDO & Revenue Department report for revised safety distances.	III
4	Copies of FMBs	IV
5	Copies of Patta, Adangal & A-Register	V
6	Copies of ID proof of Applicant	VI
7	Copy of Qualified Person Certificates	VII

3 OCT 2023

LIST OF PLATES

S.NO	DESCRIPTION	PLATE No.	SCALE
1	LOCATION PLAN	I	Not to Scale
2	ROUTE MAP	I A	Not to Scale
3	KEY PLAN	II	1 : 75,000
4	MINING LEASE PLAN	III	1 : 1,000
5	GEOLOGICAL PLAN & SECTIONS	IV	1 : 2,000 1 : 1,000
6	YEARWISE PRODUCTION PLAN & SECTIONS	V	1 : 2,000 1 : 1,000
7	CONCEPTUAL PLAN & SECTIONS	VI	1 : 2,000 1 : 1,000
8	SATTELITE IMAGERY	VII	1 :10,000
9	VILLAGE MAP SHOWING ENVIRONMENTAL FEATURES	VII A	1 :10,000
10	LAND USE PATTERN	VII B	1 : 10,000
11	PROGRESSIVE MINE CLOSURE PLAN & SECTIONS	VIII	1 : 2,000 1 : 1,000

MODIFIED MINING PLAN

including ENVIRONMENTAL MANAGEMENT PLAN and
PROGRESSIVE MINE CLOSURE PLAN

for EXISTING ROUGH STONE & GRAVEL QUARRY
OVER an EXTENT of 2.12.50 Hectares in SF.Nos.523/2C and 533/1,2,3 & 4 of Gopalapuram Village, Vembakottai Taluk, Virudhunagar District.

3 OCT 2025

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

INTRODUCTION and EXECUTIVE SUMMARY:

- This Modified Mining Plan is prepared for Quarrying of Rough Stone and Gravel by systematic and scientific quarrying and keeping as per revised safety distances as per **the Revenue Divisional Officer, Sattur & revenue department officers report.**

- The Lessee Thiru.A.Seethakumar of Rajapalayam Town, Virudhunagar District-626117 is an individual having skill on Rough Stone and Gravel Quarrying. The Rough Stone is mainly used for crushing blue metal stone aggregates of various sizes and M-Sand for concrete mixing for building, road, bridges, etc., and Gravel for filling purposes for road and buildings.

- The Lessee has obtained **Environmental Clearance vide SEIAA-Chennai letter No. SEIAA-TN/F.No.8855/EC.No.5468/2022 dated 20.12.2022 and Quarry Lease was Granted vide Proceedings of the Assistant Director, Geology & Mining, Virudhunagar District Rc.KV1/638/2020 dated 06.04.2023** for quarrying & transportation of Rough Stone and Gravel over an area extent of **2.12.50 Hectares** in **SF. Nos.: 532/2C and 533/1,2,3 & 4 of Gopalapuram Village, Vembakottai Taluk,**

T.S.GANESAN M.Sc.,
QUALIFIED PERSON
QP/MAS/142/2000/A

Virudhunagar District under Rule 19 & 20 of Tamil Nadu Minor Mineral Concession Rules 1959.

13 OCT 2025

- As per the Proceedings of the Assistant Director, Geology & Mining, Virudhunagar District Rc.KV1/638/2020 dated 06.04.2023 and Registered Lease Deed vide document No.1488 of 2023 dated 24.04.2023 the Lease Period of the Quarry is from 11.04.2023 to 10.04.2023.

The quantity removed and transported Rough Stone and Gravel during the period from 11.04.2023 to 10.09.2025 is tabulated as follows:

Period / Year	Rough Stone - MT	Gravel - MT
I	34,993	21,750
II	33,225	17,400
III from 11.04.2025 to 10.09.2025	20,255	15,723
TOTAL	88,473	54,873

This Modified Mining Plan as per the revised conditions for the safety distances to Nilaviyal Odai is prepared for obtaining Environmental Clearance.

Executive Summary:

i. **Area Details :**

District	Taluk	Village	Survey Nos.	Extent in Hects.	Remarks
Virudhunagar	Vembakottai	Gopalapuram	532/2C	0.82.00	Ryotwari Patta No. 2119
			533/1	0.41.50	
			533/2	0.42.00	
			533/3	0.25.00	
			533/4	0.22.00	
			Total	2.12.50	

ii. **Pit size and quantities Quarried during the period 11.04.2023 to 10.09.2025 & AVAILABLE GRAVEL STOCK:**

SECTION	LENGTH M	WIDTH M	DEPTH M	ROUGH STONE in MT	GRAVEL in MT	TOP SOIL in MT (Development)
AA'-BB'	51.0	99.0	10.6	55,660	48,020	5,940
AA'-BB'	30.5	103.10	10.6	32,813	30,480	3,774
TOTAL			10.6	88,473	78,500	9,714

GRAVEL STOCK SIZE & QUANTITY

STOCK	LENGTH M	WIDTH M	HEIGHT M	Tonnage Factor	Quantity in MT
I	54.1	32.0	3.6	2.00	12,465
II	49.6	36.3	3.1	2.00	11,163
TOTAL GRAVEL AVAILABLE IN STOCKS					23,628

iii. **The Estimated Balance Reserves are: as on 11.09.2025 including two Gravel Stocks.**

Balance Geological available Resources in MT		Mineable Reserves & Production for the remaining period of 10 years in MT		
Rough Stone	Gravel	Year	Rough Stone	Gravel
28,22,787	1,62,100	III[rd] Year - remaining Period 6 months	67,692	23,628
		IV	1,85,881	30,379
		V	1,90,493	37,990
		VI	1,83,976	37,990
		VII	1,84,292	-
		VIII	20,611	-
		IX	19,250	-
		X	20,724	-
		Total	8,72,919	1,29,988

iv. Topography of the area = The area is plain terrain-120m above MSL

v. Existing Depth of the quarried pit = **10.6m**

vi. Granted Total Depth of mining = **49.6m** (Below ground level)

vii. Total Lease period of mining = **10 years (11.04.2023 to 10.04.2023)**

viii. It is a new/Existing quarry lease = Existing quarry.

ix. Method of mining / level of mechanization = Opencast semi- mechanized method, the quarry operation involves shallow jack hammer drilling, slurry blasting.

x. Type of machineries proposed to be deployed in the quarrying operation.

Excavator of 0.90Cbm bucket capacity (with Rock breaker attachment)-2 Nos.

Jack hammers 30-32mm dia.- 2 Nos.

xi. Tractor mounted compressor (2 jack hammer capacity)- 1 No.

xii. No trees are uprooted due to quarrying operation.

xiii. The existing road from the main road to quarry is in good condition and the same will be maintained and utilized for transport.

xiv. There is No Export of the Rough stone.

xv. The lease area is about 2.12.50 Hectares which is bounded by seventeen corners and the Co-boundaries are clearly marked in the drawing enclosed as Plate No III.

Corners	Co- ordinates		Distance between the corners	
	Latitude	Longitude	Corners between	Distance
1	9°21'13.70"N	77° 37'14.60"E	1 - 2	152.8m
2	9°21'18.70"N	77° 37'14.80"E	2 - 3	56.2m
3	9°21'18.70"N	77° 37'16.70"E	3 - 4	16.4m
4	9°21'18.20"N	77° 37'16.70"E	4 - 5	44.8m
5	9°21'18.20"N	77° 37'18.20"E	5 - 6	13.8m
6	9°21'17.80"N	77° 37'18.30"E	6 - 7	63.8m
7	9°21'17.60"N	77° 37'20.50"E	7 - 8	94.6m
8	9°21'14.80"N	77° 37'19.30"E	8 - 9	41.2m
9	9°21'13.80"N	77° 37'18.60"E	9 - 10	46.2m
10	9°21'13.10"N	77° 37'17.40"E	10 - 11	19.6m
11	9°21'12.90"N	77° 37'16.50"E	11 - 12	21.0m
12	9°21'13.60"N	77° 37'16.40"E	12 - 1	52.6m

xvi. The diagram of proposed mining area showing the dimensions of the pit, its proposed Depth of mining, proposed area is enclosed as Plate No V.

xvii. There are no wastages anticipated during this quarry operation and the top soil will be stacked along the boundary barrier and safety zones for afforestation purpose in the lease area.

xviii. Around 11 employees are proposed to be deployed for quarrying operation.

xix. Environmental parameters,

i) There is no interstate boundary around 10Kms radius.

ii) There is no Wild Life Sanctuaries within 10 kms under the Wildlife (Protection) Act, 1972.

iii) There is no Reserved Forest within 10 kms from the proposed area.

xx. **TOTAL COST OF THE PROJECT:**

A. Investment cost	=	Rs.	8,00,000/-
B. Mining cost	=	Rs.	1,87,58,000/-
Total Project Cost (A+B)	=	**Rs.**	**1,95,58,000/-**
xxi. **EMP Cost**	=	**Rs.**	**13,80,000/-**
xxii. **CER Cost@2.0% over (A+B)**	=	**Rs.**	**4,00,000/-**



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.....
...

1. GENERAL INFORMATION :

1.1	a)	Name of the applicant	**Thiru. A.SEETHAKUMAR, S/o.ARUMUGAM.**
	b)	Address of the applicant (with phone No. & e-mail)	Address : D. No.543, Mappillai Subbiah Street, Rajapalayam Town & Taluk, Virudhunagar District. District : Virudhunagar Pin Code : 626 117. Mobile No : 8012523355 Email id:
	c)	Status of the applicant (Individual / Company / Firm)	Individual.
1.2	a)	Mineral which the applicant intends to mine	**Rough Stone and Gravel.**
	b)	Precise area communication letter details received from the Competent authority of the Government	Deputy Director, Geology & Mining Department, Virudhunagar District Precise area communication letter **Na.Ka.No: KV1/638/2020-Kanimam dated 02.02.2021.**
	c)	Period of permission / lease to be granted	**Period of lease granted for 10 years as per Rule 19(1) & 20 of Tamil Nadu Minor Mineral Concession Rules -1959 vide Proceedings of Assistant Director, Geology and Mining Department, Virudhunagar District Na.Ka.KV1/638/2020 dated 06.04.2023 and Lease period from 11.04.2023 to 10.04.2023.**

	d)	Name and address of the RQP / Authorized person preparing the mining plan	Name : T.S.Ganesan M.Sc., Address : No. 57, Mega Raja Nagar 'D' Colony, K.T.C.Nagar North, Maharaja Nagar Post, Tirunelveli – 627 011. Cell : +91 99527 68491 E-Mail: rampriya1965@gmail.com Registration No : RQP/MAS/142/2000/A

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2. LOCATION:

2.1	a)	Details of the area with location map

The applied area is located 0.6 km south of Gopalapuram village and well connected from the State HighWay-186 Rajapalayam Town – Alangulam - Vembakottai at Keelarajakularaman village and panchayat road between Gopalauram - Vadakari connects through kutcha road to the area of quarry lease. The area bounded by following villages nearby:

– refer Plate-IA & Plate-II.

Table -1

DIRECTION	VILLAGE	POPULATION	DISTANCE
North	Gopalapuram	1,461	0.6 Km
	Kannithevanpatti(H)	-	2.0 Km
	Peyampatti	-	2.7 km
	KeelaRajakularaman	8,986	3.5 Km
NE	Swaminathapuram(H)	-	2.5 Km
	Andappanayakanpatti(H)	-	2.5 Km
	Nallakammapuram(H)	-	3.0 Km
	Karisalkulam	1,500	4.0 Km
	Thombakulam	2,400	4.5 Km
NW	Varagunaramapuram	1,357	2.0 Km
	Nathampatti	2,143	3.5 Km
	Nallamanaickenpatti	2,806	4.5 Km
South	Vadakarai	3,454	1.5 Km
SE	Sivalingapuram	2,143	2.0 Km
SW	Thenkarai	918	2.2 Km
	Senthattiyapuram	1,200	4.0 Km
East	Alangulam	1,924	4.5 Km
West	Kilavikulam	741	3.5Km
	Cholapuram R.S	-	5.0 Km

	i)	District, Taluk and Village	**District : Virudhunagar** **Taluk : Vembakottai** **Village : Gopalapuram**
	ii)	Survey Nos.	**532/2C (0.82.00 Hc.), 533/1(0.41.50 Hc.), 533/2(0.42.00Hc.), 533/3(0.25.00Hc.), and 533/4(0.22.00 Hc.)**
	iii)	Total Extent in Ha.	**2.12.50 Hectares**
2.2	b)	Classification of the area (Ryotwari/ Poramboke/ others)	**Patta Lands (Ryotwari)**
2.3	c)	Ownership / Occupancy of the applied area (surface right)	As per village accounts the land stands in the name of the applicant Thiru.A.Seethakumar, S/o. Arumugam vide **Patta No. 2119** of Gopalapuram Revenue Village, Vembakottai Taluk. As such the applicant has got surface rights over the lands applied for the grant of quarry lease for Rough Stone and Gravel.
2.4	d)	Topo sheet No. with latitude and longitude	**Topo Sheet No. : 58 G/11.** **Latitude between : 09° 21' 12.90"N to 09° 21' 18.70"N** **Longitude between: 77° 37' 14.60"E to 77° 37' 20.50"E**
2.5	e)	Existence of public road / Railway line, if any nearby and approximate distance:	
		The State HighWay-186 Rajapalayam Town – Alangulam - Vembakottai at Keelarajakularaman village is at 3.5 Kms north and National Highway NH-744 4-Lane at 12Kms northwest. The Nearest Railway station is Rajapalayam at about 12 Kms, the nearest Airport is Madurai at 125 kms northeast and Sea Port is Thoothukudi at 120 Kms southeast.	

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SITE PHOTOS:


GPS Map Camera
Gopalapuram, Tamil Nadu, India
Google


GPS Map Camera
Gopalapuram, Tamil Nadu, India
Google


GPS Map Camera
Gopalapuram, Tamil Nadu, India
Google

PART – A

3. GEOLOGY AND MINERAL RESERVES :

3.1	**Brief description of the Topography and general Geology of the area (with plans) :**	

The area applied for quarry lease located 120m above MSL, is plain terrain and covered by 0.6m thick layer of sandy brownish red soil followed by gravel, weathered rock formation and massive Charnockite rock formations. The massive rock formation is noticed / occurred at an average depth of 5.6 mts from the surface i.e. below top soil and weathered rock formation.

The area in and around the proposed quarry area is devoid of plantation, vegetation and cultivation.

The top loamy brownish soil and weathered rock portion used for formation of Roads, filling the low lying areas, etc., The massive Charnockite occur below the weathered zone is hard, medium to coarse grained with intrusions. The rough stone is played a vital role in construction and road formation civil works.

Water table is found at a depth of 60m below ground level. Average annual rainfall is about 935mm during SW and NE monsoons.

Peninsular gneiss forms the oldest rock formations of Archean age, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale the Charnockite formations trends along NE-SW with a dip of 70° SE. The general geological sequences of the rocks in this area are given below.

AGE		FORMATION
Recent	-	Quaternary weathered rock formation
.....Unconformity		
Archean	-	Charnockites
		Peninsular Gneiss complex.

3.2	Details of exploration already carried out if any	Exploration does not arise, since the massive Rough stone formation visible from the existing working quarry in the mine pit.

3.3	**Estimation of reserves**
	a) Geological reserves with geological sections on a scale of 1:1000 / 1:2000:
	The practical method of the systematic geological mapping and delineation of Rough stone (Charnockite) within the field was done with the existing pits available and careful evaluation of body luster, physical properties, engineering properties, commercial aspects etc., Totally 4 sections have been drawn as (A-A'), (B-B') and (C-C') to cover the maximum area considered. The Topographical, Geological plan and sections demarcated the commercial marketable Rough stone (Charnockite) deposit has been prepared in scale Plan 1:2000 & Sections – 1:1000 and the estimated available Geological Reserves after deducting existing pit already quarried as **28,22,787MT of Rough Stone, 1,62,100MT of Gravel and 19,158 MT of Top Soil.** The existing pit dimensions along with quarried minerals also tabulated below along with existing gravel stocks. **Please refer the Surface cum Geological plan and sections Plate No- IV.** **Tables-1, 1A & 1B.**

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Geological Resources (Plate No. IV)

The geological reserves have been calculated based on the cross section method and the availability of Geological Resources in this land is given below.

Table-1

SECTION	LENGTH (M)	WIDTH (M)	DEPTH (M)	Tonnage Factor	ROUGH STONE in MT	GRAVEL in MT	TOP SOIL in MT
A-A' & B-B'	60	161	0.6	2.0	-	-	11,592
	60	161	5.0	2.0	-	96,600	-
	60	161	44.0	2.75	11,68,860	-	-
A-A' & C-C'	96	150	0.6	2.0	-	-	17,280
	96	150	5.0	2.0	-	1,44,000	-
	96	150	44.0	2.75	17,42,400	-	-
TOTAL ESTIMATED GEOLOGICAL RESERVES					**29,11,260**	**2,40,600**	**28,872**
Less: ALREADY QUARRIED (Table-1A)					**(-)88,473**	**(-)78,500**	**(-)9,714**
BALANCE GEOLOGICAL RESERVES					**28,22,787**	**1,62,100**	**19,158**

Table-1A

SECTION	LENGTH M	WIDTH M	DEPTH M	Tonnage Factor	ROUGHSTONE in MT	GRAVEL in MT	TOP SOIL in MT
A-A' & B-B'	50.0	99.0	0.6	2.0	-	-	5,940
	49.0	98.0	5.0	2.0	-	48,020	-
	44.0	92.0	5.0	2.75	55,660	-	-
A-A' & C-C'	30.5	103.1	0.6	2.0	-	-	3,774
	30.0	101.6	5.0	2.0	-	30,480	-
	28.0	85.23	5.0	2.75	32,813	-	-
TOTAL QUARRIED			10.6		88,473	78,500	9,714

AVAILABLE GRAVEL STOCKS SIZE & QUANTITY:

Table-1B

STOCK	LENGTH M	WIDTH M	HEIGHT M	Tonnage Factor	GRAVEL in MT
I	54.1	32.0	3.6	2.0	12,465
II	49.6	36.3	3.1	2.0	11,163
TOTAL GRAVEL in 2 STOCKS					23,628

Available Mineable Reserves (Plate No. VI):

The available mineable reserves are calculated for the balance period of 7 years & 6 months against granted lease period of 10 years based on the total minable reserves calculated by safety distances of 10.0m at southern side for the nilaviyal odai, 10m to the cart track on eastern side & Boomithan land at northwest and 7.5m to the patta land on all other sides of the boundary side of the applied area and Bench losses.

Table-2

SECTION	BENCH	LENGTH (M)	WIDTH (M)	HEIGHT (M)	Tonnage Factor	ROUGHSTONE in MT	GRAVEL in MT	TOP SOIL in MT
A-A' & B-B'	-	50.0	143.5	0.6	2.0	-	-	8,610
	I	49.0	142.0	5.0	"	-	69,580	-
	II	44.0	131.0	5.0	2.75	79,255	-	-
	III	39.0	121.0	5.0	"	64,886	-	-
	IV	34.0	111.0	5.0	"	51,893	-	-
	V	29.0	101.0	5.0	"	40,274	-	-
	VI	24.0	91.0	5.0	"	30,030	-	-
	VII	19.0	81.0	5.0	"	21,161	-	-
	VIII	14.0	71.0	5.0	"	13,668	-	-
	IX	9.0	61.0	5.0	"	7,549	-	-
	X	4.0	51.0	4.0	"	2,244	-	-

	-	88.5	132.5	0.6	2.0	-	-	14,072
	I	88.0	131.0	5.0	"	-	1,15,280	-
	II	82.0	120.0	5.0	2.75	1,35,300		
	III	77.0	110.0	5.0	"	1,16,463		
	IV	72.0	100.0	5.0	"	99,000		
A-A' & C-C'	V	67.0	90.0	5.0	"	82,613	-	-
	VI	62.0	80.0	5.0	"	68,200	-	-
	VII	57.0	70.0	5.0	"	54,863	-	-
	VIII	52.0	60.0	5.0	"	42,900	-	-
	IX	47.0	50.0	5.0	"	32,313	-	-
	X	42.0	40.0	4.0	"	18,480	-	-
TOTAL ESTIMATED MINEABLE RESERVES						**9,61,392**	**1,84,860**	**22,682**
LESS: EXISTING PIT – TOTAL QUANTITY						**(-)88,473**	**(-)78,500**	**(-)9,714**
ADDITION: AVAILABLE GRAVEL STOCKS TOTAL						-	**(+)23,628**	-
BALANCE MINEABLE RESERVES						**8,72,919**	**1,29,988**	**12,968**

The available balance mineable reserves have been computed as **8,72,919MT** of **Rough Stone, 1,29,988MT** of **Gravel and 12,968MT of Top Soil** up-to the depth of **49.6** meters from ground level.

4. MINING :

4.1	Method of mining (opencast / underground) :
	Open cast Semi-Mechanized Mining with one 5.6meter bench for Top soil & Gravel followed by charnockite rock / Rough Stone 5.0meter vertical bench with a bench width not less than the bench height. However, as far as the quarrying of Rough stone is concerned, observance of the provisions of Regulation 106 (2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence, it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety for which necessary provision is available with the Regulation 106 (2) (b) of MMR-1961, under Mines Act – 1952.
4.2	Mode of working (mechanized, semi mechanized, manual) :
	The Rough Stone is proposed to quarry at 5m bench height & width with conventional Opencast Semi-Mechanized Method. The quarry operation involves shallow jack hammer drilling / wagon drilling (after getting proper permissions from DGMS under supervision of safety managers), slurry blasting, Loading and transportation of Rough stone and Gravel to the needy nearby crusher units / road formation works. The production of Rough stone in this quarry involves the following method which is typical for Rough Stone quarrying in contrast to other major mineral mining.

	Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, by manual/ excavator breakers for braking and loading the Rough Stone from pithead to the needy crushing units/ civil works for the needy sectors.	
4.3	Proposed bench height & width	Height 5.0m & Width 5.0m.
4.4	Indicate the overburden / mineral production expected pit wise as detailed below : (composite plan and section showing pit layout, dumps, disposal of waste if any etc.)	
	The overburden is in the form of gravel with thin layer of red soil and weathered rock formation, it will be removed during the quarrying operation, the top soil preserved all along the boundary barrier for afforestation and remaining is salable. Hence there is no waste anticipated during the Rough stone quarry operation, The excavated rough stone will be directly loaded into the tippers to the end points. **The Year wise production and Development plan and sections indicating the Pit lay out, Green belt development and sections are shown in Plate-V and presented in the Table-3 as follows.**	

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Table-3

Year wise - Production Schedule for Balance Period of 5 Years

SECTION	YEAR	BENCH	LENGTH (M)	WIDTH (M)	HEIGHT (M)	Tonnage Factor	ROUGH STONE in MT	GRAVEL in MT
A-A' & B-B'	III-Year	III	39	82.0	5.0	2.75	43,973	-
	6 months	III	23	75.0	5.0	"	23,719	-
Gravel available in 2 Stocks -Total							-	23,628
III – YEAR Balance Period 6-Months PRODUCTION							**67,692**	**23,628**
A-A' & B-B'	IV-Year	I	49	44.0	5.0	2.0	-	21,560
		II	44	39.0	5.0	2.75	23,595	-
		III	39	39.0	5.0	"	20,914	-
		IV	34	111.0	5.0	"	51,893	-
		V	29	101.0	5.0	"	40,274	-
A-A' & C-C'		I	30	29.4	5.0	2.00	-	8,820
		II	28	34.77	5.0	2.75	13,386	-
		III	23	35.0	5.0	"	11,069	-
		IV	18	100.0	5.0	"	24,750	-
IV – YEAR PRODUCTION							**1,85,881**	**30,379**
A-A' & B-B'	V-YEAR	VI	24	91.0	5.0	2.75	30,030	-
A-A' & C-C'		I	29	131.0	5.0	2.0	-	37,990
		II	25	120.0	5.0	2.75	41,250	-
		III	25	110.0	5.0	"	37,813	-
		IV	25	100.0	5.0	"	34,375	-
		V	38	90.0	5.0	"	47,025	-
V – YEAR PRODUCTION							**1,90,493**	**37,990**

A-A' & C-C'	VI-YEAR	I	29	131.0	5.0	2.0		37,990
		II	29	120.0	5.0	2.75	47,850	-
		III	29	110.0	5.0	"	43,863	
		IV	29	100.0	5.0	"	39,875	
		V	29	90.0	5.0	"	35,888	
		VI	15	80.0	5.0	"	16,500	
VI – YEAR PRODUCTION							**1,83,976**	**37,990**
A-A' & B-B'	VII-YEAR	VII	19	81.0	5.0	2.75	21,161	-
		VII	14	71.0	5.0	"	13,668	-
A-A' & C-C'		VI	47	80.0	5.0	"	51,700	-
		VII	57	70.0	5.0	"	54,863	-
		VIII	52	60.0	5.0	"	42,900	-
VII – YEAR PRODUCTION							**1,84,292**	-
A-A' & B-B'	VIII-YEAR	IX	9	61.0	5.0	2.75	7,549	-
A-A' & C-C'		IX	19	50.0	5.0	"	13,062	-
VIII – YEAR PRODUCTION							**20,611**	-
A-A' & B-B'	IX-YEAR	IX	28	50.0	5.0	2.75	19,250	-
IX – YEAR PRODUCTION							**19,250**	-
A-A' & B-B'	X-YEAR	X	4	51.0	4.0	2.75	2,244	-
A-A' & C-C'		X	42	40.0	4.0	"	18,480	-
X – YEAR PRODUCTION							**20,724**	-
TOTAL PRODUCTION FOR REMAINIG LEASE PERIOD							**8,72,919**	**1,29,988**

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Summary - Year wise Production including two stocks of gravel:

YEAR	ROUGH STONE-MT	GRAVEL -MT
III – remaining Period	67,692	23,628
IV	1,85,881	30,379
V	1,90,493	37,990
VI	1,83,976	37,990
VII	1,84,292	-
VIII	20,611	-
IX	19,250	-
X	20,724	-
Total	8,72,919	1,29,988

The lessee has proposed to carry out **8,72,919MT** of Rough Stone and **1,29,988MT** of Gravel production for the balance available period of **SEVEN YEARS and SIX MONTHS** in the remaining **Lease Period** up to a depth of **49.6 m** from the ground level.

The Top soil development schedule for the work already carried out, balance period of First fives and sixth year to tenth year projection also given as in the table below:

Table – 3A TOP SOIL DEVELOPMENT SCHEDULE

PERIOD	SECTION	LENGTH M	WIDTH M	DEPTH M	Tonnage Factor	TOP SOIL in MT
Already removed from 11.4.2023 to 10.9.2025 (Plate-IV)						**9,714**
IV-Year	A-A' & B-B'	50.0	44.5	0.6	2.0	2,670
	A-A' & C-C'	30.5	29.4	0.6	"	1,076
V-Year	A-A' & C-C'	29.0	132.5	0.6	2.0	4,611
VI-Year	A-A' & C-C'	29.0	132.5	0.6	2.0	4,611
Top Soil Development during remaining period						**12,968**
TOTAL TOP SOIL DEVELOPEMENT						**22,682**

The top soil will be utilized for the bund all around the quarry area for arresting rain water entering to the quarry pit and green belt development for planting the trees.

4.5	Machineries to be used	
	a) For Mining :	
		Excavator of 0.90Cbm bucket capacity (with Rock breaker attachment) – 1 No. Jack hammers 30-32mm dia. – 2 sets (4 Nos.) Tractor mounted compressor (2 jack hammer capacity) -1 No.
	b) Loading equipment	Excavator of 0.90Cbm bucket capacity (with bucket attachment) – 1 No.
	c) Transportation (includes within the mine and mine to destination)	Tipper 2 Nos. of 10/20 tons capacity (from quarry to needy peoples & local crushers).
4.6	Disposal of overburden / waste	
	The overburden is in the form of top soil and gravel formation. It will be quarried for filling purposes to nearby end users and part of soil will be preserved all along the boundary as barrier for afforestation.	
4.7	Brief note on conceptual mining plan for the entire lease period base on the geological, mining and environmental considerations:	
	Conceptual mining plan is prepared with an object of long term systematic development of benches, layouts, selection of permanent structures, depth of quarrying and ultimate pit dimensions, selection of sites for construction of infrastructure, etc., The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc., The ultimate pit limit (dimension) at the end of ten years mining lease period is given below:	

Table-4

Description End of the lease period	Length (Max) (m)	Width (Max) (m)	Depth (Max) (m)
A-A' & B-B'	50.0	143.5	49.6
A-A' & C-C'	88.5	132.5	49.6

Afforestation has been proposed in the 10.0m & 7.5m safety barrier by planting 1100 nos. of native trees.

Trees of native species during the five years period is proposed to plant. All the base line information studies like Air quality monitoring, Noise and vibration monitoring, Water analysis studies will be carried out as per the MOEF Norms.

Please refer plate No. V & VI.

5. BLASTING:

5.1 Blasting pattern

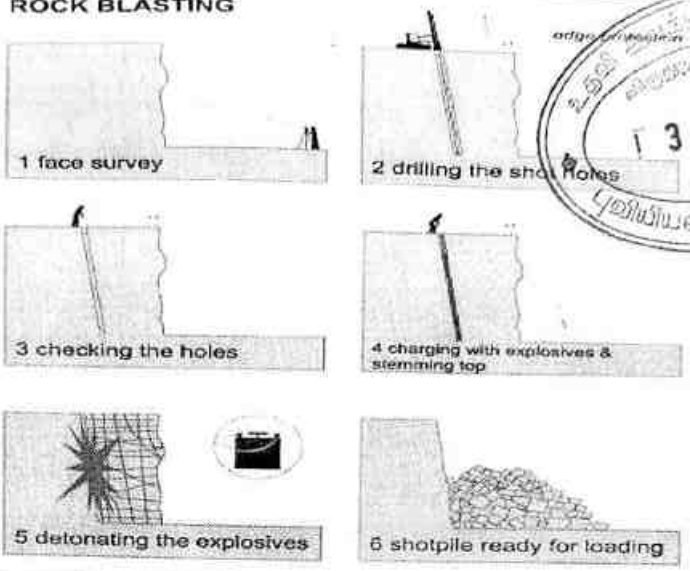
The quarrying operation will be carried out in conjunction with conventional method of mining using Jack hammer drilling and blasting for shattering effect and loosen the Rough stone.

Drilling and Blasting:

Drilling and blasting parameters are as follows:

Diameter of the hole	:	32-36 mm
Spacing	:	0.5m
Depth	:	1.2m to 1.5m
Burden per hole	:	0.5m
Pattern of hole	:	Zig Zag Staggered in 2 to 3 rows
Inclination of holes	:	80° from the horizontal.
Use of delay detonators	:	25 milli-second delays
Detonating fuse	:	NONEL "Detonating" Cord

ROCK BLASTING



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5.2 Type of explosives to be used

Small Dia. 25mm Slurry explosives are proposed to be used for shattering and heaving effect for removal and winning of Rough stone. No deep hole drilling or primary blasting is proposed.

5.3 Measures proposed to minimize ground vibration due to blasting

Controlled blasting measures will be adopted for minimizing ground vibration and fly of rock by NONEL initiation based controlled blasting. Shallow depths jackhammer drilling & blasting is proposed to be carried out with minimum use of explosive mainly to give shattering effect in rough stone for easy excavation and to control fly of rock.

Number of holes	:	Total- 35 holes per shot of blasting in 6 batches per day.
Powder factor	:	6 Ts/Kg of explosives
Total explosive required/day	:	105 Kg slurry explosives (Max capacity)
Charge / hole	:	0.5Kg
Blasting time	:	12.00-2.00 PM / 4.30-5.30 PM

5.4 Storage and safety measures to be taken while blasting

The lessee will engage an authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory Foreman/Permit Mines Manager.

6. MINE DRAINAGE :

6.1	Depth of water table (based on nearby wells and water bodies)
	The water table is below 60 mts from ground level which is observed from the nearby bore wells and the data obtained from existing panchayat and Private borewells. The quarry operation is proposed up to a depth of 49.6mts below the ground level.
6.2	Arrangements and places where the mine water is finally proposed to be discharged
	The water encountered during quarrying inside the pit due to rain water and seepage, will be pumped out by 5HP water pumps to the Green belt development areas and excess water to the down side village water tanks (Kanmoi) through a de-silting trap pit for use of agricultural purposes. Also the water will be used for dust suppression on haul roads during Haulage of machineries.

7. OTHER PERMANENT STRUCTURES (also shown in the map):

7.1	Habitations / village natham:
	There are no habitations within the Radius of 300m. The nearby village habitations are tabulated in Table – 5 as below.
7.2	Power lines (HT/ LT):
	There are no Electric Power line within 50 mts distance from the lease area.
7.3	Water bodies (river, pond, lake, odai, canal etc.,)
	The nearest Village tank at 175m south. The nearest nilaviyal odai located adjoining southern boundary at south side for which a safety distance of 10m provided for the quarrying. There are no major water bodies like river, lake, etc., within 50m radial distance.
7.4	Archaeological / historical monuments
	There are no Archaeological / historical monuments within 500m radial distance from the area.
7.5	Road (NH, SH others)
	The State HighWay-186 Rajapalayam Town – Alangulam - Vembakottai at at 4.5 Kms north and panchayat road between Keelarajakularaman - Gopalauram - Vadakari villages connects the area applied for quarry lease formed through the katcha cart track.

7.6	Places of worship
	There are no places of worships within the Radius of 500m.
7.7	Reserved forest / forest / social forest / wild life sanctuary etc.
	• There is no Wild life Sanctuary located within 10km radius from the proposed area under the Wildlife (Protection) Act, 1972. • There is no Reserved Forest located within 10km radius from the proposed area.

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Table-5 Habitations / Villages

SL. NO	DIRECTION	VILLAGE	POPULATION	DISTANCE
1	North	Gopalapuram	1,461	0.6 Km
		Kannithevanpatti(H)	-	2.0 Km
		Peyampatti	-	2.7 km
		KeelaRajakularaman	8,986	3.5 Km
2	NE	Swaminathapuram(H)	-	2.5 Km
		Andappanayakanpatti(H)	-	2.5 Km
		Nallakammapuram(H)	-	3.0 Km
		Karisalkulam	1,500	4.0 Km
		Thombakulam	2,400	4.5 Km
3	NW	Varagunaramapuram	1,357	2.0 Km
		Nathampatti	2,143	3.5 Km
		Nallamanaickenpatti	2,806	4.5 Km
4	South	Vadakarai	3,454	1.5 Km
5	SE	Sivalingapuram	2,143	2.0 Km
6	SW	Thenkarai	918	2.2 Km
		Senthattiyapuram	1,200	4.0 Km
7	East	Alangulam	1,924	4.5 Km
8	West	Kilavikulam	741	3.5Km
		Cholapuram R.S	-	5.0 Km

A. Seethaiyan

Table-6 - Nearest Infrastructures :

Sl. No	Name of infrastructure	Name of village	Distance from area applied for M.L
1	Post office	Gopalapuram B.O Pin:626 136.	0.6 Km
2	Police station	KeelaRajakularaman	4.5 Km
3	Town	Rajapalayam	12.0 Km
4	Panchayat	Gopalapuram	0.6 Km
5	Union	Rajapalayam	12.0 Km
6	DSP office	Rajapalayam	12.0 Km
7	Hospital	Kilavikulam PHC	3.0 Km
8	School	Panchayat Union Middle School Gopalapuram	0.7 Km
9	Railway station	Rajapalayam	12.0 Km
10	Airport	Madurai	92.0 Km
11	Sea Port	Thoothukudi	120.0 Km

3 OCT 2025

8. EMPLOYMENT POTENTIAL & WELFARE MEASURES :

8.1 Employment potential (skilled, semi skilled, unskilled)

Table 7. Man Power

S.No.	Levels & Details		Persons
1.	Skilled	Operators	1
		Mechanic	1
		Blaster/Mate	2
2.	Semi – skilled	Drivers	2
3.	Unskilled	Musdoor/Labours	8
		Cleaners	2
		Office Boy	1
4.	Management & Supervisory staff		1
Total			**18**

The above manpower is adequate to meet out the production schedule and the machinery strength envisaged in the mining plan and to comply with the statutory provisions of the Mines Safety Regulations. It is been ensured that no labour employed less than 21 years (child labours) or entertained for any kind of quarrying operations. All the labours engaged for quarrying operations will be insured during the quarry lease period.

8.2 Welfare measures

a) Drinking water/other water requirements:

Table 8. Water Requirement

Purpose	Quantity	Source
Drinking & Domestic use	1.00 KLD	Purified water for drinking purposes and others uses by road tankers supply. Requirement will be arranged from nearby sources
Afforestation / Green belt	1.00 KLD	
Dust suppression sprinkling	2.00 KLD	
Total	**4.00 KLD**	

3 OCT

b) Sanitary facilities

Sanitary facilities will be constructed with in the quarry lease area as permanent structure and it will be maintained periodically.

c) First Aid facility

First aid kits will be kept in Mines office room, in case of such eventualities, the victim will be given first aid immediately at the site and injured person will be taken to the hospital. Hospitals are available at distance of 3.0 Km in Kilavikulam PHC / at 12.0 Km Rajapalayam GH & private hospitals. The competent and Statutory Foreman/ Permit Manager will be in charge of first aid.

d) Labor Health

Periodically medical checkup related to occupational health safety will be conducted to all the workers.

e) Precautionary safety measures to the laborers

All the quarry workers will be provided with safety equipments like helmets, Mine Goggles, Ear plugs, Ear muffs, Dust mask, reflector jackets and Safety Shoes as personal protective device as per the specification approved by Director of Mines Safety. Periodically medical checkup will be conducted for all workers for any mine health related problems. Proper training and induction will be given by qualified and experienced safety officer to all employees about the safe and systematic Rough stone quarrying operations. The drillers and workers will be sent for vocational training periodically to carry out the quarrying operations scientifically to safe guard the men machinery and mineral and to create awareness of conventional opencast quarrying operations.

PART – B

9. ENVIRONMENT MANAGEMENT PLAN :

13 OCT 2015

9.1 Existing land use pattern:

The lease area is plain terrain with very gently sloping towards southeast. The proposed lease area is dry barren lands and occasionally covered by thorny bushes. The area is mostly dry and barren. The dry & wet crop agricultural activities are noticed within 1 km scattered manner and remaining area is mostly dry and barren scrubs.

Land use pattern in percentage wise within 1.0 Km radius is follows:

1. Quarry Area Old & proposed - 7.0%
2. Habitations - 5.5%
3. Roads & cart tracks - 2.0%
4. Water bodies odai & Kanmoi - 19.0%
5. Dry Lands & open scrubs - 25.0%
6. Green Belt - 2.5%
7. Seasonal Agricultural lands - 39.0%

The land use pattern within the proposed lease area in the beginning and end of the lease period:

Table 9 Land Use Pattern

S. No.	Land Use	Present Area (Hect)	Area after the quarrying period of 10 years (Hect)
1.	Area under quarrying	0.70.20	1.58.20
2.	Infrastructures	0.01.00	0.01.00
3.	Roads, cart tracks etc.,	0.03.00	0.03.00
4.	Green Belt	0.50.30	0.50.30
5.	Unutilized Area	0.88.00	0.00.00
	Total	**2.12.50**	**2.12.50**

Details furnished in the **Plate Nos. VIIA, VIIB & VIII.**

9.2 Water regime

This proposed quarry operation is up to a maximum depth of 49.6m below the ground level will not be affected by the ground water table below 60 mts from ground level.

	There are 13 agricultural open wells within 500m of the project area-mostly located close to the odai/kulam. Mostly, all wells are abandoned condition and others, during monsoon and rainy seasons the water level is at 5mts BGL and during summer it becomes dry. The panchayat borewells near the villages found the water level at 60mts below ground level.
9.3	Flora and fauna
	Except grass, acacia bushes, no other valuable trees are noticed in the applied area. Further, neither flora of botanical interest nor fauna of zoological interest is noticed in this area.
9.4	Climatic conditions
	The area receives annual rainfall of about 935mm and the rainy season is mainly from Oct. – Dec. during North East monsoon. The summer is hot with maximum temperature of 42°C and winter encounters a minimum temperature of 23°C.
9.5	Human settlement
	There are few villages located in this area within 5km radius, the approximate distance and population are given in Table -5 as above. Basic human welfare Amenities such as Health Center, Schools, Communication Facilities, and Commercial Centers etc., are available at Virudhunagar city located at the distance of 7.0 Km from the mining proposed area.
9.6	Plan for air, dust suppression
	The Air quality will be affected during the quarrying period due to blasting and jack hammer drilling, which will be within prescribed limits. Mist Water spraying will be carried out to suppress the dust in day time often as and when required.
9.7	Plan for noise level control
	Shallow holes of 32mm diameter and 1.5 feet depth will be drilled and conventional low power explosives such as Slurry Explosives, ordinary safety fuse only will be used for rough stone. Hence, ground vibration and noise pollution will be minimal and restricted within the quarry workings. Noise level monitoring and other Mitigation measures will be carried out to reduce Noise and Vibration. The drivers will be strictly instructed to move the vehicle transportation not exceeding 40 km per hour. Sentries with flags & whistle will be posted in village junction and regulate traffic.
9.8	Environmental impact assessment statement describing impact of mining on the next five years

	The mining plan is for production of Rough stone involving deep hole drilling and heavy blasting. The mining activity will be carefully carried without causing any impact adversely on environment as far as pollution of air, water and noise is concerned. Anyhow periodical quarterly environmental impact studies will be conducted as per EIA notification issued by MOEF.
9.9	Proposal for waste management
	The Air quality will be affected during the quarrying period due to blasting and jack hammer drilling, which will be controlled by spraying Mist Water to suppress dust.
9.10	Proposal for reclamation of land affected during mining activities and at the end of mining (refilling / fencing etc.)
	The project proposed area will be fenced with stone pillars with 3mts interval and covered barbed wires with only one entry point for transport. There is no refilling is planned since all the quarried rough stone and gravel is salable and the pit after quarry completion will be filled with rain water from the nearby sources which will act as recharge body for ground water for the influence of the surrounding agricultural wells for agricultural purposes.
9.11	Program of afforestation (indicate extend, number, name of species to be afforestated)
	The 7.5m safety distance along the lease boundary has been identified to be utilized for afforestation. Appropriate native species of Neem trees will be planted in a phased manner as described below.

Table – 6

Year	No. of tress proposed to be planted	Survival rate %	Area to be covered Sq.m	Name of the species	No. of trees expected to be grown
III	120	80%	503.0	USILAM / TAMARIND	96
IV	120	80%	503.0	NAVAL / PUVARASU	96
V	120	80%	503.0	PANAI / SAVUKKU	96
VI	120	80%	503.0	MANTHARAI / OAK	96
VII	120	80%	503.0	USILAM / TAMARIND	96
VIII	120	80%	503.0	NAVAL / PUVARASU	96
IX	120	80%	503.0	PANAI / SAVUKKU	96
X	120	80%	503.0	MANTHARAI / OAK	96

9.12	**Proposed financial estimate / budget for (EMP) environment management:**



I. Project Cost :

(a). Investment Cost :

S. No	DETAILS	COST in Rs. /-
i)	Lease rent / Land Cost	6,50,000
ii)	Machinery to be used	Hired machinery
iii)	Fencing	1,50,000
iv)	Labourers Shed	50,000
v)	Sanitary facility	25,000
vi)	Other Items	25,000
TOTAL		**8,00,000**

(b). Expenditure/ Production Cost. (1Unit= 2.83m³)

Drilling and Blasting cost / MT production including loading & breaking. = Rs. 20/-

i).Mining cost for rough stone up to 5 Years planned production quantity

Total Minable quantity in MT - 8,72,919 MT

Total cost of mining Rough Stone = 8,72,919 X Rs. 20/-

= Rs. 1,74,58,380/-

ii).Mining cost for gravel for 5 Years planned production quantity

Total Minable quantity in MT - 1,29,988

Total cost of mining - Gravel = 1,29,988 X Rs. 10/-

= Rs. 12,99,880/-

Total Cost for Mining - Rs. 1,87,58,260/-

Say - Rs. 1,87,58,000/-

Total Project Cost (a+b) = Rs. 1,95,58,000/-.

II. EMP Cost :

Sl. No.	DETAILS	COST per MONTH (Rs.)	Total Cost per Year (Rs.)	TOTAL COST for REMAINING LEASE PERIOD (Rs.)
i)	Drinking Water facility for 18 peoples from water vendors	2000	24,000	1,80,000
ii)	Sanitary maintenance for Rest rooms	1500	18,000	1,35,000
iii)	Safety kits(mask, helmet, sanitizer, gloves, etc.,)	1000	12,000	90,000
iv)	Water Sprinkling using own tractor for the area	5,000	60,000	4,50,000
v)	Afforestation, Plantation & Maintenance	20,000 (annual)	20,000	1,50,000
vi)	Environmental parameters testing expenses fees for every six months	(bi-annual)		3,75,000
	a. Air Monitoring	15,000	30,000	
	b. Water analysis	5,000	10,000	
	c. Noise Monitoring	2,500	5,000	
	d. Soil Testing	2,500	5,000	
			TOTAL	**13,80,000**

III. CER cost @2% on Project cost (a+b) - Rs. 4,00,000/-

CER Activity	CER cost (Rs)
Carrying out Renovation of old building comprising RCC roofing & flooring, Improvement in Sanitation and drinking water facility, Library Racks & books in Panchayat Union Middle School, Goplapuram, Rajapalayam Block & Virudhunagar District.@2% of the total project cost(Rs.2,00,00,000/-)	4,00,000/-
Revised Cost Allocation(10 Years)	**4,00,000/-**

10. MINE CLOSURE PLAN :

10.1	Steps proposed for phased restoration, reclamation of already mined out areas
	There is no proposal for back filling, reclamation and rehabilitation. The quarried pits after the end of the life of lease will be fenced to prevent inherent entry of public and cattle's and will be used for Rain Water harvesting.
10.2	Measures to be under taken on mine closure as per Act & Rules
	Measure will be taken as per Act & Rules, there is no proposal for back filling, reclamation and rehabilitation. The quarry pit will be fenced by barbed wire to prevent inherent entry of public and cattle. The quarried out pit will be allowed to collect rain water which will act as a reservoir for storage and recharge pit for ground water which will enhance the static water level of nearby wells

10.3	**MITIGATION MEASURE TO BE UNDERTAKEN FOR SAFETY AND RESTORATION / RECLAMATION OF THE ALREADY MINED OUT AREA.**
	AIR QUALITY: Air quality will be degrade due to the drilling, blasting, mining operation and transportation.
	Mitigation measures: Drilling will be carried out by wet drilling mode to control the dust propagation into the air. Controlled Blasting will be carried out on limited scale. Mist Water spraying on haul road is proposed to prevent the dust propagation into the air.
	NOISE AND VIBRATION: The noise will be formed due to the drilling, blasting, loading and movement of Machineries.
	The applicant has proposed to carry out the plantation all along the boundary to prevent Noise besides wet drilling will be practiced to prevent dust. All the machineries will be maintained in good conditions as per RTO and TNPCB Norms to prevent Noise, Smoke and vibration to maintain noise levels below 80dB.
	WATER REGIME :
	The quarry operation (49.6m depth below Ground level) is well above the water table (below 60 mts from ground level), hence the water table will not be affected in any manner. The seepage and rain water will be drained out from the pit by 5H.P motor pump and will be discharged through a silt trap / filter media to boundary barrier for afforestation and excess water will be sprayed on haul roads to prevent dust propagation in to the atmosphere. The rough stone quarry will not produce any harmful toxic effluence in the form of solid, liquid or gas.
	HUMAN HEALTH & SAFETY: Dust will be limited due to the mine operation.
	All the laborers will be provided with safety equipment's like helmet, Safety Goggles, Ear muff, Hand gloves, safety jacket, safety belt, and Mine boots etc., at applicant's cost, as per the specifications of Director of mines safety. The competent qualified person foreman/Permit Mines Manager will provide first aid and will take care of small & minor injuries. If any accident happens, the victim will be taken to the nearby hospital by the applicants van which is always kept in the mines office. Hospitals are available in Kilavikulam PHC and Rajapalayam Town GH & private hospitals located at the distance of 3.0 Km & 12.0 Km respectively from the mining lease area.

11. ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT:

- This mining plan for Rough stone (Charnockite) quarry is prepared as per the Minor Mineral Conservation and Development Rules, 2010 and amendments in the Tamil Nadu Minor Mineral Concession Rules, 1959.
- The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied with, so that the safety of the mine, machinery and person will be well protected.
- Permission, relaxation or exemption wherever required for the safe and scientific quarrying of the deposit will be obtained from the Department of Mines Safety.
- Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the Department.

Place : Virudhunagar
Date : .09.2025

Qualified Person
T.S.GANESAN M.Sc.,
QUALIFIED PERSON
RQP/MAS/142/2000/A

This Mining is approved based on guidelines/ instructions issued in the CGM, Letter No.3868/LC/2012 dated 19-11-2012 and incorpporation of the particulars specified in the latter Roc.No. KV1/628/2020

Dated 06.04.2022 **of the Deputy Director of Geology and Mining, Virudhunagar and subject to further Fulfillment of the conditions laid down under rule 41,42 of Tamil Nadu Minor Mineral Concession Rules 1959**

Assistant Director of Geology & Mining
Virudhunagar

07.10.2025

This Mining Plan is approved Subject to the conditions / Stipulation Indicated in the Mining Plan Approval

KV1/628/2020 07.10.25
Letter Roc. No. Dated

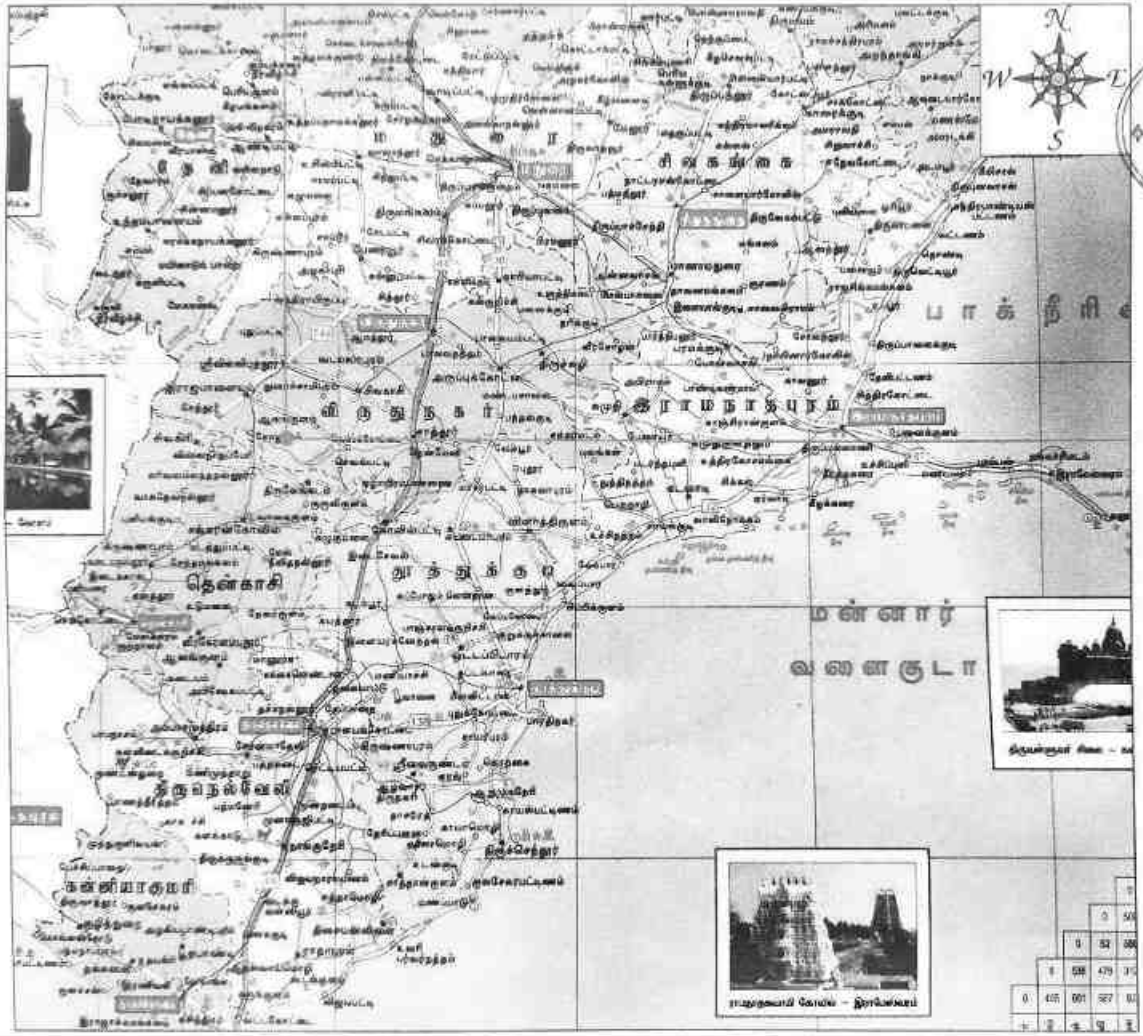


PLATE : 1

RECEIVED
13 OCT 2020
DISTRICT FORESTRY OFFICE
VIRUDHUNAGAR

APPLICANT DETAILS :

A.Seethakumar, S/o Velumugam
D.No.543, Mappillai Sahibiah St,
Rajapalayam Town & Taluk,
Virudhunagar District - 626 117.

LOCATION OF THE SITE :

EXTENT	:	2.12.50 Hect.
S.F Nos	:	532/2C, 533/1,2,3 & 4.
VILLAGE	:	GOPALAPURAM
TALUK	:	VEMBAKOTTAI
DISTRICT	:	VIRUDHUNAGAR

INDEX:-

Lease Area

LEGEND

- State Boundary
- District Boundary
- National Highway
- Major Road
- Railway
- River/Lake
- State Capital
- District Headquarter
- City/Town

LOCATION PLAN:-

NOT TO SCALE

Prepared by :-

T.S.GANESAN M.Sc.,
QUALIFIED PERSON
RQP/MAS/142/2000A

A.Seethakumar

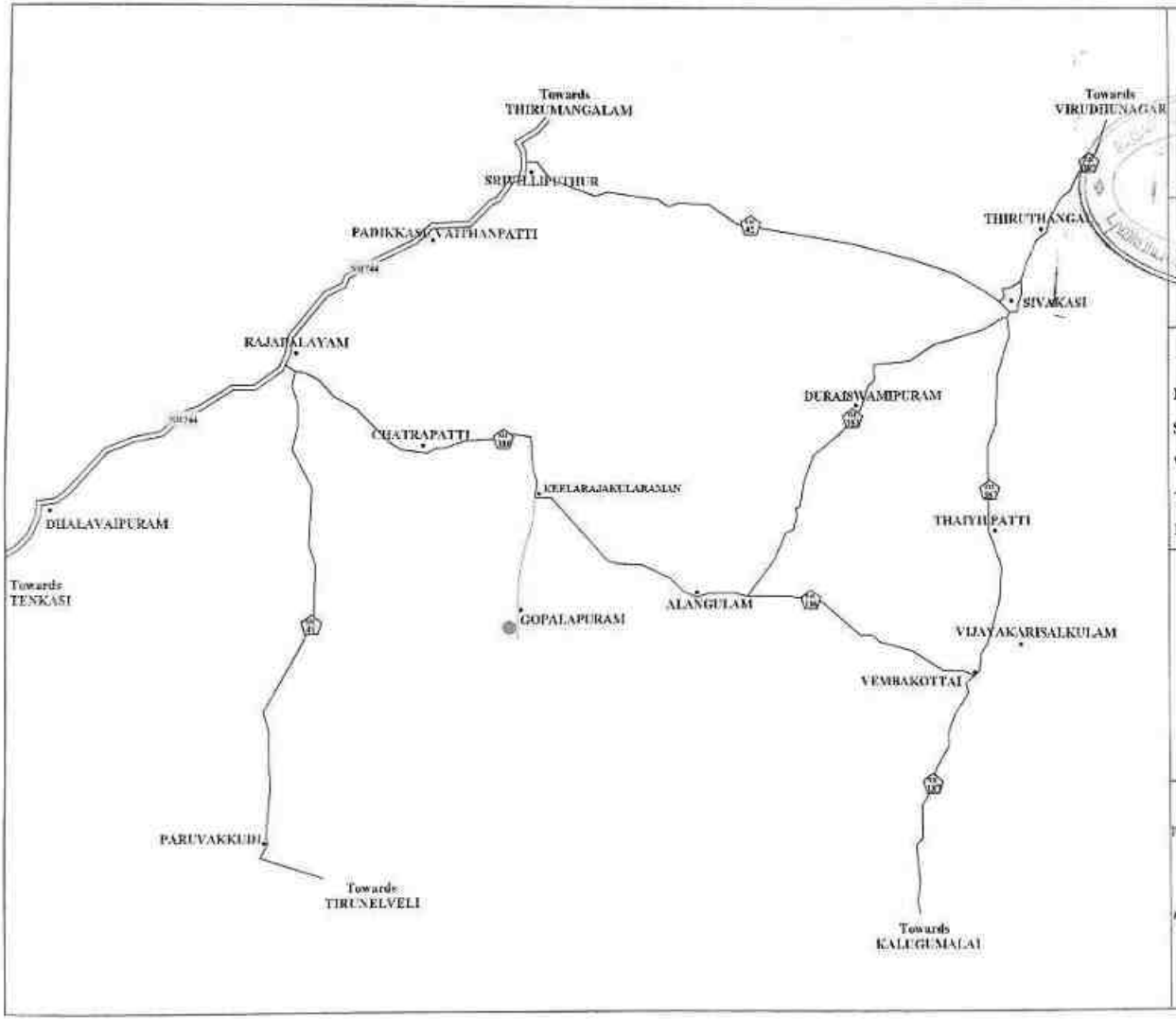


PLATE : IA

LESSEE DETAILS :

A.Seethakumar, S/o Arumugam
D.No.543, Mappillai Subbiah St,
Rajapalayam Town & Taluk,
Virudhunagar District - 626 117.

LOCATION OF THE SITE :

EXTENT	:	2.12.50 Hect.
S.F Nos	:	532/2C, 533/1,2,3 & 4.
VILLAGE	:	GOPALAPURAM
TALUK	:	VEMBAKOTTAI
DISTRICT	:	VIRUDHUNAGAR

INDEX:-

- Lease Area
- National Highway
- State Highway
- Approach Road

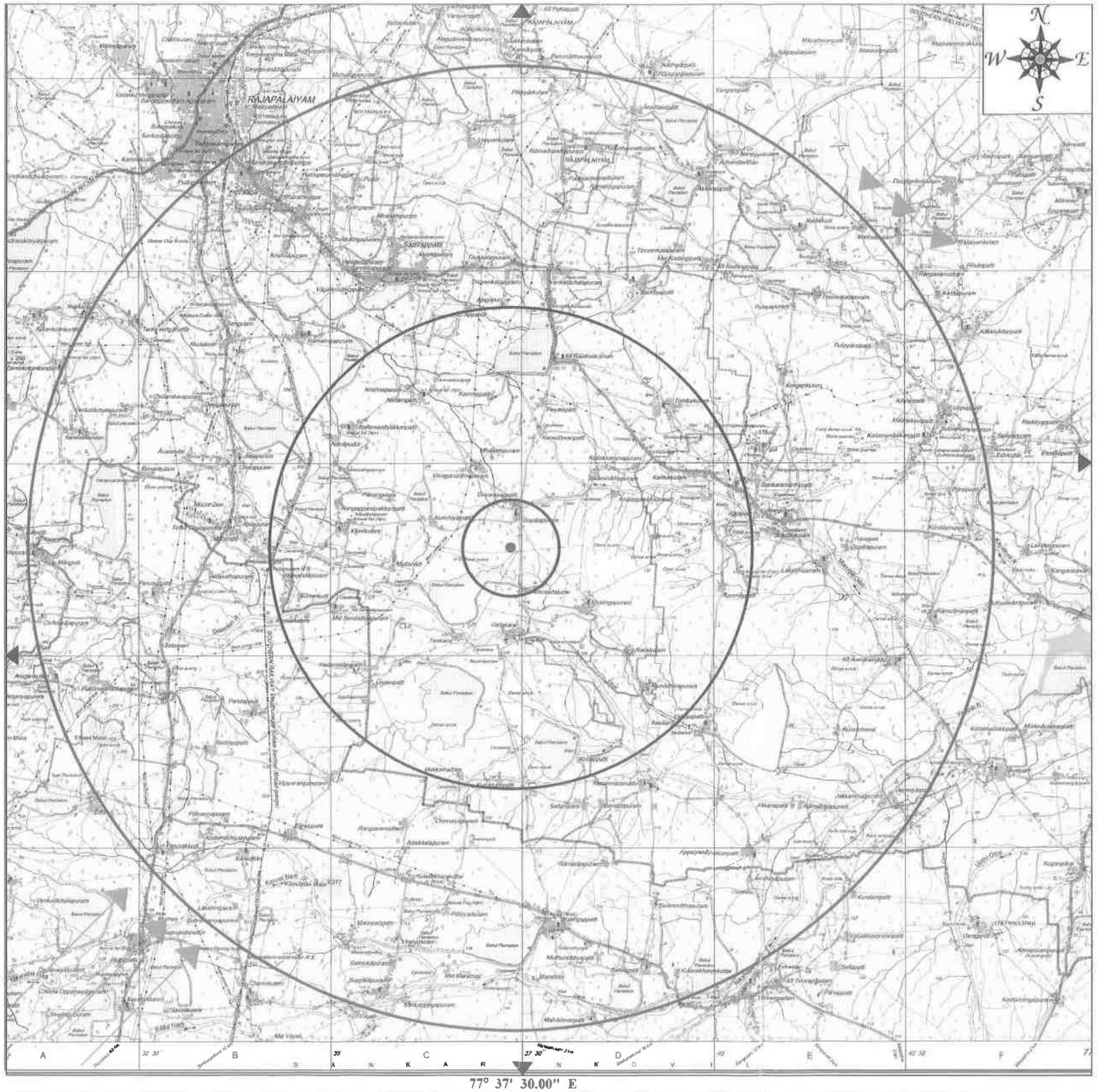
KEY MAP:-
(Not to Scale)

Prepared by :-

T.S.GANESAN M.Sc.,
QUALIFIED PERSON
RQP/MAS/142/2000/A

A. Seethakumar

77° 37' 30.00" E



77° 37' 30.00" E

PLATE : II

LESSEE DETAILS :

A.Seethakumar, S/o Arumugam

D.No.543, Mappillai Subbiah St,
Rajapalayam Town & Taluk,
Virudhunagar District - 626 117.

05 OCT 2025

LOCATION OF THE SITE :

EXTENT : 2.12.50 Hect.

S.F Nos : 532/2C, 533/1,~~2,3~~ & 4.

VILLAGE : GOPALAPURAM

TALUK : VEMBAKOTTAI

DISTRICT : VIRUDHUNAGAR

TOPO SHEET No:- 58G/11

Latitude : 9° 21' 12.90" N to 9° 21' 18.70" N

Longitude : 77° 37' 14.60" E to 77° 37' 20.50" E

Lease Area

Wind Direction

1 KM Radius

5 KM Radius

10 KM Radius

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 constrn . . . . . .
Railways, other gauges: double; single with distance stone, do. . . . . .

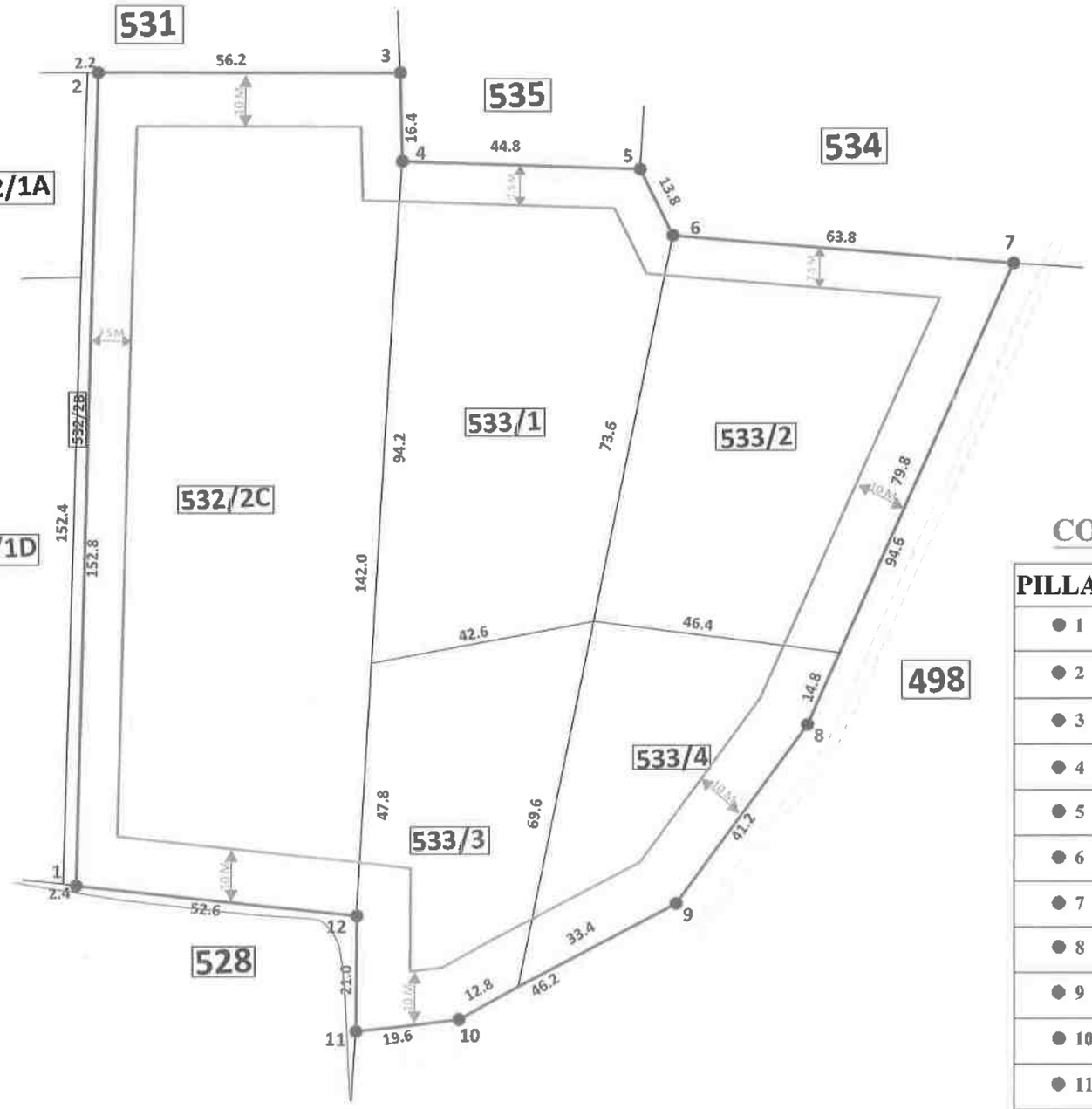
KEY PLAN:-

SCALE 1:75,000

PLANS & SECTIONS ARE PREPARED BASED ON THE LEASE MAP AUTHENTICATED BY THE STATE GOVERNMENT :-

T.S.GANESAN M.Sc.,
QUALIFIED PERSON
RQP/MAS/142/2000/A

A. Seethakumar



SAFETY DISTANCES :

Patta Lands at North & West	- 7.5 Mts
Cart Track & Govt. land East	- 10.0 Mts
Nilaviyal Odai at South	- 10.0 Mts

LEASE AREA DETAILS :

SF.No.	Applied Extent in Hects.
532/2C	0.82.00
533/1	0.41.50
533/2	0.42.00
533/3	0.25.00
533/4	0.22.00
TOTAL	2.12.50

CORNERS GPS CO-ORDINATES :

PILLAR	LATITUDE	LONGITUDE
● 1	9°21'13.70"N	77° 37'14.60"E
● 2	9°21'18.70"N	77° 37'14.80"E
● 3	9°21'18.70"N	77° 37'16.70"E
● 4	9°21'18.20"N	77° 37'16.70"E
● 5	9°21'18.20"N	77° 37'18.20"E
● 6	9°21'17.80"N	77° 37'18.30"E
● 7	9°21'17.60"N	77° 37'20.50"E
● 8	9°21'14.80"N	77° 37'19.30"E
● 9	9°21'13.80"N	77° 37'18.60"E
● 10	9°21'13.10"N	77° 37'17.40"E
● 11	9°21'12.90"N	77° 37'16.50"E
● 12	9°21'13.60"N	77° 37'16.40"E

PLATE : III

LESSEE DETAILS :

A.Seethakumar, S/o Arumugam

D.No.543, Mappillai Subbiah St, Rajapalayam Town & Taluk, Virudhunagar District - 626 117.

LOCATION OF THE SITE :

EXTENT : 2.12.50 Hect.

S.F Nos : 532/2C, 533/1,2,3 & 4.

VILLAGE : GOPALAPURAM

TALUK : VEMBAKOTTAI

DISTRICT : VIRUDHUNAGAR

INDEX:-

Lease Area

Safety Line

Seasonal Odai

Cart Track

Boundary Pilllars ●

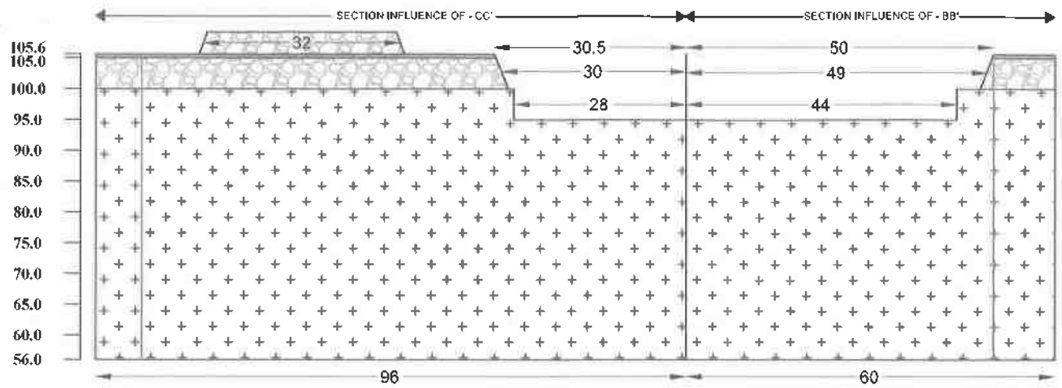
MINING LEASE PLAN:-

SCALE 1:1,000

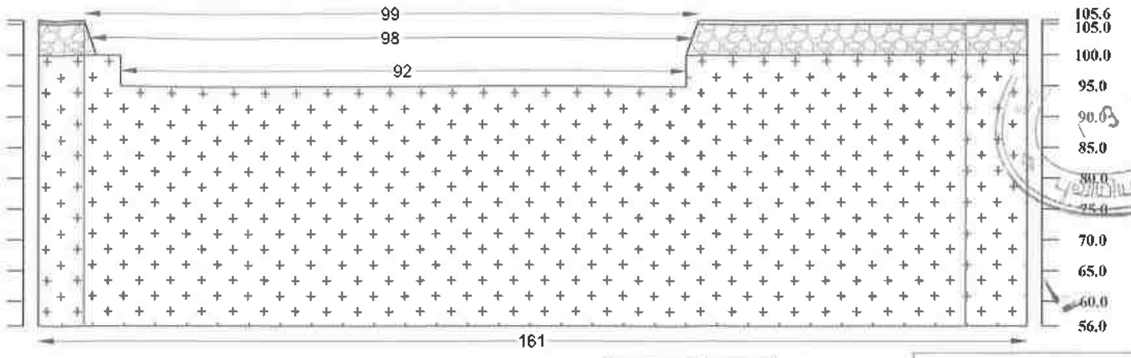
PLANS & SECTIONS ARE PREPARED BASED ON THE LEASE MAP AUTHENTICATED BY THE STATE GOVERNMENT :-

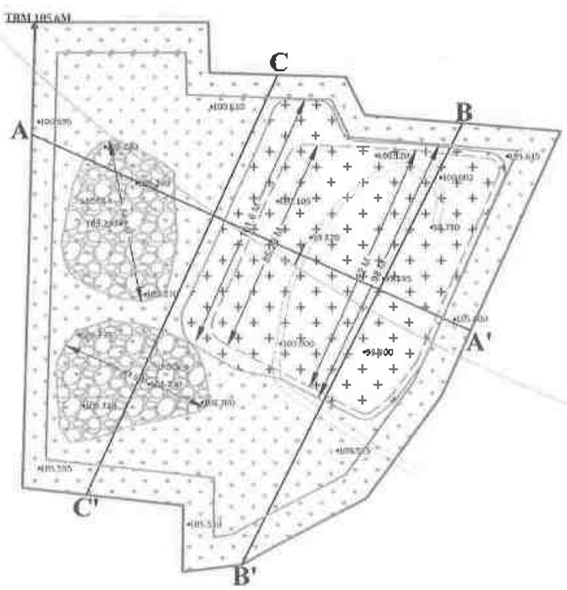
T.S.GANESAN M.Sc.,
QUALIFIED PERSON
RQP/MAS/142/2000/A

SECTION ALONG- AA'



SECTION ALONG- BB'





SECTION ALONG- CC'

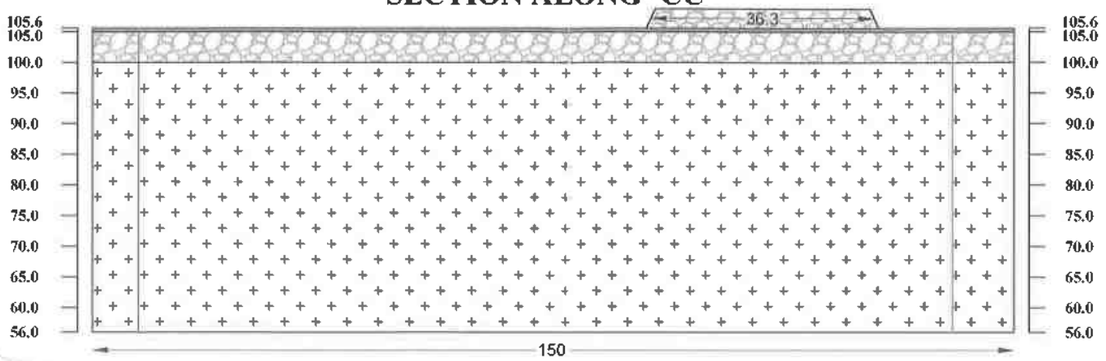




PLATE : IV

LESSEE DETAILS :

A.Seethakumar, S/o Arumugam

D.No.543, Mappillai Subbiah St,
Rajapalayam Town & Taluk,
Virudhunagar District - 626 117.

LEASE PERIOD : 11.04.2023 to 10.04.2033

DATE OF SURVEY : 09.09.2025

INDEX:-

- Lease Area
- Safety Line
- Top Soil
- Gravel Deposit
- Rough Stone
- Bench Mark — TBM 105.6M

SURFACE CUM GEOLOGICAL PLAN AND SECTIONS:-

SCALE

Plan- 1:2,000 Section- 1:1000

PLANS & SECTIONS ARE PREPARED BASED ON THE LEASE MAP AUTHENTICATED BY THE STATE GOVERNMENT :-

T.S.GANESAN M.Sc.,
QUALIFIED PERSON
RQP/MAS/142/2000/A

GRAVEL STOCK SIZE & QUANTITY

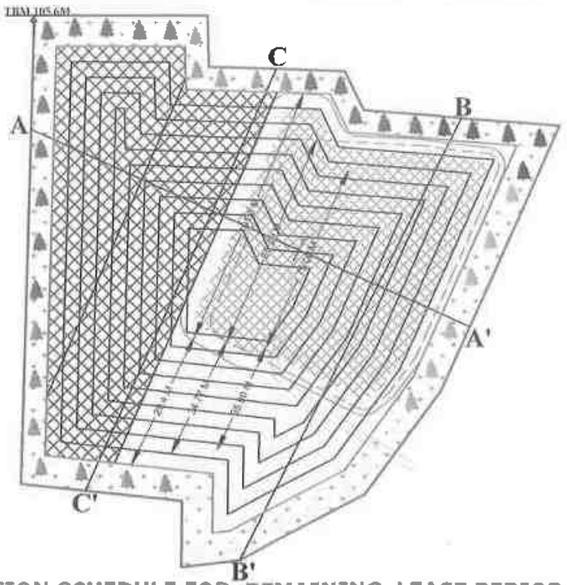
STOCK	Length M	Width M	Height M	Tonnage Factor	Gravel in Metric Ton
I	54.1	32.0	3.6	2.0	12,465
II	49.6	36.3	3.1	2.0	11,163
TOTAL AVAILABLE GRAVEL IN TWO STOCKS					23,628

EXISTING PIT SIZE & QUANTITY

SECTION	Length M	Width M	Depth M	Tonnage Factor	Rough Stone in Metric Ton	Gravel in Metric Ton	Top Soil in Metric Ton
AA' - BB'	50.0	99.00	0.6	2.00	-	-	5,940
	49.0	98.00	5.0	2.00	-	48,020	-
	44.0	92.00	5.0	2.75	55,660	-	-
AA' - CC'	30.5	103.10	0.6	2.00	-	-	3,774
	30.0	101.60	5.0	2.00	-	30,480	-
	28.0	85.23	5.0	2.75	32,813	-	-
TOTAL QUARRIED					88,473	78,500	9,714

GEOLOGICAL RESERVES

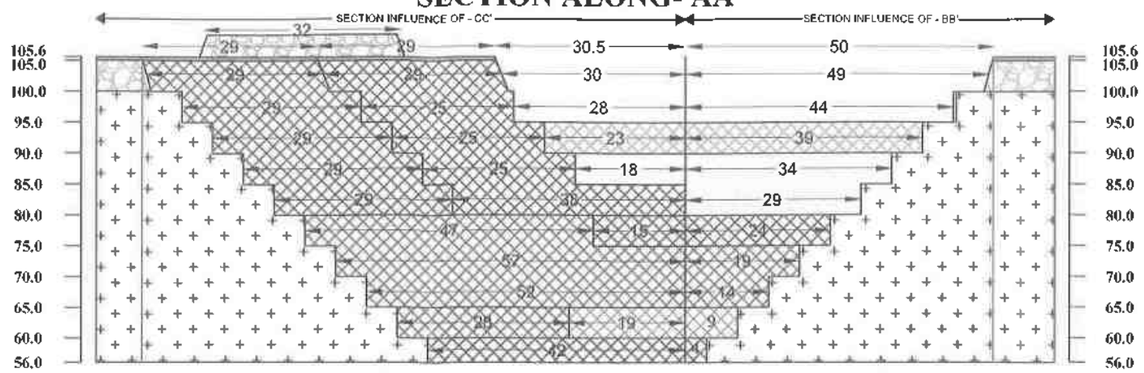
SECTION	Length M	Width M	Depth M	Tonnage Factor	Rough Stone in Metric Ton	Gravel in Metric Ton	Top Soil in Metric Ton
AA' - BB'	60	161	0.6	2.00	-	-	11,592
	60	161	5.0	2.00	-	96,600	-
	60	161	44.0	2.75	11,68,860	-	-
AA' - CC'	96	150	0.6	2.00	-	-	17,280
	96	150	5.0	2.00	-	1,44,000	-
	96	150	44.0	2.75	17,42,400	-	-
TOTAL GEOLOGICAL RESERVES					29,11,260	2,40,600	28,872
Less :EXISTING PIT - TOTAL QUARRIED					(-)88,473	(-)78,500	(-)9,714
BALANCE GEOLOGICAL RESERVES					28,22,787	1,62,100	19,158



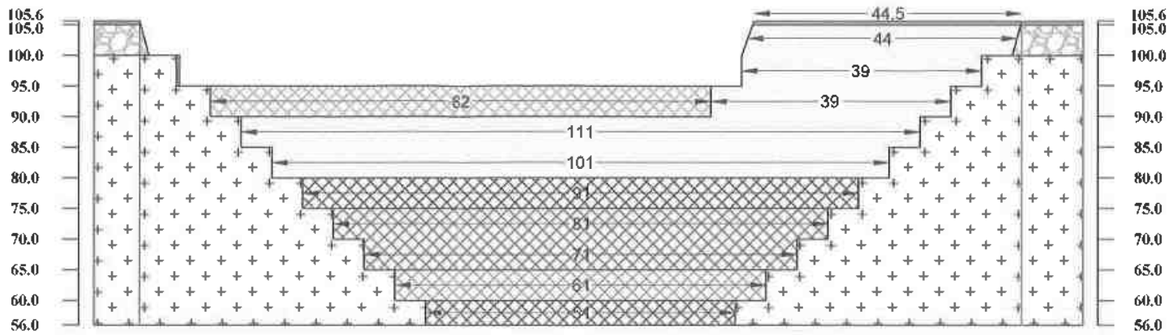
PRODUCTION SCHEDULE FOR REMAINING LEASE PERIOD :

SECTION	YEAR	BENCH	Length M	Width M	Depth M	Tonnage Factor	Rough Stone in Metric Ton	Gravel in Metric Ton
AA' - BB'	III YEAR - 6 Months	III	39	82.0	5.0	2.75	43,973	-
AA' - CC'		III	23	75.0	5.0	2.75	23,719	-
TOTAL AVAILABLE GRAVEL IN TWO STOCKS							-	23,628
III - YEAR 6 MONTHS PRODUCTION							67,692	23,628
AA' - BB'	IV YEAR	I	49	44.0	5.0	2.00	-	21,560
		II	44	39.0	5.0	2.75	23,595	-
		III	39	39.0	5.0	2.75	20,914	-
		IV	34	111.0	5.0	2.75	51,893	-
		V	29	101.0	5.0	2.75	40,274	-
AA' - CC'		I	30	29.4	5.0	2.00	-	8,820
		II	28	34.77	5.0	2.75	13,386	-
		III	23	35.0	5.0	2.75	11,069	-
		IV	18	100.0	5.0	2.75	24,750	-
IV - YEAR PRODUCTION							1,85,881	30,379
AA' - BB'	V YEAR	VI	24	91.0	5.0	2.75	30,030	-
AA' - CC'		I	29	131.0	5.0	2.00	-	37,990
		II	25	120.0	5.0	2.75	41,250	-
		III	25	110.0	5.0	2.75	37,813	-
		IV	25	100.0	5.0	2.75	34,375	-
		V	38	90.0	5.0	2.75	47,025	-
V - YEAR PRODUCTION							1,90,493	37,990
AA' - CC'	VI YEAR	I	29	131.0	5.0	2.00	-	37,990
		II	29	120.0	5.0	2.75	47,850	-
		III	29	110.0	5.0	2.75	43,863	-
		IV	29	100.0	5.0	2.75	39,875	-
		V	29	90.0	5.0	2.75	35,888	-
		VI	15	80.0	5.0	2.75	16,500	-
VI - YEAR PRODUCTION							1,83,976	37,990
AA' - BB'	VII YEAR	VII	19	81.0	5.0	2.75	21,161	-
		VIII	14	71.0	5.0	2.75	13,668	-
AA' - CC'		VI	47	80.0	5.0	2.75	51,700	-
		VII	57	70.0	5.0	2.75	54,863	-
		VIII	52	60.0	5.0	2.75	42,900	-
VII - YEAR PRODUCTION							1,84,292	-
AA' - BB'	VIII YEAR	IX	9	61.0	5.0	2.75	7,549	-
AA' - CC'		IX	19	50.0	5.0	2.75	13,062	-
VIII - YEAR PRODUCTION							20,611	-
AA' - BB'	IX Year	IX	28	50.0	5.0	2.75	19,250	-
IX- YEAR PRODUCTION							19,250	-
AA' - BB'	X YEAR	X	4	51.0	4.0	2.75	2,244	-
AA' - CC'		X	42	40.0	4.0	2.75	18,480	-
X - YEAR PRODUCTION							20,724	-
TOTAL PRODUCTION FOR REMAINING LEASE PERIOD							8,72,919	1,29,988

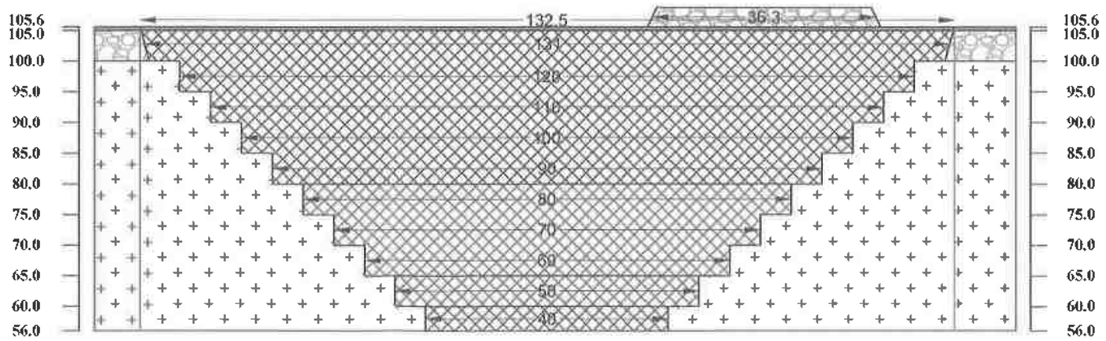
SECTION ALONG- AA'



SECTION ALONG- BB'



SECTION ALONG- CC'



AFFORESTATION PROGRAM FOR REMAINING PERIOD

YEAR	No. of TREES	TYPE OF TREES
III-YEAR	120	USIL/TAMARIND
IV-YEAR	120	NAVAL/PUVARASU
V-YEAR	120	PANAI/SAVUKKU
VI-YEAR	120	MANTHARAI/OAK
VII-YEAR	120	USIL/TAMARIND
VIII-YEAR	120	NAVAL/PUVARASU
IX-YEAR	120	PANAI/SAVUKKU
X-YEAR	120	MANTHARAI/OAK

YEARWISE DEVELOPMENT SCHEDULE FOR REMAINING PERIOD

SECTION	YEAR	Length M	Width M	Depth M	Tonnage Factor	Top Soil in Metric Ton
AA' - BB'	IV YEAR	50.0	44.5	0.6	2.0	2,670
AA' - CC'		30.5	29.4	0.6	2.0	1,076
AA' - CC'	V YEAR	29.0	132.5	0.6	2.0	4,611
AA' - CC'	VI YEAR	29.0	132.5	0.6	2.0	4,611
TOTAL TOP SOIL DEVELOPMENT						12,968



PLATE : V

LESSEE DETAILS :

A.Seethakumar, S/o Arumugam

D.No.543, Mappillai Subbiah St, Rajapalayam Town & Taluk, Virudhunagar District - 626 117.

LEASE PERIOD : 11.04.2023 to 10.04.2033

DATE OF SURVEY : 09.09.2025

INDEX:-

- Lease Area
- Safety Line
- Top Soil
- Rough Stone
- Gravel Deposit
- III-YEAR PRODUCTION
- IV-YEAR PRODUCTION
- V-YEAR PRODUCTION
- VI-YEAR PRODUCTION
- VII-YEAR PRODUCTION
- VIII-YEAR PRODUCTION
- IX-YEAR PRODUCTION
- X-YEAR PRODUCTION
- Trees
- Bench Mark — TBM 105.6M

LAND USE CUM PRODUCTION PLAN AND SECTIONS:-

SCALE

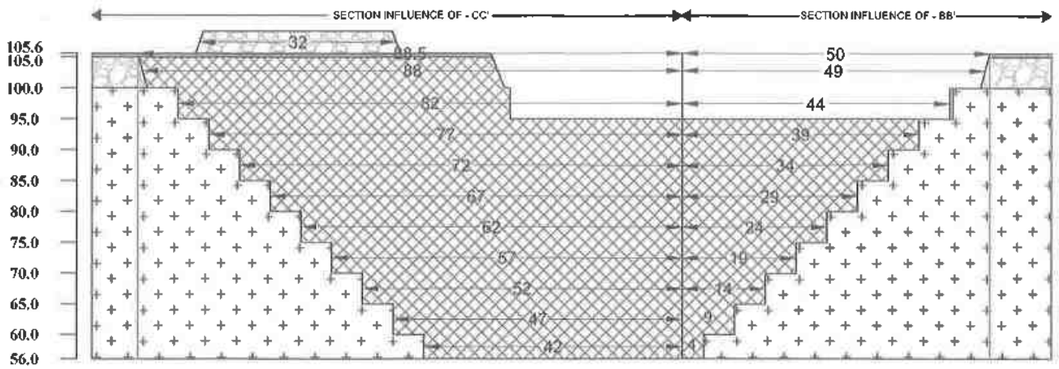
Plan- 1:2.000 Section- 1:1000

PLANS & SECTIONS ARE PREPARED BASED ON THE LEASE MAP AUTHENTICATED BY THE STATE GOVERNMENT :-

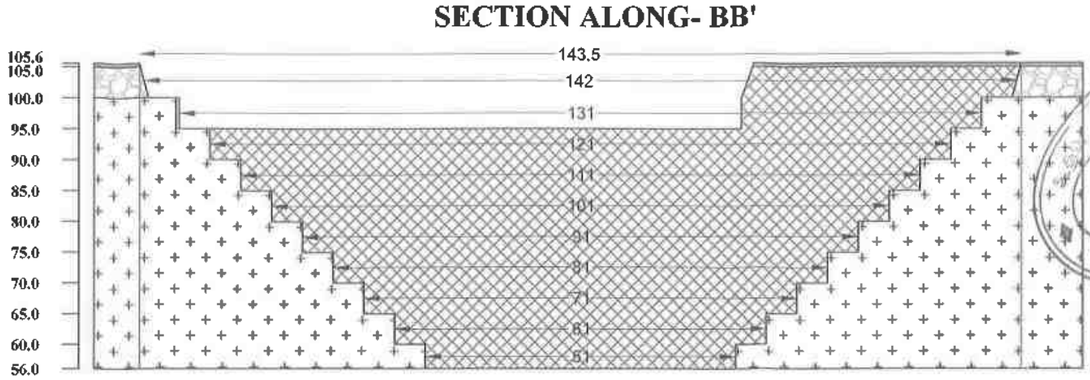
T.S.GANESAN M.Sc.,
QUALIFIED PERSON
RQP/MAS/142/2000/A

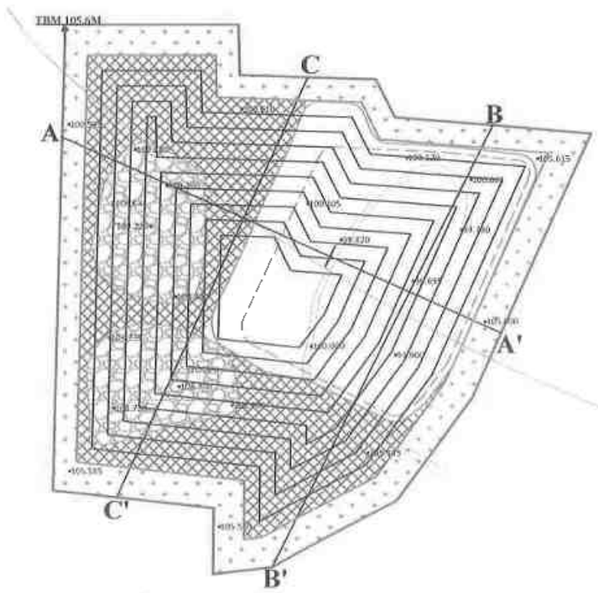
A. Seethakumar

SECTION ALONG- AA'

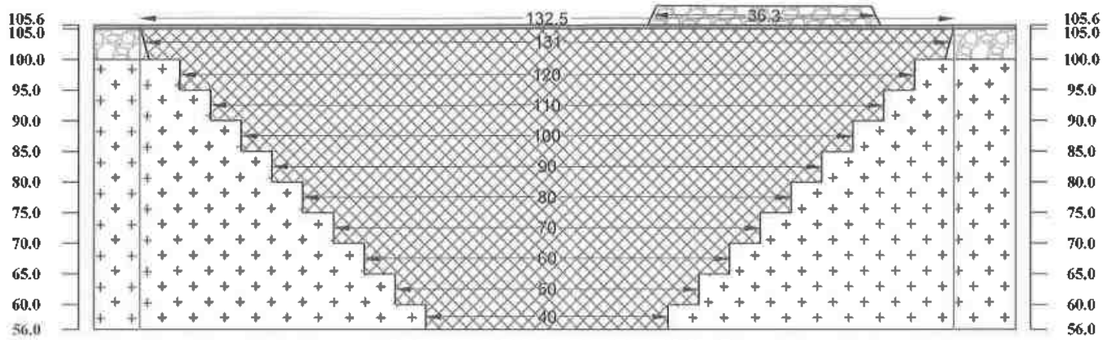


SECTION ALONG- BB'





SECTION ALONG- CC'



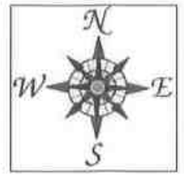


PLATE : VI

LESSEE DETAILS :

A.Seethakumar, S/o Arumugam

D.No.543, Mappillai Subbiah St, Rajapalayam Town & Taluk, Virudhunagar District - 626 117.

LEASE PERIOD : 11.04.2023 to 10.04.2033

DATE OF SURVEY : 09.09.2025

INDEX:-

- Lease Area
- Safety Line
- Top Soil
- Gravel Deposit
- Rough Stone
- Mine Working Area
- Bench Mark — TBM 105.6M

CONCEPTUAL PLAN AND SECTIONS:-

SCALE

Plan- 1:2,000 Section- 1:1000

PLANS & SECTIONS ARE PREPARED BASED ON THE LEASE MAP AUTHENTICATED BY THE STATE GOVERNMENT :-

T.S.GANESAN M.Sc.,
QUALIFIED PERSON
RQP/MAS/142/2000/A

MINEABLE RESERVES

SECTION	BENCH	Length M	Width M	Depth M	Tonnage Factor	Rough Stone in Metric Ton	Gravel in Metric Ton	Top Soil in Metric Ton
AA' - BB'	-	50.0	143.5	0.6	2.0	-	-	8,610
	I	49.0	142.0	5.0	2.0	-	69,580	-
	II	44.0	131.0	5.0	2.75	79,255	-	-
	III	39.0	121.0	5.0	2.75	64,886	-	-
	IV	34.0	111.0	5.0	2.75	51,893	-	-
	V	29.0	101.0	5.0	2.75	40,274	-	-
	VI	24.0	91.0	5.0	2.75	30,030	-	-
	VII	19.0	81.0	5.0	2.75	21,161	-	-
	VIII	14.0	71.0	5.0	2.75	13,668	-	-
	IX	9.0	61.0	5.0	2.75	7,549	-	-
	X	4.0	51.0	4.0	2.75	2,244	-	-
AA' - CC'	-	88.5	132.5	0.6	2.0	-	-	14,072
	I	88.0	131.0	5.0	2.0	-	1,15,280	-
	II	82.0	120.0	5.0	2.75	1,35,300	-	-
	III	77.0	110.0	5.0	2.75	1,16,463	-	-
	IV	72.0	100.0	5.0	2.75	99,000	-	-
	V	67.0	90.0	5.0	2.75	82,913	-	-
	VI	62.0	80.0	5.0	2.75	68,200	-	-
	VII	57.0	70.0	5.0	2.75	54,863	-	-
	VIII	52.0	60.0	5.0	2.75	42,900	-	-
	IX	47.0	50.0	5.0	2.75	32,313	-	-
	X	42.0	40.0	4.0	2.75	18,480	-	-
TOTAL MINEABLE RESERVES						9,61,392	1,84,860	22,682
LESS : EXISTING PIT-TOTAL QAUARRIED						(-)88,473	(-)78,500	(-)9,714
TOTAL AVAILABLE GRAVEL IN TWO STOCKS						-	(+)23,628	-
BALANCE MINEABLE RESERVES						8,72,919	1,29,988	12,968

ULTIMATE PIT SIZE AT THE END OF TEN YEARS

SECTION	Length M	Width M	Depth M
AA' - BB'	50.0	143.5	49.6
AA' - CC'	88.5	132.5	49.6

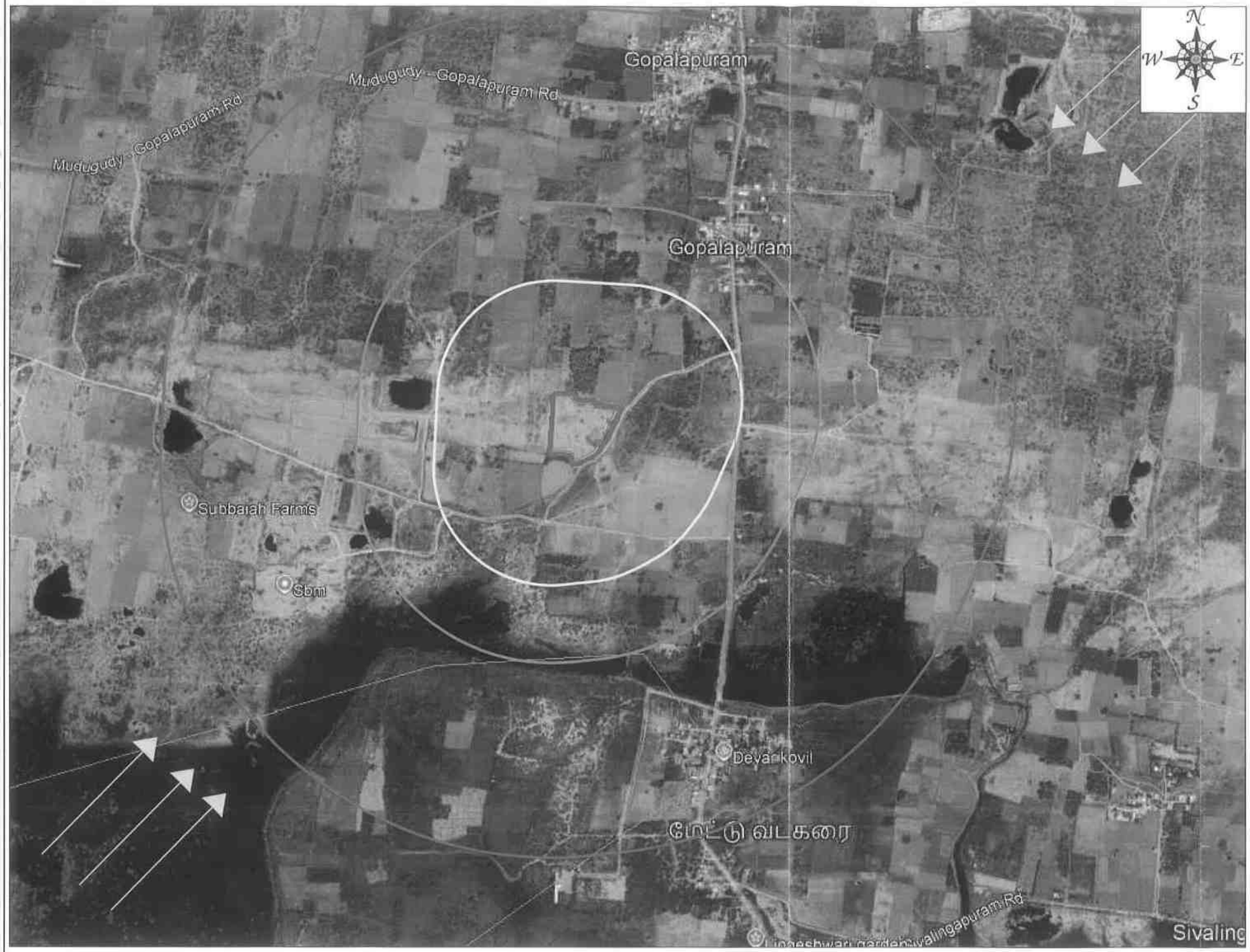


PLATE : VII

LESSEE DETAILS :

A.Seethakumar, S/o Arumugam

D.No.543, Mappillai Subbiah St,
Rajapalayam Town & Taluk,
Virudhunagar District - 626 117.

LOCATION OF THE SITE :

EXTENT	:	**2.12.50 Hect.**
S.F Nos	:	**532/2C, 533/1,2,3 & 4.**
VILLAGE	:	**GOPALAPURAM**
TALUK	:	**VEMBAKOTTAI**
DISTRICT	:	**VIRUDHUNAGAR**

INDEX:-

Lease Area

Safety Line

300M Radius

500M Radius

1000M Radius

Wind Direction

Approach Road

SATELLITE IMAGERYWITH ENVIRONMENTAL FEATURES:-

SCALE 1:10,000

PLANS & SECTIONS ARE PREPARED BASED ON THE LEASE MAP AUTHENTICATED BY THE STATE GOVERNMENT :-

T.S.GANESAN M.Sc.,
QUALIFIED PERSON
RQP/MAS/142/2000/A

PLATE : VIIA

RECEIVED 23 OCT 2025

LESSEE DETAILS

A.Seethalayuthan, S/o Arumugam

D.No.543, Mappillai Subbiah St,
Rajapalayam Town & Taluk,
Virudhunagar District - 626 117.

LOCATION OF THE SITE :

EXTENT	:	**2.12.50 Hect.**
S.F Nos	:	**532/2C, 533/1,2,3 & 4.**
VILLAGE	:	**GOPALAPURAM**
TALUK	:	**VEMBAKOTTAI**
DISTRICT	:	**VIRUDHUNAGAR**

INDEX:-

Lease Area

Safety Line

300M Radius

500M Radius

1000M Radius

Well

Wind Direction

Approach Road

VILLAGE MAP SHOWING ENVIRONMENTAL FEATURES

SCALE 1:10,000

PLANS & SECTIONS ARE PREPARED BASED ON THE LEASE MAP AUTHENTICATED BY THE STATE GOVERNMENT :-

T.S.GANESAN M.Sc.,
QUALIFIED PERSON
RQP/MAS/142/2000/A

A. Seethalayuthan

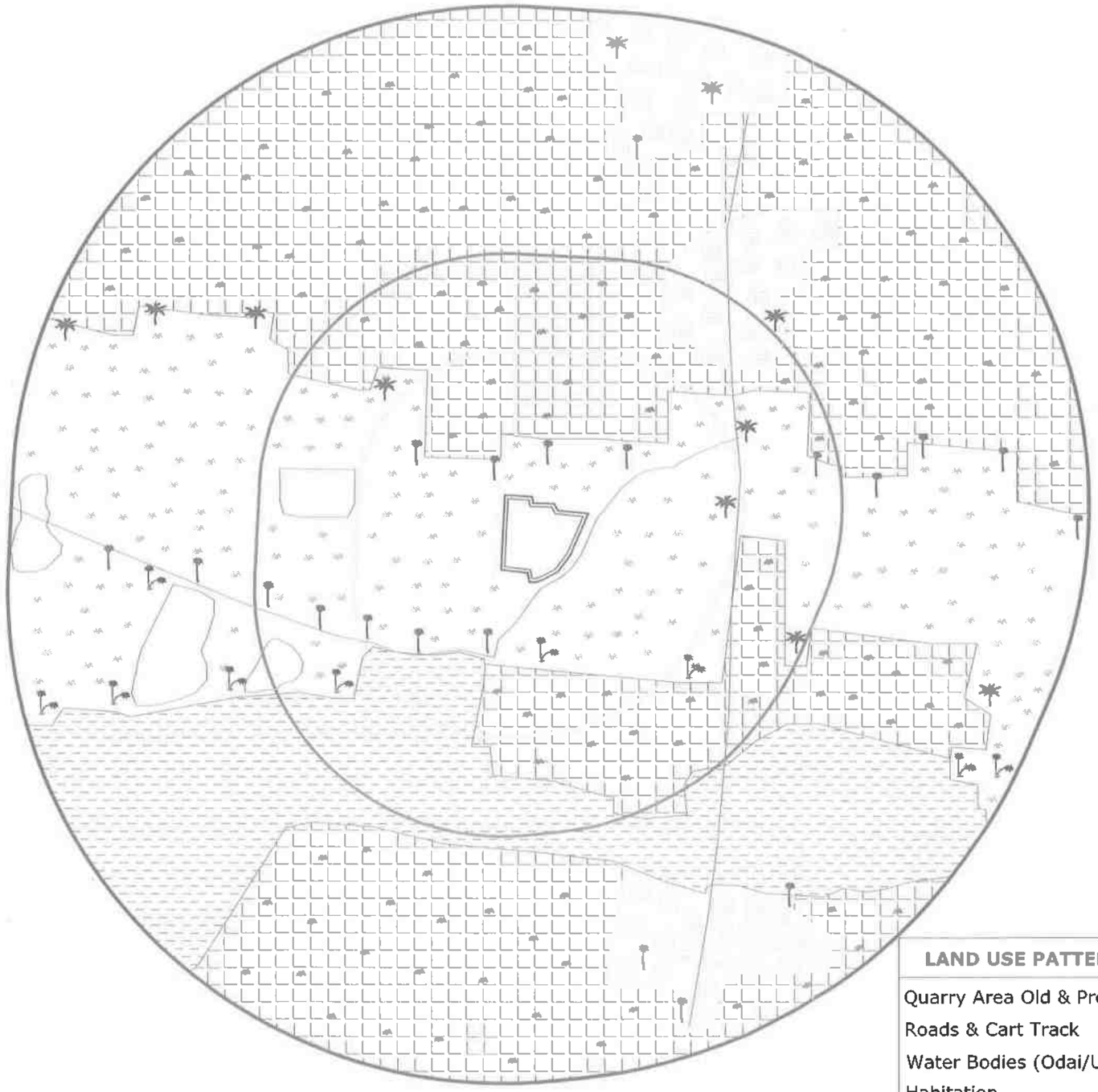


PLATE : VIIB

LESSEE DETAILS :

A.Seethakumar, S/o Arumugam

D.No.543, Mappillai Subbiah St,
Rajapalayam Town & Taluk,
Virudhunagar District - 626 117.

LOCATION OF THE SITE :

EXTENT : 2.12.50 Hect.

S.F Nos : 532/2C, 533/1,2,3 & 4.

VILLAGE : GOPALAPURAM

TALUK : VEMBAKOTTAI

DISTRICT : VIRUDHUNAGAR

INDEX:-

Lease Area	———
Safety Line	———
300M Radius	
500M Radius	○
1000M Radius	○
Habitation	
Open Scrubs/Barren Land	
Seasonal Dry Corps	
Green Belt	
Water Bodies	
Old Quary pits	
Approach Road	

LAND USE PATTERN in Area Percentage(%)	
Quarry Area Old & Proposed	7.0%
Roads & Cart Track	2.0%
Water Bodies (Odai/Urani/Kanmoi)	19.0%
Habitation	5.5%
Green Belt	2.5%
Seasonal Dry Crops	39.0%
Open Scrub\Barren Land	25.0%
TOTAL	**100%**

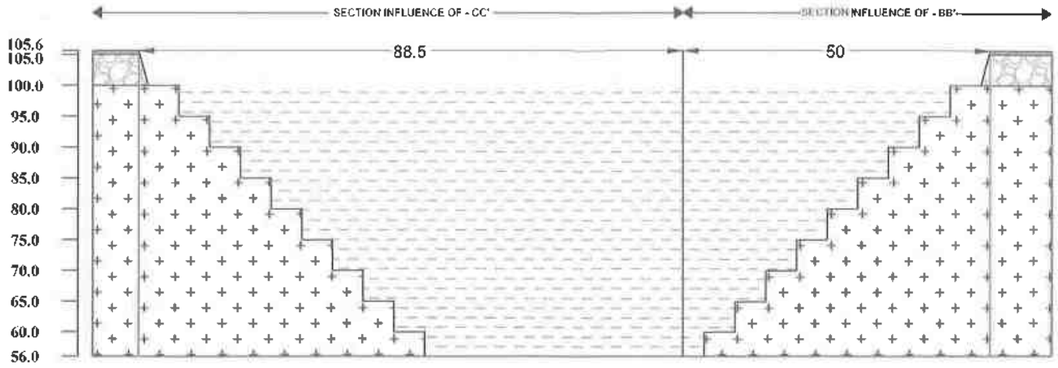
ENVIRONMENTAL AND LAND USE PLAN

SCALE 1:10,000

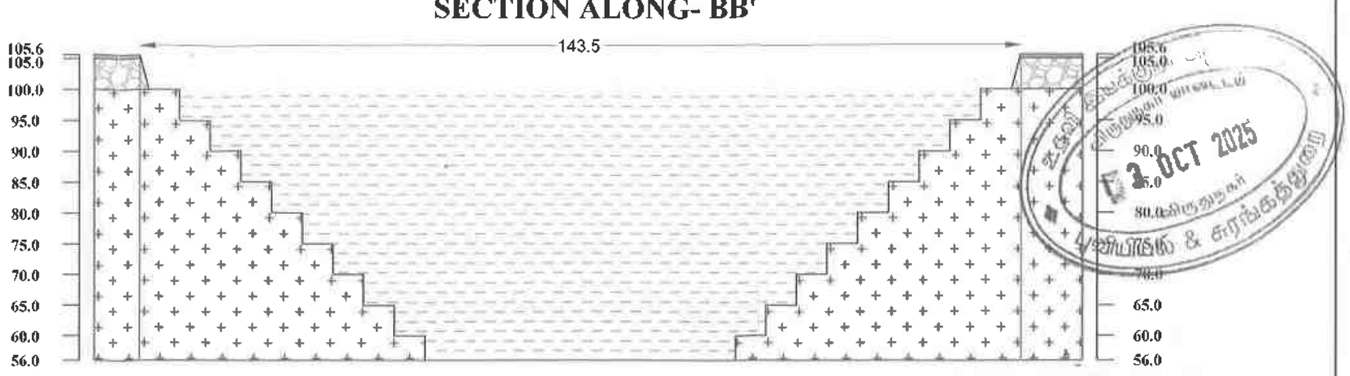
PLANS & SECTIONS ARE PREPARED BASED ON THE LEASE MAP AUTHENTICATED BY THE STATE GOVERNMENT :-

T.S.GANESAN M.Sc.,
QUALIFIED PERSON
RQP/MAS/142/2000/A

SECTION ALONG- AA'



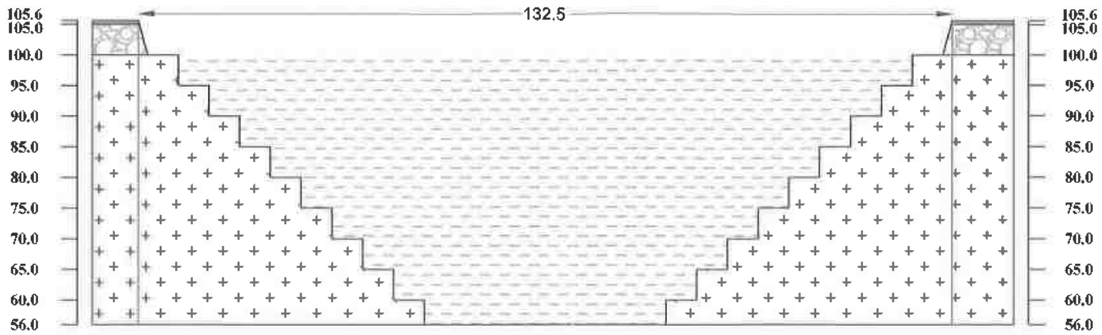
SECTION ALONG- BB'

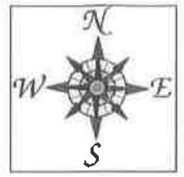


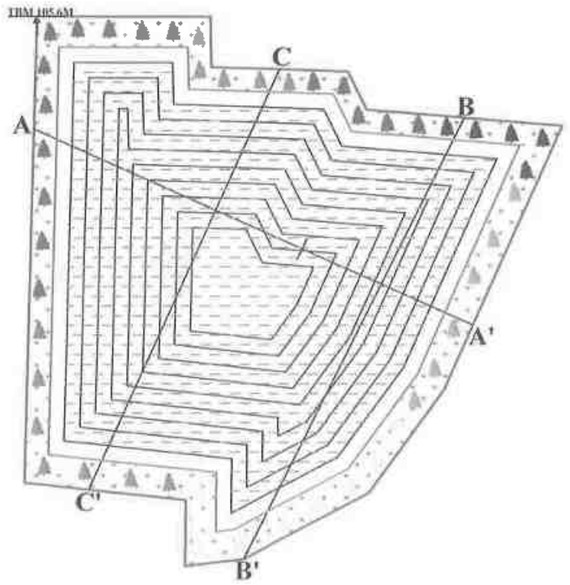
13 OCT 2025

PLATE : VIII

SECTION ALONG- CC'







ULTIMATE PIT SIZE AT THE END OF TEN YEARS

SECTION	Length M	Width M	Depth M
AA' - BB'	50.0	143.5	49.6
AA' - CC'	88.5	132.5	49.6

MINE CLOSURE PLAN WITH LAND USE PATTERN

DESCRIPTION	at Present (end of 2 year 6 months)	at End of 10 Years
QUARRIED PIT AREA	0.70.20 Ha	1.58.20 Ha
INFRASTRUCTURE	0.01.00 Ha	0.01.00 Ha
STORAGE OF TOP SOIL	0.00.00 Ha	0.00.00 Ha
STOCKING & MINERAL DRESSING YARD	0.00.00 Ha	0.00.00 Ha
MINE ROAD	0.03.00 Ha	0.03.00 Ha
AFFORESTATION & SAFETY	0.50.30 Ha	0.50.30 Ha
UNDISTURBED AREA	0.88.00 Ha	0.00.00 Ha
TOTAL	2.12.50 Ha	2.12.50 Ha

AFFORESTATION PROGRAM FOR REMAINING PERIOD

YEAR	No. of TREES	TYPE OF TREES
III-YEAR	120	USIL/TAMARIND
IV-YEAR	120	NAVAL/PUVARASU
V-YEAR	120	PANAI/SAVUKKU
VI-YEAR	120	MANTHARAI/OAK
VII-YEAR	120	USIL/TAMARIND
VIII-YEAR	120	NAVAL/PUVARASU
IX-YEAR	120	PANAI/SAVUKKU
X-YEAR	120	MANTHARAI/OAK

LESSEE DETAILS :

A.Seethakumar, S/o Arumugam

D.No.543, Mappillai Subbiah St,
Rajapalayam Town & Taluk,
Virudhunagar District - 626 117.

LEASE PERIOD : 11.04.2023 to 10.04.2033

DATE OF SURVEY : 09.09.2025

INDEX:-

- Lease Area
- Safety Line
- Top Soil
- Gravel Deposit
- Rough Stone
- Water Reservoir
- Trees
- Bench Mark — TBM 105.6M

PROGRESSIVE MINE CLOSURE PLAN:-

SCALE

Plan- 1:2,000 Section- 1:1000

PLANS & SECTIONS ARE PREPARED BASED ON THE LEASE MAP AUTHENTICATED BY THE STATE GOVERNMENT :-

T.S.GANESAN M.Sc.,
QUALIFIED PERSON
RQP/MAS/142/2000/A

A. Seethakumar.

ANNEXURE-VIII

VAO CERTIFICATE

ANNEXURE – VII

கிராம நிர்வாக அலுவலர் சான்று



துணை இயக்குநர் அலுவலகம்
விருதுநகர் மாவட்டம்
31 MAR 2021
நிலவியல் & தரங்கத்துரை

மேற்கண்ட புகைப்படம் விருதுநகர் மாவட்ட ஆட்சியரின் ஆணை எண் நககேவி 1/638/2020 நாள் 2.2.2021 ன் படி விருதுநகர் மாவட்டம் வெம்பக்கோட்டை வட்டம் கோபாலபுரம் வருவாய் கிராமம் புல எண்கள் 532/2C(0.82.0) ,533/1(0.41.50) ,533/2(0.42.0), 533/3(0.25.0), மற்றும் 533/4(0.22.0), ஆக மொத்த விஸ்தீரணம் (2.12.50) ஹெக்டேர்ஸ் உள்ள நிலங்களில் திரு ஆ. சீதா குமார் S/O ஆறுமுகம் என்பவருக்கு சாதாரண உடைகல் மற்றும் கிராவல் வெட்டி எடுத்து விற்பனை செய்வதற்கு அங்கீகரிக்கப்பட்ட இடம் என்பதை இதன் மூலம் சான்றுஅழிக்கிறேன்

மேற்படி இடத்திலிருந்து 300 மீட்டர் சுற்றளவில் கிராமம், கோவில் ,பள்ளிக்கூடம், பிரதானசின்னங்கள் ஏதும்மில்லை என்றும் மேற்படி இடத்திற்க்கு சாலை வசதி உள்ளது என்றும் சான்றுஅளிக்கிறேன்

கிராம நிர்வாக அலுவலர்
கோபாலபுரம் கிராமம்
வெம்பக்கோட்டை வட்டம்.

192 Selthakumara

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ANNEXURE-IX

EXISTING EC, CTO &

LEASE DEED

ENVIRONMENTAL CLEARANCE

PARIVESH

(Pro-Active and Responsive Facilitation by Interactive, and Virtuous Environmental Single-Window Hub)

Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment Authority(SEIAA), Tamil Nadu)

To,

The Owner

ROUGH STONE AND GRAVEL QUARRY OF THIRU. A. SEETHAKUMAR

S/o, Arumugam,
D. No. 543, Mappillai Subbiah Street,
Rajapalayam Taluk & Town,
Viruthunagar District. -626137

Subject: Grant of Environmental Clearance (EC) to the proposed Project Activity under the provision of EIA Notification 2006-regarding

Sir/Madam,

This is in reference to your application for Environmental Clearance (EC) in respect of project submitted to the SEIAA vide proposal number SIA/TN/MIN/233636/2021 dated 12 May 2022. The particulars of the environmental clearance granted to the project are as below.

1.	**EC Identification No.**	**EC23B001TN125053**
2.	**File No.**	8855/2021
3.	**Project Type**	New
4.	**Category**	B2
5.	**Project/Activity including Schedule No.**	1(a) Mining of minerals
6.	**Name of Project**	Rough stone & Gravel Quarry of Thiru. A. Seethakumar
7.	**Name of Company/Organization**	ROUGH STONE AND GRAVEL QUARRY OF THIRU. A. SEETHAKUMAR
8.	**Location of Project**	Tamil Nadu
9.	**TOR Date**	N/A

The project details along with terms and conditions are appended herewith from page no 2 onwards.

(e-signed)
Thiru.Deepak S.Bilgi
Member Secretary
SEIAA - (Tamil Nadu)

Date: 21/01/2023

Note: A valid environmental clearance shall be one that has EC identification number & E-Sign generated from PARIVESH.Please quote identification number in all future correspondence.

This is a computer generated cover page.

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

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY-TAMILNADU
3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai - 600 015.
Phone No. 044-24359973
Fax No. 044-24359975

ENVIRONMENTAL CLEARANCE

Lr. No.SEIAA-TN/F.No.8855/EC.No:5468/2022, dated: 20.12.2022

Sir/Madam,

Sub: SEIAA-TN - Proposed Rough Stone and Gravel Quarry over an extent of 2.12.5 Ha located at S.F.No. 532/2C, 533/1, 533/2, 533/3, 533/4 of Gopalapuram Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu by Thiru. A. Seethakumar – under Category "B2" of Item 1(a) "Mining of Minerals Projects" of the Schedule to the EIA Notification, 2006 issue of Environmental Clearance – Regarding.

Ref: 1. Online Proposal No. SIA/TN/MIN/233636/2021 dated: 19.10.2021.
2. Your Application for Environmental Clearance dated: 20.10.2021.
3. Minutes of the 272nd SEAC meeting held on 13.05.2022.
4. Letter received from Deputy Director, Department of Geology and Mining, Virudhunagar District vide Lr No.NKV1/638/2020 Dt. 29.09.2022.
5. Minutes of the 334th SEAC meeting held on 02.12.2022.
6. Minutes of the 579th SEIAA meeting held on 20.12.2022 & 21.12.2022.

- - - - -

Details of Minor Mineral Activity: -

This has reference to your application 1st & 2nd cited. The proposal is for obtaining Environmental Clearance for mining / quarrying of minor minerals based on the particulars furnished in your application as shown below.

S.No	Particulars	Details furnished
1.	Name of the Owner/Firm	Thiru. A. Seethakumar, S/o. Arumugam,

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		D.No.543, Mappillai Subbaiah Street, Rajapalayam Town & Taluk, Virudhunagar District - 626 117.
2.	Type of quarrying	Rough Stone and Gravel
3.	S.F No. of the quarry site	532/2C, 533/1, 533/2, 533/3, 533/4
4.	Village in which situated	Gopalapuram
5.	Taluk in which situated	Vembakottai
6.	District in which situated	Virudhunagar
7.	Extent of quarry (in ha.)	2.12.5 Ha
8.	Period of quarrying proposed	5 years
9.	Type of mining	Opencast Semi Mechanized Mining
10.	Production (Quantity in m^3)	70325 m^3 of Rough Stone & 45675 m^3 of Gravel
11.	Depth of quarrying	15.6m BGL
12.	Latitude & Longitude of all corners of the quarry site	09°21'12.9"N to 09°21'18.7"N 77°37'14.6"E to 77°37'20.5"E
13.	Top Sheet No.	58-G/11
14.	Man Power requirement	12 Nos
15.	Precise area communication	Na.Ka.En: KV1/638/2020-Kanimam, dated:02.02.2021
16.	Mining Plan	Roc.No: KV1/638/2020, dated:31.03.2021
17.	500m cluster letter	Roc.No: KV1/638/2020, dated:31.03.2021
18.	Water requirement: 1. Drinking & domestic purposes (in KLD) 2. Dust suppression (in KLD) 3. Green Belt (in KLD)	2.50 KLD 0.50 KLD 1.50 KLD 0.50 KLD
19.	Power requirement a. Domestic purpose	 TNEB
20.	Depth of water table	45m-50m bgl
21.	Whether any habitation within 300m distance	No

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22.	Project Cost (Excluding EMP)	Rs. 1,97,43,992/-
23.	EMP cost	Rs. 6,00,000/-
24.	CER cost	Rs. 5,00,000/-
25.	VAO certificate regarding habitation within 300m radius	Letter dated: 22.02.2021

Validity:

This Environmental Clearance is granted for the production in 70325 m^3 of Rough Stone & 45675 m^3 of Gravel for the period of 5 Years from the date of execution of the mining lease for an ultimate depth of mining up to 15.6m BGL.

The Proponent has furnished affidavit in stamp paper attested by the Notary stating that

I, Thiru. A. Seethakumar D. No. 543, Mappillai Subbiah Street, Rajapalayam Taluk & Town, Viruthunagar District. do hereby solemnly declare and sincerely affirm that, I have applied for getting environment clearance to SEIAA, Tamil Nadu for Rough stone and Gravel Quarry at SF.No. 532/2C, 533/1, 533/2, 533/3, 533/4 Over On Extent 2.12.5 Ha In Gopalapuram Village, Vembakottai Taluk, Virudhunagar District, Tamilnadu.,

1. I swear to state and confirm that within 10km area of the quarry site, we have applied for environmental clearance, the following is not situated
   a. Protected areas notified under the wild life (Protection) Act, 1972 (NBWL). Critically polluted areas as notified by the central pollution control board constituted under water (Prevention and control of Pollution) Act 1974 is not present.
   b. Interstate boundaries and international boundaries within 10km radius from the boundary of the proposed site is not present.
   c. 10 km buffer from the lease area does not fall in the Western Ghats ESA as per MoEF & CC draft notification dated 3rd October 2018
2. I will complete the following Corporate Environment Responsibility (CER) activities before commencement of the quarrying activities.

CER Activity	Project cost (Rs)	REVISED CER COST (Rs)
Renovation of existing school old building Comprising RCC roofing & flooring, Improvement in Sanitation and drinking water facilities.	Rs. 1,97,43,992/-	Rs.5,00,000/-

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Library books with rack facility in Government Middle School, Gopalapuram.		

3. No quarries located within 500m radius from the periphery of our quarry.

a) **Details of quarry within 500m radius from the applied area**

Sl.No	Name of the Quarry Owner	Name of the Village & S.F.No	Extent in Hectare	Proceedings No. & Lease Period
1.	**Existing Quarries**			
1.	V.Rajmohan	Vembakottai Gopalapuram 556/2	1.14.5	KV1/555/2020 Lease Period 20.01.2017 to 19.01.2022
2.	**Abandoned Quarries**			
NIL				
3.	**Present Proposed Quarries**			
1.	A.Seethakumar	Virudhunagar Gopalapuram 532/2C,533/1,2,3,4	2.12.5	**KV1/638/2020**

The total lease within the 500m radius (Existing & Proposed) works out to 3.27.0 ha including this lease area.

4. There will not be hindrance or disturbance to the people living enroute/ nearby our quarry site while transporting the mineral and due to quarrying activities.
5. There is no approved habitation within 300m radius from the periphery of our quarry.
6. I swear that afforestation will be carried out during the course of quarrying operation and maintained.
7. The required insurance will be taken in the name of the laborers working in our quarry site.
8. The existing road from the main road to quarry is in good condition and the same will be maintained and utilized for Transportation of Rough Stone and Gravel.
9. I will not engage any child labor in our quarry site and I aware that engaging child labor is punishable under the law.
10. All types of safety / protective equipment will be provided to all the laborers working in our quarry.
11. No permanent structures, temple etc., are located within 500m radius from the periphery of our quarry.

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I ensure to do the social and Environment commitment as mentioned in the Mining plan to the best of our knowledge.

Details of 500M radius Proposed quarry:

The Project Proponent has submitted a copy of the letter obtained from Deputy Director, Department of Geology and Mining, Virudhunagar District in his letter Roc.No: KV1/638/2020, dated:31.03.2021 has stated that the details of other quarries (Proposed / Existing / Abandoned Quarries) within a radius 500m from the boundary of the proposed quarry site as follows:

S.No	Quarry detail	Taluk & Village	S.F. No. & Extent (Hect)	Proceedings No. & Lease Period
I	**Existing Quarries:**			
1.	V.Rajmohan	Vembakottai, Gopalapuram	556/2 (1.14.5)	KV1/555/2020 20.01.2017 - 19.01.2022
II	**Abandoned Quarry:**			
	NIL			
III	**Present Proposed Quarry:**			
1.	A.Seethakumar	Virudhunagar, Gopalapuram	532/2C, 533/1,2,3,4 (2.12.5)	KV1/638/2020
		TOTAL	**3.27.0**	

Appraisal by SEAC: -

Proposed rough stone and gravel quarry lease area over an extent of 2.12.5 Ha at S.F.No.532/2C, 533/1, 533/2, 533/3, 533, Gopalapuram Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu by Thiru.A.Seethakumar- For Environmental Clearance.

Earlier, this proposal was placed in 272nd SEAC Meeting held on 13.5.2022. The project proponent gave detailed presentation. The details of the project furnished by the proponent are available in the website (parivesh.nic.in).

The SEAC noted the following:

1. The project proponent, Thiru.A.Seethakumar has applied for Environmental Clearance for the proposed rough stone and gravel quarry lease area over an

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extent of 2.12.5 Ha at S.F.No.532/2C, 533/1, 533/2, 533/3, 533, Gopalapuram Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu.

2. The project/activity is covered under Category "B2" of Item 1(a) "Mining of Minerals Projects" of the Schedule to the EIA Notification, 2006.

3. **As per the mining plan, the lease period is for 10 years. The production as per mining plan for 10 years not to exceed – 229000m^3 of rough stone and 58725 m^3 of gravel. The annual peak production as per mining plan is 23600m^3 of Rough stone (1st year) & 10875m^3 of gravel (1st year) with ultimate depth of 40.6m BGL.**

Based on the presentation and documents furnished by the project proponent, SEAC noted that a complaint has been received stating that there are several existing & proposed quarries located within 500m radius of the proposed project but has not been taken in to account. If the allegation is found correct, then the proposal will become B1 category instead of B2. SEAC, therefore, decided to request SEIAA to get the remarks of Joint Director / Assistant Director, Department of Geology & Mining Virudhunagar on the complaint, before proceeding further in the matter.

Based on the DD mines clarification

The DD vide Lr No.NKV1/638/2020 Dt. 29.09.2022 has stated the following

இந்நேர்வில் பார்வை 2-ல் கண்ட ஆணையத்தின் கடிதம் மற்றும் திரு.V.ராஜ்மோகன் என்பவரது வாக்குமூலம் மற்றும் தொடர்புடைய கோப்பு ஆவணங்களை பரிசீலனை செய்ததில் திரு.ஆ.சீதாக்குமார் என்பவருக்கு இவ்வலுவலகம் பார்வை 1-ல் கண்டவாறு வழங்கிய குறிப்பாணையின்படி ஆணையம் B2 Category-ல் பரிசீலனை செய்து திரு.ஆ.சீதாக்குமார் என்பவருக்கு இசைவு வழங்கலாம் என பரிந்துரை செய்கிறேன் என பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

Based on the presentation and documents furnished by the project proponent, SEAC decided to recommend the proposal for the grant of Environmental Clearance for **1702750m^3 of rough stone and 58725 m^3 of gravel. The annual peak production as per mining plan is 23400m^3 of Rough stone & 10875m^3 of gravel with ultimate depth of 40.6m BGL,** subject to the standard conditions as per the Annexure of this minutes & normal conditions stipulated by MOEF&CC, in addition to the following specific conditions:

1. **The prior Environmental Clearance granted for this mining project shall be valid for the project life including production value as laid down in the mining plan approved and renewed by competent authority, from time to time, subject to a**

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maximum of thirty years, whichever is earlier vide MoEF&CC Notification S.O. 1807(E) dated 12.04.2022.

2. The PP shall inform the notice of opening of the quarry to the Director of Mines Safety (DMS)/Chennai Region and get the necessary statutory permission under the MMR 1961 pertaining to the mine working operations in the proposed quarry from the DMS, Chennai before obtaining the CTO.
3. The mine manager and other statutory competent persons such as blaster (or) mine mate shall be appointed as per the provisions of Mines Act 1952 and Metalliferous Mines Regulations, 1961 before the obtaining the CTO from the DEE/TNPCB.
4. The proponent shall maintain the 'S3 (or) G2' type of fencing all around the boundary of the proposed working quarry with gates for entry/exit before the commencement of the operation as recommended in the DGMS Circular, 11/1959 and shall furnish the photographs showing the same before obtaining the CTO from TNPCB.
5. Further, the PP shall maintain the garland drain with proper size, gradient and length along the boundary of the pit leaving behind the mandatory safety zone of 7.5 / 10 m as it is designed to take care of run-off water (size, gradient and length) before obtaining the CTO from TNPCB.
6. The PP shall ensure that the benches & haul road are properly designed and formed in accordance with the provisions of MMR 1991.
7. The PP shall carry out maximum of TWO rounds of controlled blast per day, restricted to the maximum of 50 to 60 number of holes per round with maintaining maximum charge per delay in such a manner that the blast-induced ground vibration level (Peak Particle Velocity) measured in the houses/structures located at a distance of 300 m shall not exceed 2.0 mm/s and no fly rock shall travel beyond 20 m from the site of blasting. The PP shall also ensure that the blasting operation shall be carried out once in 2 days to reduce the environmental impacts effectively.
8. However, within one year from the commencement of mining operations, the PP shall carry out the scientific studies on 'Design of Blast parameters for reducing the impact of blast-induced ground/air vibrations and fly rock caused due to operation of the quarry by adopting appropriate controlled blasting techniques', by involving a reputed Research and Academic Institution such as CSIR-Central Institute of Mining & Fuel Research (CIMFR) / Dhanbad, NIRM, IIT-Madras, NIT-Dept of Mining Engg,

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Surathkal and Anna University – CEG Campus. A copy of such scientific study report shall be submitted to the SEIAA, MoEF, TNPCB, AD/Mines-DGM and DMS, Chennai as a part of Environmental Compliance.

9. No 'Deep-hole large diameter drilling and blasting' is permitted in the proposed quarry.
10. The PP shall use the jack hammer drill machine fitted with the dust extractor for the drilling operations such that the fugitive dust is controlled effectively at the source.
11. The PP shall ensure that the blasting operations are carried out by the blaster/Mine Mate/Mine Foreman employed by him in accordance with the provisions of MMR 1961 and it shall not be carried out by the persons other than the above statutory personnel.
12. The PP shall ensure that the blasting operations shall be carried out during a prescribed time interval with a prior notice to the habitations situated around the proposed quarry after having posted the sentries/guards adequately to confirm the non-exposure of public within the danger zone of 500 m from the boundary of the quarry.
13. The PP shall carry out the scientific studies to assess the slope stability of the benches and quarry wall when the depth of the quarry touches 30 m (or) after the completion of 4 years of operation whichever is earlier, by involving a reputed Research and Academic Institution such as CSIR-Central Institute of Mining & Fuel Research (CIMFR) / Dhanbad, NIRM, IIT-Madras, NIT-Dept of Mining Engg, Surathkal and Anna University – CEG Campus etc. A copy of such scientific study report shall be submitted to the SEIAA, MoEF, TNPCB, AD/Mines-DGM and DMS, Chennai as a part of Environmental Compliance without any deviation.
14. The PP shall meticulously carry out the mitigation measures as spelt out in the revised EMP.
15. The Project Proponent shall ensure that the funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year-wise expenditure should be reported to the MoEF& CC Ministry and its Integrated Regional Office (IRO) located in Chennai.
16. The Project Proponent shall send a copy of the clearance letter marked to concerned Panchayat from whom any suggestion/representation has been received while processing the proposal.
17. As per the MoEF& CC Office Memorandum F.No. 22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall adhere EMP furnished.

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18. As accepted by the Project proponent the CER cost is Rs. 5 lakhs and the amount shall be spent towards the Gopalapuram Government Middle school., for the following activities as committed, before obtaining CTO from TNPCB.

S.No	Description	CER Cost INR
1	Renovation of existing school old building, comprising RCC roofing, flooring, Provision of Sanitation and drinking water facilities, Library books with rack facility for Gopalapuram Government Middle school.	**Rs. 5,00,000/-**

ANNEXURE-I

1. The proponent shall mandatorily appoint the required number of statutory officials and the competent persons in relevant to the proposed quarry size as per the provisions of Mines Act 1952 and Metalliferous Mines Regulations, 1961.
2. The proponent shall erect fencing all around the boundary of the proposed area with gates for entry/exit before the commencement of the operation and shall furnish the photographs/map showing the same before obtaining the CTO from TNPCB.
3. Perennial maintenance of haulage road/village / Panchayat Road shall be done by the project proponent as required in connection with the concerned Govt. Authority.
4. The Project Proponent shall adhere to the working parameters of mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total excavation i.e., quantum of mineral, waste, over burden, inter burden and top soil etc. No change in basic mining proposal like mining technology, total excavation, mineral & waste production, lease area and scope of working (viz. method of mining, overburden & dump management, O.B & dump mining, mineral transportation mode, ultimate depth of mining etc.) shall not be carried out without prior approval of the Ministry of Environment, Forest and Climate Change, which entail adverse environmental impacts, even if it is a part of approved mining plan modified after grant of EC or granted by State Govt. in the form of Short Term Permit (STP), Query license or any other name.
5. The reject/waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only. The physical parameters of the waste dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.

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6. The proponent shall ensure that the slope of dumps is suitably vegetated in scientific manner with the native species to maintain the slope stability, prevent erosion and surface run off. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps.
7. Perennial sprinkling arrangement shall be in place on the haulage road for fugitive dust suppression. Fugitive emission measurements should be carried out during the mining operation at regular intervals and submit the consolidated report to TNPCB once in six months.
8. The Project Proponent shall carry out slope stability study by a reputed academic/research institution such as NIRM, IIT, Anna University for evaluating the safe slope angle if the proposed dump height is more than 30 meters. The slope stability report shall be submitted to concerned Regional office of MoEF&CC, Govt. of India, Chennai as well as SEIAA, Tamilnadu.
9. The Proponent shall ensure that the Noise level is monitored during mining operation at the project site for all the machineries deployed and adequate noise level reduction measures undertaken accordingly. The report on the periodic monitoring shall be submitted to TNPCB once in 6 months.
10. Proper barriers to reduce noise level and dust pollution should be established by providing greenbelt along the boundary of the quarrying site and suitable working methodology to be adopted by considering the wind direction.
11. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix in consultation with the DFO, State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
12. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted in proper escapements as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner.

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13. **Noise and Vibration Related:** (i) The Proponent shall carry out only the Controlled Blasting operation using NONEL shock tube initiation system during daytime. Usage of other initiation systems such as detonating cord/fuse, safety fuse, ordinary detonators, cord relays, should be avoided in the blasting operation. The mitigation measures for control of ground vibrations and to arrest fly rocks should be implemented meticulously under the supervision of statutory competent persons possessing the I / II Class Mines Manager / Foreman / Blaster certificate issued by the DGMS under MMR 1961, appointed in the quarry. No secondary blasting of boulders shall be carried out in any occasions and only the Rock Breakers (or) other suitable non-explosive techniques shall be adopted if such secondary breakage is required. The Project Proponent shall provide required number of the security sentries for guarding the danger zone of 500 m radius from the site of blasting to ensure that no human/animal is present within this danger zone and also no person is allowed to enter into (or) stay in the danger zone during the blasting. (ii) Appropriate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs/muffs, (iii) Noise levels should be monitored regularly (on weekly basis) near the major sources of noise generation within the core zone.
14. Ground water quality monitoring should be conducted once in every six months and the report should be submitted to TNPCB.
15. The operation of the quarry should not affect the agricultural activities & water bodies near the project site and a 50 m safety distance from water body should be maintained without carrying any activity. The proponent shall take appropriate measures for "Silt Management" and prepare a SOP for periodical de-siltation indicating the possible silt content and size in case of any agricultural land exists around the quarry.
16. The proponent shall provide sedimentation tank / settling tank with adequate capacity for runoff management.
17. The proponent shall ensure that the transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village Road and shall take adequate safety precautionary measures while the vehicles are passing through the schools / hospital. The Project Proponent shall ensure that the road may not be damaged due to transportation of the quarried rough stones; and transport of rough stones will be as per IRC Guidelines with respect to complying with traffic congestion and density.

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SEIAA-TN

18. To ensure safety measures along the boundary of the quarry site, security guards are to be posted during the entire period of the mining operation.

19. After mining operations are completed, the mine closure activities as indicated in the mine closure plan shall be strictly carried out by the Proponent fulfilling the necessary actions as assured in the Environmental Management Plan.

20. The Project proponent shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition that is fit for the growth of fodder, flora, fauna etc.

21. The Project Proponent shall comply with the provisions of the Mines Act, 1952, MMR 1961 and Mines Rules 1955 for ensuring safety, health and welfare of the people working in the mines and the surrounding habitants.

22. The project proponent shall ensure that the provisions of the MMRD, 1956, the MCDR 2017 and Tamilnadu Minor Mineral Concession Rules 1959 are compiled by carrying out the quarrying operations in a skillful, scientific and systematic manner keeping in view proper safety of the labour, structure and the public and public works located in that vicinity of the quarrying area and in a manner to preserve the environment and ecology of the area.

23. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be informed to the District AD/DD (Geology and Mining) District Environmental Engineer (TNPCB) and the Director of Mines Safety (DMS), Chennai Region by the proponent without fail.

24. The Project Proponent shall abide by the annual production scheduled specified in the approved mining plan and if any deviation is observed, it will render the Project Proponent liable for legal action in accordance with Environment and Mining Laws.

25. Prior clearance from Forestry & Wild Life including clearance from committee of the National Board for Wildlife as applicable shall be obtained before starting the quarrying operation, if the project site attracts the NBWL clearance, as per the existing law from time to time.

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SEIAA-TN

26. All the conditions imposed by the Assistant/Deputy Director, Geology & Mining, concerned District in the mining plan approval letter and the Precise area communication letter issued by concerned District Collector should be strictly followed.
27. The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
28. The Project proponent shall install a Display Board at the entrance of the mining lease area/abutting the public Road, about the project information as shown in the **Appendix – II** of this minute.

Appendix -I

List of Native Trees Suggested for Planting

1. ***Aeglemarmelos***–Vilvam
2. ***Adenaantherapavonina***-Manjadi
3. ***Albizialebbeck***–Vaagai
4. ***Albiziaamara***-Usil
5. ***Bauhinia purpurea*** - Mantharai
6. ***Bauhinia racemosa*** - Aathi
7. ***Bauhinia tomentosa***–Iruvathi
8. ***Buchananiaaillaris***-Kattuma
9. ***Borassusflabellifer***- Panai
10. ***Buteamonosperma*** - Murukkamaram
11. ***Bobaxceiba***– Ilavu, Sevvilavu
12. ***Calophylluminophyllum*** - Punnai
13. ***Cassia fistula***- Sarakondrai
14. ***Cassia roxburghii***- Sengondrai
15. ***Chloroxylonsweitenia*** - Purasamaram
16. ***Cochlospermumreligiosum***– Kongu, ManjalIlavu
17. ***Cordiadichotoma***– Mookuchalimaram
18. ***Cretevaadansonii***–Mavalingum
19. ***Dilleniaindica***– Uva, Uzha
20. ***Dilleniapentagyna***– SiruUva, Sitruzha

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21. ***Diospyrosebenum***- Karungali
22. ***Diospyroschloroxylon***– Vaganai
23. ***Ficusamplissima***– Kalltchi
24. ***Hibiscus tiliaceous***–Aatrupoovarasu
25. ***Hardwickiabinata***– Aacha
26. ***Holopteliaintegrifolia***-Aayili
27. ***Lanneacoromandelica*** - Odhiam
28. ***Lagerstroemia speciosa*** - Poo Marudhu
29. ***Lepisanthustetraphylla***- Neikottaimaram
30. ***Limoniaacidissima*** - Vila maram
31. ***Litseaglutinosa***–Pisinpattai
32. ***Madhucalongifolia*** - Illuppai
33. ***Manilkarahexandra***–UlakkaiPaalai
34. ***Mimusopselengi*** - Magizhamaram
35. ***Mitragynaparvifolia*** - Kadambu
36. ***Morindapubescens***–Nuna
37. ***Morindacitrifolia***– VellaiNuna
38. ***Phoenix sylvestre***-Eachai
39. **Pongamiapinnata**–Pungam
40. **Premnamollissima**– Munnai
41. **Premnaserratifolia**– Narumunnai
42. **Premnatomentosa**-PurangaiNaari, PudangaNaari
43. **Prosopiscinerea** - Vannimaram
44. **Pterocarpusmarsupium** - Vengai
45. **Pterospermumcanescens**–Vennangu, Tada
46. **Pterospermumxylocarpum** - Polavu
47. **Puthranjivaroxburghii**–Puthranjivi
48. **Salvadorapersica**– UgaaMaram
49. **Sapindusemarginatus**- Manipungan, Soapukai
50. **Saracaasoca** - Asoca
51. **Streblusasper**- Pirayamaram
52. **Strychnosnuxvomica**–Yetti

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53. **Strychnospotatorum** - Therthang Kottai

54. **Syzygiumcumini** - Naval

55. **Terminaliabellerica**- Thandri

56. **Terminalia arjuna**- Venmarudhu

57. **Toona ciliate** – Sandhanavembu

58. **Thespesiapopulnea**- Puvarasu

59. **Walsuratrifoliata**–valsura

60. **Wrightiatinctoria**- Veppalai

61. **Pithecellobium dulce** – Kodukkapuli

Appendix-II

Display Board

(Size 6' x5' with Blue Background and White Letters)



Discussion by SEIAA and the Remarks: -

The proposal was placed in the 579th Authority meeting held on 20.12.2022 & 21.12.2022. SEAC has furnished its recommendations to the Authority for **granting Environmental Clearance to the Project** subject to the conditions stated therein. After detailed discussion, SEIAA decided to grant Environmenta! Clearance for the production of 70325m^3 of Rough Stone & 45675 m^3 of Gravel with an ultimate depth of 15.6m BGL for the period of 5 years subject to the conditions as recommended by SEAC in addition to the conditions stated vide Annexure A.

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Annexure 'A'

1. The AD/DD, Dept. of Geology &Mining shall ensure operation of the proposed quarry after the submission slope stability study conducted through the reputed research & Academic Institutions such as NIRM, IITs, NITS Anna University, and any CSIR Laboratories etc.
2. The AD/DD, Dept. of Geology &Mining & Director General of Mine safety shall ensure strict compliance and implementation of bench wise recommendations/action plans as recommended in the scientific slope stability study of the reputed research & Academic Institutions as a safety precautionary measure to avoid untoward accidents during mining operation.
3. No trees in the area should be removed and all the trees numbered and protected. In case trees fall within the proposed quarry site the trees may be transplanted in the Greenbelt zone. The proponent shall ensure that the activities in no way result in disturbance to forest and trees in vicinity. The proponent shall ensure that the activity does not disturb the movement of grazing animals and free ranging wildlife. The proponent shall ensure that the activity does not disturb the biodiversity, the flora & fauna in the ecosystem. The proponent shall ensure that the activity does not result in invasion by invasive alien species. The proponent shall ensure that the activities do not disturb the resident and migratory birds. The proponent shall ensure that the activities do not disturb the vegetation and wildlife in the adjoing reserve forests and areas around.
4. The proponent shall ensure that the operations do not result in loss of soil biological properties and nutrients.
5. The activity should not result in CO2 release and temperature rise and add to micro climate alternations.
6. The proponent shall ensure that the activity does not disturb the water bodies and natural flow of surface and ground water, nor cause any pollution, to water sources in the area.
7. The proponent shall ensure that the activities undertaken do not result in carbon emission, and temperature rise, in the area.

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8. The proponent shall ensure that Monitoring is carried out with reference to the quantum of particulate matter during excavation; blasting; material transport and also from cutting waste dumps and haul roads.
9. The proponent shall ensure that the activities do not disturb the agro biodiversity and agro farms. Actions to be taken to promote agro forestry, mixed plants to support biodiversity conservation in the mine restoration effort.
10. The proponent shall ensure that activity does not deplete the indigenous soil seed bank and disturb the mycorrizal fungi, soil organism, soil community nor result in eutrophication of soil and water.
11. The activities should not disturb the soil properties and seed and plant growth. Soil amendments as required to be carried out, to improve soil heath
12. Bio remediation using microorganisms should be carried out to restore the soil environment to enable carbon sequestration.
13. The proponent shall ensure that all mitigation measures listed in the EIA/EMP are taken to protect the biodiversity and natural resources in the area.
14. The proponent shall ensure that the activities do not impact the water bodies/wells in the neighboring open wells and bore wells. The proponent shall ensure that the activities do not in any way affect the water quantity and quality in the open wells and bore wells in the vicinity or impact the water table and levels. The proponent shall ensure that the activities do not disturb the river flow, nor affect the Odai, Water bodies, Dams in the vicinity.
15. The proponent shall ensure that in the green belt development more indigenous trees species (Appendix as per the SEAC Minutes) to be planted.
16. The proponent shall ensure the area is restored and rehabilitated with native trees as recommended in SEAC Minutes (in Appendix).
17. The proponent shall ensure that the mine restoration is done using mycorrizal VAM, vermin-composting, Biofertilizers to ensure soil health and biodiversity conservation.
18. The proponent shall ensure that the topsoil is protected and used in planting activities in the area.
19. The proponent should ensure that there is no disturbance to the agriculture plantations, social forestry plantations, waste lands, forests, sanctuary or national

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parks. There should be no impact on the land, water, soil and biological environment and other natural resources due to the mining activities.

20. The proponent shall ensure that topsoil to be utilized for site restoration and Green belt alone within the proposed area.
21. The proponent shall ensure that the activities do not impact green lands/grazing fields of all types surrounding the mine lease area which are food source for the grazing cattle.
22. The project proponent shall store/dump the waste generated within the earmarked area of the project site for mine closure as per the approved mining plan.

Directions for Reclamation of mine sites

1. The mining closure plan should strictly adhere to appropriate soil rehabilitation measures to ensure ecological stability of the area. Reclamation/Restoration of the mine site should ensure that the Geotechnical, physical, chemical properties are sustainable that the soil structure composition is buildup, during the process of restoration.
2. The proponent shall ensure that the mine closure plan is followed as per the mining plan and the mine restoration should be done with native species, and site restored to near original status. The proponent shall ensure that the area is ecologically restored to conserve the ecosystems and ensure flow of goods and services.
3. A crucial factor for success of reclamation site is to select sustainable species to enable develop a self-sustaining eco system. Species selected should easily establish, grow rapidly, and possess good crown and preferably be native species. Species to be planted in the boundary of project site should be un palatable for cattle's/ goats and should have proven capacity to add leaf-litter to soil and decompose. The species planted should be adaptable to the site conditions. Should be preferably pioneer species, deciduous in nature to allow maximum leaf-litter, have deep root system, fix atmospheric nitrogen and improve soil productivity. Species selected should have the ability to tolerate altered pit and toxicity of and site. They should be capable of meeting requirement of local people in regard to fuel fodder and should be able to attract bird, bees and butterflies. The species should be planted in mixed association.
4. For mining area reclamation plot culture experiments to be done to identify/ determine suitable species for the site.

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5. Top soil with a mix of beneficial microbes (Bacteria/Fungi) to be used for reclamation of mine spoils. AM Fungi (Arbuscular mycorrhizal fungi), plant growth promoting Rhizo Bacteria and nitrogen fixing bacteria to be utilized.
6. Soil and moisture conservation and water harvesting structures to be used where ever possible for early amelioration and restoration of site.
7. Top soil is most important for successful rehabilitation of mined sites. Topsoil contains majority of seeds and plant propagation, soil microorganism, Organic matter and plant nutrients. Wherever possible the topsoil should be immediately used in the area of the for land form reconstruction, to pre mining conditions.
8. Over burdens may be analyzed and tested for soil characteristics and used in the site for revegetation. Wherever possible seeds, rhizome, bulbs, etc of pioneering spices should be collected, preserved and used in restoring the site.
9. Native grasses seeds may be used as colonizers and soil binders, to prevent erosion and allow diverse self- sustaining plant communities to establish. Grasses may offer superior tolerance to drought, and climatic stresses.
10. Reclamation involves planned topographical reconstruction of site. Care to be taken to minimize erosion and runoff. Topsoils should have necessary physical, chemicals, ecological, properties and therefore should be stored with precautions and utilized for reclamation process. Stocked topsoil should be stabilized using grasses to protect from wind. Seeds of various indigenous and local species may be broad casted after topsoil and treated overburden are spread.
11. Alkaline soils, acidic soils, Saline soils should be suitably treated/amended using green manure, mulches, farmyard manure to increase organic carbon. The efforts should be taken to landscape and use the land post mining. The EMP and mine closure plan should provide adequate budget for reestablishing the site to pre-mining conditions. Effective steps should be taken for utilization of over burden. Mine waste to be used for backfilling, reclamation, restoration, and rehabilitation of the terrain without affecting the drainage and water regimes. The rate of rehabilitation should be similar to rate of mining. The land disturbed should be reshaped for long term use. Mining should be as far as possible be ecofriendly. Integration of rehabilitation strategies with mining plan will enable speedy restoration.

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12. Efforts should to taken to aesthetically improve the mine site. Generally there are two approaches to restoration i.e Ecological approach which allows tolerant species to establish following succession process allowing pioneer species to establish. The other approach i.e plantation approach is with selected native species are planted. A blend of both methods may be resorted to restore the site by adding soil humas and mycorrhiza.
13. Action taken for restoration of the site should be specifically mentioned in the EC compliances.

Part-A: Conditions to be Complied before commencing mining operations: -

1. **The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that**
   - **I. The project has been accorded Environmental Clearance.**
   - **II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.**
   - **III. Environmental Clearance may also be seen on the website of the SEIAA.**
   - **IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.**

2. Mining activity should be reviewed by the District Collector after three years and decide for further extension.
3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
5. **A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.**

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6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
7. The proponent shall ensure that First Aid Box is available at site.
8. The excavation activity shall not alter the natural drainage pattern of the area.
9. The excavated pit shall be restored by the project proponent for useful purposes.
10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 50mts. from any civil structure shall be kept from the periphery of any excavation area.
14. Depth of quarrying should be as per approved mining plan.
15. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
16. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
17. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
18. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
19. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
20. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF& CC, GoI on 16.11.2009.

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21. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
    i. Roads shall be graded to mitigate the dust emission.
    ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
22. The following measures are to be implemented to reduce Noise Pollution
    i. Proper and regular maintenance of vehicles and other equipment
    ii. Limiting time exposure of workers to excessive noise.
    iii. The workers employed shall be provided with protection equipment and earmuffs etc.
    iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
    v. All noise generating machinery the compressor, generator to be enclosed in acoustic enclosure so as to reduce noise in working area.
23. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoEF& CC, GoI to control noise to the prescribed levels.
24. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.
25. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
26. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
27. The following measures are to be adopted to control erosion of dumps: -
    i. Retention/ toe walls shall be provided at the foot of the dumps.
    ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
28. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous& other wastes (Management, and Trans Boundary Movement) Rules, 2016 and its amendments thereof to the recyclers authorized by TNPCB.

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29. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
30. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
31. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
32. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
33. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
34. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
35. It shall be ensured that the total extent of nearby quarries (existing, abandoned and proposed) located within 500-meter radius from the periphery of this quarry is not exceeding 5 hectares within the mining lease period of this application.
36. It shall be ensured that there is no habitation is located within 300-meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 300m radius from the periphery of the quarry site.

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37. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
38. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
39. Bunds to be provided at the boundary of the project site.
40. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.
41. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
42. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
43. The Project Proponent shall provide solar lighting system to the nearby villages.
44. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
45. Safety equipments to be provided to all the employees.
46. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
47. The Assistant/Deputy Director, Department of Geology & mining shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.
48. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.
49. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.
50. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.
51. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.

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52. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
53. The Proponent shall ensure that the project activity including blasting, mining transportation etc should in no way have adverse impact to the other forests, such as reserve forests and social forests, tree plantation and bio diversity, surrounding water bodies etc.
54. The proponent shall provide Green Belt development at the rate of not less than 400 trees/Hectare. The tree saplings shall be not less than 3m height.
55. The fugitive emissions should be monitored during the mining activity and should be reported to TNPCB once in a month and the operation of the quarry should no way impact the agriculture activity & water bodies near the project site.
56. All the commitment made by the project proponent in the proposal shall be strictly followed.
57. The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.

Part B: General Conditions:

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.

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6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.

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16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.

17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance

18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.

19. The SEIAA, Tamil Nadu may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the Environmental Clearance.

20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.

21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957,National Commission for protection of Child Right Rules,2006, Wildlife Protection Act, 1972, Forest Conservation Act, 1980, Biodiversity Conservation Act, 2016, the Biological Diversity Act,2002 and Biological diversity Rules, 2004 and Rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.

22. Any other conditions stipulated by other Statutory/Government authorities shall be complied.

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23. Any appeal against this Environmental Clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
24. The Environmental Clearance is issued based on the documents furnished by the project proponent. In case any documents found to be incorrect/not in order at a later date the Environmental Clearance issued to the project will be deemed to be revoked/ cancelled.

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Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Additional Chief Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Additional Chief Secretary to Government, Industries Department, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai – 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
6. The Chairman, TNPC Board,76, Mount Salai, Guindy, Chennai-32.
7. The District Collector, Virudhunagar District.
8. The Commissioner of Geology and Mines, Guindy, Chennai-32.
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. File Copy

Signature Not Verified
Digitally signed by Thiru.Deepak S.Bilgi
Member Secretary
Date: 1/21/2023 12:36:31 PM

Category of the Industry :

RED

CONSENT ORDER NO. 2305250631366 DATED: 15/03/2023.

PROCEEDINGS NO.F.2336VDR/RS/DEE/TNPCB/VDR/A/2023 DATED: 15/03/2023

SUB: Tamil Nadu Pollution Control Board –CONSENT TO OPERATE –DIRECT -M/s. A SEETHAKUMAR ROUGH STONE AND GRAVEL QUARRY , S.F.No. 532/2C, 533/1, 533/2, 533/3 & 533/4, GOPALAPURAM villageVempakottai Taluk and Virudhunagar District - Consent for operation of the plant and discharge of emissions under Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 as amended in 1987 (Central Act 14 of 1981) –Issued- Reg.

Ref: 1.Unit's OCMMS Application No.50631366 dated 22.02.2023
2.IR.No : F.2336VDR/RS/AE/VDR/2023 dated 13.03.2023.
3. Minutes of 225 th DLCCC meeting (Item No.225-04) held on 14.03.2023

CONSENT TO OPERATE is hereby granted under Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 as amended in 1987 (Central Act 14 of 1981) (hereinafter referred to as "The Act") and the rules and orders made there under to

The Proprietor,
M/s . A SEETHAKUMAR ROUGH STONE AND GRAVEL QUARRY
S.F No.532/2C, 533/1, 533/2, 533/3 & 533/4,
GOPALAPURAM Village,
Vempakottai Taluk,
Virudhunagar District.

Authorizing the occupier to operate the industrial plant in the Air Pollution Control Area as notified by the Government and to make discharge of emission from the stacks/chimneys.

This is subject to the provisions of the Act, the rules and the orders made there under and the terms and conditions incorporated under the Special and General conditions stipulated in the Consent Order issued earlier and subject to the special conditions annexed.

This CONSENT is valid for the period ending March 31, 2027

District Environmental Engineer,
Tamil Nadu Pollution Control Board,
VIRUDHUNAGAR

To
The Proprietor,
M/s.A SEETHAKUMAR ROUGH STONE AND GRAVEL QUARRY,
Thiru A Seethakumar,
S/o Arumugam,
543, Mappillai Subbaiah Street,
Rajapalayam Town & Taluk,
Virudhungar District.,

Pin: 626117

Copy to:

1.The Commissioner, RAJAPALAYAM-Panchayat Union, Vempakottai Taluk, Virudhunagar District .

2. Copy submitted to the Member Secretary, Tamil Nadu Pollution Control Board, Chennai for favour of kind information.

3. The District Environmental Engineer, Tamil Nadu Pollution Control Board, VIRUDHUNAGAR for favour of kind information.

4. File

SPECIAL CONDITIONS

1. This consent to operate is valid for operating the facility for the manufacture of products (Col. 2) at the rate (Col. 3) mentioned below. Any change in the products and its quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Sl. No.	Description	Quantity	Unit
	Product Details		
1.	Quarrying of Rough Stone at SF No 532/2C, 533/1, 533/2, 533/3, & 533/4 Gopalapuram Village, Vembakottai Taluk Depth:15.6 mts, Ext: 2.12.50 Ha, Lat 09°21'12.9."N to 09°21'18.7"N Log 77°37'14.6"E to 77°37'20.5" Over a Period of 5 Years	70325	Cu M for 5 Years
2.	Quarrying of Gravel at SF No 532/2C, 533/1, 533/2, 533/3, & 533/4 Gopalapuram Village, Vembakottai Taluk Depth:15.6 mts, Ext: 2.12.50 Ha, Lat 09°21'12.9."N to 09°21'18.7"N Log 77°37'14.6"E to 77°37'20.5" Over a Period of 5 Years	45675	Cu M for 5 Years

2. This consent to operate is valid for operating the facility with the below mentioned emission/noise sources along with the control measures and/or stack. Any change in the emission source/control measures/change in stack height has to be brought to the notice of the Board and fresh consent/Amendment has to be obtained.

I	**Point source emission with stack :**			
Stack No.	**Point Emission Source**	**Air pollution Control measures**	**Stack height from Ground Level in m**	**Gaseous Discharge in Nm3/hr**
II	**Fugitive/Noise emission :**			
Sl. No.	**Fugitive or Noise Emission sources**	**Type of emission**	**Control measures**	
1.	Drilling & Blasting	Fugitive	Water sprinkler system	
2.	Loading, Unloading & Hauling	Fugitive	Water sprinkler system	
3.	Mining Operation & Vehicles Movement	Fugitive	Water sprinkler system	

3(a). The emission shall not contain constituents in excess of the tolerance limits as laid down hereunder :

Sl.	Parameter	Unit	Tolerance limits	Stacks

Annexure enclosed if applicable. :-

3.(b) The Ambient Air in the industrial plant area shall not contain constituents in excess of the tolerance limits prescribed below.

Sl. No.	Pollutant	Time Weighted Average	Unit	Tolerance Limits	
				Industrial, Residential, Rural and other area	Ecologically Sensitive Area (notified by Central Govt.)
1.	Sulphur Dioxide (SO2)	Annual 24 hours	microgram/m3 microgram/m3	50 80	20 80
2.	Nitrogen Dioxide (NO2)	Annual 24 hours	microgram/m3 microgram/m3	40 80	30 80
3.	Particulate Matter (Size Less than 10 micro M) or PM10	Annual 24 hours	microgram/m3 microgram/m3	60 100	60 100
4.	Particulate Matter (Size Less than 2.5 micro M) or PM2.5	Annual 24 hours	microgram/m3 microgram/m3	40 60	40 60
5.	Ozone (O3)	Annual 24 hours	8 Hours 1 Hour	100 180	100 180
Sl. No.	**Pollutant**	**Time Weighted Average**	**Unit**	**Tolerance Limits**	
				Industrial, Residential, Rural and other area	**Ecologically Sensitive Area (notified by Central Govt.)**
6.	Lead (Pb)	Annual 24 hours	microgram/m3 microgram/m3	0.5 1.0	0.5 1.0
7.	Carbon Monoxide (CO)	8 Hours 1 Hour	miligram/m3 miligram/m3	02 04	02 04
8.	Ammonia (NH3)	Annual 24 hours	microgram/m3 microgram/m3	100 400	100 400
9.	Benzene (C6H6)	Annual	microgram/m3	5	5
10.	Benzo(O) Pyrene (BaP) –particulate phase only	Annual	nanogram/m3	01	01
11.	Arsenic (As)	Annual	nanogram/m3	06	06
12.	Nickel (Ni)	Annual	nanogram/m3	20	20

3(c) The Ambient Noise Level in the industrial plant area shall not exceed the limits prescribed below:

Limits in L.eq.-dB(A)	**Day Time**	**Night Time**
CommercialArea	**65**	**55**

4. All units of the Air pollution control measures shall be operated efficiently and continuously so as to achieve the standards prescribed in Sl. No.3 above.
5. The occupier shall not change or alter quality or quantity or the rate of emission or replace or alter the air pollution control equipment or change the raw material or manufacturing process resulting in change in quality and/or quantity of emissions without the previous written permission of the Board.
6. The occupier shall maintain log book regarding the stack monitoring system or operation of the plant or any other particulars for each of the unit operations of air pollution control systems to reflect the working condition which shall be furnished for verification of the Board officials during inspection.
7. The occupier shall at his own cost get the samples of emission/air/noise levels collected and analyzed by the TNPC Board Laboratory once in every 6 months/once in a year/periodically for the parameters as prescribed.

8. Any upset condition in any of the plants of the factory which is likely to result in increased emissions and result in violation of the standards mentioned in Sl.No.3 shall be reported to the Member Secretary / Joint Chief Environmental Engineer-Monitoring and the concerned District/Assistant Environmental Engineer of the Board by e-mail immediately and subsequently by Post with full details of such upset condition.

9. The occupier shall always comply and carryout the order/directions issued by the Board in this Consent Order and from time to time without any negligence. The occupier shall be liable for action as per provisions of the Act in case of non compliance of any order/directions issued.

Special Additional Conditions:

i. The unit shall install the approved retrofit emission control device/equipment with at least 70% Particulate matter reduction efficiency on all DG sets with capacity of 125 KVA and above or otherwise the unit shall be shift to gas based generators within the time frame prescribed in the notification No. TNPCB/Labs/DD(L)02151/2019 dated 10.06.2020 issued by TNPCB.

ii. The unit shall obtain No Objection Certificate (NOC) from the Tamil Nadu Bio Diversity Board /National Bio Diversity Authority if the unit is using any Biological resources or knowledge associated thereto as per the provisions of Biological Diversity Act 2002.

Additional Conditions:

1. The unit shall maintain the effective safeguard measures including water sprinkling arrangements shall be provided in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points.
2. The quarrying operations shall be carried out as approved by the Competent Authority.
3. The emissions from the quarrying activity shall comply with AAQ/ANL standards prescribed by the Board.
4. The Proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations/water sources, by way of pollution to the environment.
5. The proponent shall comply with the conditions stipulated in the Environmental Clearance issued by SEIAA,Chennai,vide Lr.No.SEIAATN/ F.No.8855/EC.No.5468/2022 dated:20.12.2022.
6. The consents do not absolve from obtaining permission/clearance from other authorities or other statutes as applicable.
7. The consents issued are subject to the final outcome of NGT(SZ) 165/2013 and other court cases in related to quarry/mines and OA No 520/2016 of NGT(Delhi).
8. The unit shall not use 'use and throw plastics' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bags and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, jute bag etc.
9. In case of revision of consent fee by the government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per the law.
10. The unit shall complete the CER activities if any pending within three months

District Environmental Engineer,
Tamil Nadu Pollution Control Board,
VIRUDHUNAGAR

GENERAL CONDITIONS

1. The occupier shall make an application along with the prescribed consent fee for grant of renewal of consent at least 60 days before the date of expiry of this Consent Order along with all the required particulars ensuring that there is no change in production quantity and emission.
2. This Consent is given by the Board in consideration of the particulars given in the application. Any change or alteration or deviation made in actual practice from the particulars furnished, in the application will also be ground for review/variation/revocation of the Consent Order under Section 21 of the Act.
3. The conditions imposed shall continue in force until revoked under Section 21 of the Act.
4. After the issue of this order, all the 'Consent to Operate' orders issued previously under Air (Prevention and Control of Pollution) Act, 1981 as amended stands defunct.
5. The occupier shall maintain an Inspection Register in the factory so that the inspecting officer shall record the details of the observations and instructions issued to the unit at the time of inspection for adherence.
6. The occupier shall provide and maintain an alternate power supply along with separate energy meter for the Air Pollution Control measures sufficient to ensure continuous operation of all pollution control equipments to ensure compliance.
7. The occupier shall provide all facilities to the Board officials for collection of samples in and around the factory at any time.
8. The applicant shall display the flow diagram of the sources of emission and pollution control systems provided at the site.
9. The liquid effluent arising out of the operation of the air pollution control equipment shall also be treated in a manner and to the satisfaction of standards prescribed by the Board in accordance with the provisions of Water (Prevention and Control of Pollution) Act, 1974 as amended.
10. The air pollution control equipments, location of inspection chambers and sampling port holes shall be made easily accessible at all time.
11. In case of any episodal discharge of emission, the industry shall take immediate action to bring down the emission within the limits prescribed by the Board.
12. If applicable, the occupier has to comply with the provisions of Public Liability Insurance Act, 1991 to provide immediate relief in the event of any hazard to human beings, other living creatures/plants and properties while handling and storage of hazardous substances.
13. The issuance of this consent does not authorize or approve the construction of any physical structures or facilities or the undertaking of any work in any natural watercourse or in Government Poromboke lands.
14. The issuance of this Consent does not convey any property right in either real personal property or any exclusive privileges, nor does it authorize any injury to private property or Government property or any invasion of personal rights nor any infringement of Central, State laws or regulation.
15. The occupier shall forth with keep the Board informed of any accident of unforeseen act or event of any poisonous, noxious or polluting matter or emissions are being discharged into stream or well or air as a result of such discharge, water or air is being polluted.
16. If due to any technological improvements or otherwise the Board is of opinion that all or any of the conditions referred to above requires variation (including the change of any treatment system, either in whole or in part) the Board shall, after giving the applicant an opportunity of being heard, vary all or any of such conditions and thereupon the applicant shall be bound to comply with the conditions as so varied.
17. In case there is any change in the constitution of the management, the occupier of the new management shall file fresh application under Air (Prevention and Control of Pollution) Act, 1981, as amended in Form-I alongwith relevant documents of change of management immediately and get the necessary amendment with renewal of consent order.
18. In case there is any change in the name of the company alone, the occupier shall inform the same with relevant documents immediately and get the necessary amendments for the change of name from the Board.

19. The occupier shall display this consent order granted to him in a prominent place for perusal of the inspecting Officers of this Board.

District Environmental Engineer,
Tamil Nadu Pollution Control Board,
VIRUDHUNAGAR

Category of the Industry :

RED

CONSENT ORDER NO. 2305150631366 DATED: 15/03/2023.

PROCEEDINGS NO.F.2336VDR/RS/DEE/TNPCB/VDR/W/2023 DATED: 15/03/2023

SUB: Tamil Nadu Pollution Control Board –CONSENT TO OPERATE – DIRECT -M/s. A SEETHAKUMAR ROUGH STONE AND GRAVEL QUARRY , S.F.No. 532/2C, 533/1, 533/2, 533/3 & 533/4, GOPALAPURAM villageVempakottai Taluk and Virudhunagar District - Consent for the operation of the plant and discharge of sewage and/or trade effluent under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 (Central Act 6 of 1974) – Issued- Reg.

Ref: 1.Unit's OCMMS Application No.50631366 dated 22.02.2023
2.IR.No : F.2336VDR/RS/AE/VDR/2023 dated 13.03.2023.
3. Minutes of 225 th DLCCC meeting (Item No.225-04) held on 14.03.2023

CONSENT TO OPERATE is hereby granted under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 (Central Act, 6 of 1974) (hereinafter referred to as "The Act") and the rules and orders made there under to

The Proprietor,
M/s . A SEETHAKUMAR ROUGH STONE AND GRAVEL QUARRY
S.F No.532/2C, 533/1, 533/2, 533/3 & 533/4,
GOPALAPURAM Village,
Vempakottai Taluk,
Virudhunagar District.

Authorising the occupier to make discharge of sewage and /or trade effluent.

This is subject to the provisions of the Act, the rules and the orders made there under and the terms and conditions incorporated under the Special and General conditions stipulated in the Consent Order issued earlier and subject to the special conditions annexed.

This CONSENT is valid for the period ending March 31, 2027

District Environmental Engineer,
Tamil Nadu Pollution Control Board,
VIRUDHUNAGAR

To
The Proprietor,
M/s.A SEETHAKUMAR ROUGH STONE AND GRAVEL QUARRY,
Thiru A Seethakumar,
S/o Arumugam,
543, Mappillai Subbaiah Street,
Rajapalayam Town & Taluk,

Virudhungar District.,

Pin: 626117

Copy to:

1.The Commissioner, RAJAPALAYAM-Panchayat Union, Vempakottai Taluk, Virudhunagar District .

2. Copy submitted to the Member Secretary, Tamil Nadu Pollution Control Board, Chennai for favour of kind information.

3. The District Environmental Engineer, Tamil Nadu Pollution Control Board, VIRUDHUNAGAR for favour of kind information.

4. File

SPECIAL CONDITIONS

1. This consent to operate is valid for operating the facility for the manufacture of products (Col. 2) at the rate (Col. 3) mentioned below. Any change in the products and its quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Sl. No.	Description	Quantity	Unit
	Product Details		
1.	Quarrying of Rough Stone at SF No 532/2C, 533/1, 533/2, 533/3, & 533/4 Gopalapuram Village, Vembakottai Taluk Depth:15.6 mts, Ext: 2.12.50 Ha, Lat 09°21'12.9."N to 09°21'18.7"N Log 77°37'14.6"E to 77°37'20.5" Over a Period of 5 Years	70325	Cu M for 5 Years
2.	Quarrying of Gravel at SF No 532/2C, 533/1, 533/2, 533/3, & 533/4 Gopalapuram Village, Vembakottai Taluk Depth:15.6 mts, Ext: 2.12.50 Ha, Lat 09°21'12.9."N to 09°21'18.7"N Log 77°37'14.6"E to 77°37'20.5" Over a Period of 5 Years	45675	Cu M for 5 Years

2. This consent to operate is valid for operating the facility with the below mentioned permitted outlets for the discharge of sewage/trade effluent. Any change in the outlets and the quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Outlet No.	Description of Outlet	Maximum daily discharge in KLD	Point of disposal
Effluent Type : Sewage			
1.	Sewage	0.39	On Industrys own land
Effluent Type : Trade Effluent			

3. The effluent discharge shall not contain constituents in excess of the tolerance Limits as laid down hereunder.

Sl. No.	Parameters	Unit	TOLERANCE LIMITS - OUTLETS -Nos				
			Sewage		Trade Effluent		
			1		0		
1.	pH		5.5 to 9				
2.	Temperature	oC	-				
3.	Particle size of Suspended solids	-	-				
4.	Total Suspended Solids	mg/l	30				
5.	Total Dissolved solids (inorganic)	mg/l	-				
6.	Oil & Grease	mg/l	-				
7.	Biochemical Oxygen Demand (3 days at 27oC)	mg/l	20				
8.	Chemical Oxygen Demand	mg/l	-				
9.	Chloride (as Cl)	mg/l	-				
10.	Sulphates (as SO4)	mg/l	-				
11.	Total Residual Chlorine	mg/l	-				
12.	Ammonical Nitrogen (as N)	mg/l	-				
13.	Total Kjeldahl Nitrogen (as N)	mg/l	-				
14.	Free Ammonia (as NH3)	mg/l	-				
15.	Arsenic (as As)	mg/l	-				
16.	Mercury (as Hg)	mg/l	-				
17.	Lead (as Pb)	mg/l	-				
18.	Cadmium(as Cd)	mg/l	-				
19.	Hexavalent Chromium (as Cr+6)	mg/l	-				
20.	Total Chromium (as Cr)	mg/l	-				
21.	Copper (as Cu)	mg/l	-				
22.	Zinc (as Zn)	mg/l	-				
23.	Selenium (as Se)	mg/l	-				
24.	Nickel (as Ni)	mg/l	-				
25.	Boron (as B)	mg/l	-				
26.	Percent Sodium	%	-				
27.	Residual Sodium Carbonate	mg/l	-				
28.	Cyanide (as CN)	mg/l	-				
29.	Fluoride (as F)	mg/l	-				
30.	Dissolved Phosphates(as P)	mg/l	-				
31.	Sulphide (as S)	mg/l	-				
32.	Pesticides	mg/l	-				
33.	Phenolic Compounds (as C6H5OH)	mg/l	-				
34.	Radioactive materials a) Alpha emitters	micro curie/ml	-				
35.	Radioactive materials b). Beta emitters	micro curie/ml	-				
36.	Fecal Coliform	MPN/100ml	-				

4. All units of the sewage and Trade effluent treatment plants shall be operated efficiently and continuously so as to achieve the standards prescribed in Sl No.3 above or to achieve the zero liquid discharge of effluent as applicable.

5. The occupier shall maintain the Electro Magnetic Flow Meters/water Meters installed at the inlet of the water supply connection for each of the purposes mentioned below for assessing the quantity of water used and ensuring that such meters are easily accessible for inspection and maintenance and for other purposes of the Act.
   a. Industrial Cooling, Spraying in mine pits or boiler feed.
   b. Domestic purpose.
   c. Process.
6. The occupier shall maintain the Electro Magnetic Flow Meters with computer recording arrangement for measuring the quantity of effluent generated and treated for the monitoring purposes of the Act.
7. Log book for each of the unit operations of ETP have to be maintained to reflect the working condition of ETP along with the readings of the Electro Magnetic Flow Meters installed to assess effluent quantity and the same shall be furnished for verification of the Board officials during inspection.
8. The occupier shall at his own cost get the samples of effluent/surface water/ground water collected in and around the unit by Board officials and analyzed by the TNPC Board Laboratory periodically.
9. Any upset condition in any of the plants of the factory which is, likely to result in increased effluent discharge and result in violation of the standards mentioned in Sl. No.3 above shall be reported to the Member Secretary / Joint Chief Environmental Engineer-Monitoring and the concerned District/Assistant Environmental Engineer of the Board by e-mail immediately and subsequently by Post with full details of such upset condition.
10. The occupier shall always comply and carryout the order/directions issued by the Board in this Consent Order and from time to time without any negligence. The occupier shall be liable for action as per provisions of the Act in case of non compliance of any order/directions issued.
11. The occupier shall develop adequate width of green belt at the rate of 400 numbers of trees per Hectare.
12. The occupier shall provide and maintain rain water harvesting facilities.
13. The occupier shall ensure that there shall not be any discharge of effluent either treated or untreated into storm water drain at any point of time.
14. In the case of zero liquid discharge of effluent units, the occupier shall adhere the following conditions as laid under.

    i). The occupier shall ensure zero liquid discharge of effluent, thereby no discharge of untreated / treated effluent on land or into any water bodies either inside or outside the premises at any point of time.

    ii) The occupier shall operate and maintain the Zero liquid discharge treatment components comprising of Primary, Secondary and tertiary treatment systems at all times and ensure that the RO permeate/Evaporator condensate shall be recycled in the process and the final RO reject shall be disposed off with the reject management system ensuring zero liquid discharge of effluents in the premises.

    iii) The occupier shall operate and maintain the reject management system effectively and recover the salt from the system which shall be reused in the process if reusable or shall be disposed off as ETP sludge.

    iv) In case of failure to achieve zero discharge of effluents for any reason, the occupier shall stop its production and operations forthwith and shall be reported to the Member Secretary/Joint Chief Environmental Engineer-Monitoring and the concerned District/Assistant Environmental Engineer of the Board by e-mail immediately and subsequently by Post with full details of such upset condition.

    v) The occupier shall restart the production only after ascertaining that the Zero discharge treatment system can perform effectively for achieving zero discharge of effluents.

Special Additional Conditions:

The unit shall obtain No Objection Certificate (NOC) from the Tamil Nadu Bio Diversity Board /National Bio Diversity Authority if the unit is using any Biological resources or knowledge associated thereto as per the provisions of Biological Diversity Act 2002.

Additional Conditions:

1. The unit shall maintain the effective safeguard measures including water sprinkling arrangements provided in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points.
2. The quarrying operations shall be carried out as approved by the Competent Authority.
3. The Proponent shall treat the sewage generated in septic tank and disposed to the soak pit only.
4. The Proponent shall ensure that no trade effluent is generated at any stage of the quarrying activity.
5. The Proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations/water sources, by way of pollution to the environment.
6. The proponent shall comply with the conditions stipulated in the Environmental Clearance issued by SEIAA,Chennai,vide Lr.No.SEIAATN/ F.No.8855/EC.No.5468/2022 dated:20.12.2022.
7. The consents do not absolve from obtaining permission/clearance from other authorities or other statutes as applicable.
8. The consents issued are subject to the final outcome of NGT(SZ) 165/2013 and other court cases in related to quarry/mines and OA No 520/2016 of NGT(Delhi).
9. The unit shall not use ‘use and throw plastics’ such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bags and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, jute bag etc.
10. In case of revision of consent fee by the government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per the law.
11. The unit shall continue to develop green belt around its premises.
12. The unit shall complete the CER activities if any pending within three months

District Environmental Engineer,
Tamil Nadu Pollution Control Board,
VIRUDHUNAGAR

GENERAL CONDITIONS

1. The occupier shall make an application along with the prescribed consent fee for grant of renewal of consent at least 60 days before the date of expiry of this Consent Order along with all the required particulars ensuring that there is no change in Production quantity and change in sewage/Trade effluent.
2. This Consent is issued by the Board in consideration of the particulars given in the application. Any change or alteration or deviation made in actual practice from the particulars furnished in the application will also be ground for review/variation/revocation of the Consent Order under Section 27 of the Act and to make such variation as deemed fit for the purpose of the Act.
3. The consent conditions imposed in this order shall continue in force until revoked under Section 27(2) of the Act.
4. After the issue of this order, all the 'Consent to Operate' orders issued previously under Water (Prevention and Control of Pollution) Act, 1974 as amended stands defunct.
5. The occupier shall maintain an Inspection Register in the factory so that the inspecting officer shall record the details of the observations and instructions issued to the unit at the time of inspection for adherence.
6. The occupier shall provide and maintain an alternate power supply along with separate energy meter for the Effluent Treatment Plant sufficient to ensure continuous operation of all pollution control equipments to maintain compliance.
7. The occupier shall provide all facilities to the Board officials for inspection and collection of samples in and around the factory at any time.
8. The occupier shall display the flow diagram of the sources of effluent generation and pollution control systems provided at the ETP site.
9. The solid waste such as sweepings, wastage, package, empty containers, residues, sludge including that from air pollution control equipments collected within the premises of the industrial plant shall be collected in an earmarked area and shall be disposed off properly.
10. The occupier shall collect, treat the solid wastes like food waste, green waste generated from the canteen and convert into organic compost.
11. The occupier shall segregate the Hazardous waste from other solid wastes and comply in accordance with Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008.
12. The occupier shall maintain good house-keeping within the factory premises.
13. All pipes, valves, sewers and drains shall be leak proof. Floor washings shall be admitted into the trade effluent collection system only and shall not be allowed to find their way in storm drains or open areas.
14. The occupier shall ensure that there shall not be any diversion or by-pass of trade effluent on land or into any water sources.
15. The occupier shall ensure that solar Evaporation pans shall be constructed in such a way that the bottom of the solar pan is at least 1 m above the Ground level (if applicable).
16. The occupier shall furnish the following returns in the prescribed formats to the concerned District office regularly.
    a) Monthly water consumption returns of each of the purposes with water meter readings in Form-I on or before 5th of every month.
    b) Yearly return on Hazardous wastes generated and accumulated for the period from 1st April to 31st March in Form–4 before the end of the subsequent 30th June of every year (if applicable).
    c) Yearly Environmental Statement for the period from 1st April to 31st March in Form –V before the end of the subsequent 30th September of every year(if applicable).
17. If applicable, the occupier has to comply with the provisions of Public Liability Insurance Act, 1991 to provide immediate relief in the event of any hazard to human beings, other living creatures/plants and properties while handling and storage of hazardous substances.
18. The issuance of this consent does not authorize or approve the construction of any physical structures or facilities or the undertaking of any work in any natural watercourse or in Government Poromboke lands.
19. The issuance of this Consent does not convey any property right in either real personal property or any exclusive privileges, nor does it authorize any injury to private property or Government property or any invasion of personal rights nor any infringement of Central, State laws or regulation.

20. The occupier shall forth with keep the Board informed of any accident of unforeseen act or event of any poisonous, noxious or polluting matter or emissions are being discharged into stream or well or air as a result of such discharge, water or air is being polluted.

21. If due to any technological improvements or otherwise the Board is of opinion that all or any of the conditions referred to above requires variation (including the change of any treatment system, either in whole or in part) the Board shall, after giving the applicant an opportunity of being heard, vary all or any of such conditions and thereupon the applicant shall be bound to comply with the conditions as so varied.

22. In case there is any change in the constitution of the management, the occupier of the new management shall file fresh application under Water (Prevention and Control of Pollution) Act, 1974, as amended in Form-II alongwith relevant documents of change of management immediately and get the necessary amendment with renewal of consent order.

23. In case there is any change in the name of the company alone, the occupier shall inform the same with relevant documents immediately and get the necessary amendments for the change of name from the Board.

24. The occupier shall display this consent order granted to him in a prominent place for perusal of the inspecting Officers of this Board.

District Environmental Engineer,
Tamil Nadu Pollution Control Board,
VIRUDHUNAGAR

1488/2023



தமிழ்நாடு तमिलनाडु TAMILNADU

A. SEETHAKUMAR
RAJAPALAYAM

M. AYYANARSAMY
Stamp Vendor
Licence No. 5730/A1/2010-20
53-B, Railway Feeder Road,
Rajapalayam - 626 117

BB 135746
6-4-2023

APPENDIX – IV

(See Rule 19(1) and 22 of Tamil Nadu Minor Mineral Concession Rules, 1959)

FORM OF AGREEMENT FOR QUARRYING AND CARRYING AWAY MINOR MINERALS FROM RYOTWARI LANDS IN WHICH THE MINERALS BELONG TO GOVERNMENT

(Assistant Director of Geology and Mining, Virudhunagar Proceedings Rc.KV1/638/2020 Dated.06.04.2023)

Anticipated Seigniorage fee for Ten Years	**: Rs. 1,19,84,150/-**
Security Deposit	**: Rs. 10,000/-**
Area Assessment	**: Rs. 3,200/-**
TOTAL	**: Rs. 1,19,97,350/-**

AGREEMENT MADE THIS 11th day of April 2023 between Thiru.A.Seethakumar, S/o. Arumugam residing at Door No.438/543, Mappillai Subbiah Street, Rajapalayam Taluk, Virudhunagar District

Seethakumar A
REGISTERED HOLDER-cum-LESSEE
(Aadhar no. 6099 2556 5166)
(Cell no. 9715338066)

LESSOR
ASSISTANT DIRECTOR
GEOLOGY AND MINING
VIRUDHUNAGAR DISTRICT
VIRUDHUNAGAR

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hereinafter referred to as 'the Registered Holder / Lessee' which term shall include in these presents where the context so admits include also his heirs, executors administrators, legal representatives and assigns) of the One Part and the Governor of Tamil Nadu (hereinafter called "the Government" which term shall where the context so admits, include also his successors in office and assigns) of the Other Part.

WHEREAS, the Registered Holder holds the lands described in the schedule hereunder written (hereinafter referred to as the said lands);

AND WHEREAS, the Registered Holder / Lessee has made application to the Assistant Director, Geology and Mining of the District of Virudhunagar (hereinafter referred to as "the Assistant Director of Geology and Mining") seeking grant of quarrying lease for quarrying Rough Stone and Gravel in the said lands and to deposit mining waste thereon for a term of Ten years and has lodged with the Assistant Director of Geology and Mining, Virudhunagar an accurate map or sketch of the said lands;

AND WHEREAS, the Assistant Director of Geology and Mining, Virudhunagar, acting for and on behalf of the Government, has granted a quarrying lease to the Registered Holder / Lessee and allowed him to commence quarrying operations for Rough Stone and Gravel in the said lands and to deposit mining waste thereon by the Registered Holder/Lessee for a term of **Ten years from 11.04.2023 to 10.04.2033.**

AND WHEREAS, the Registered Holder / Lessee has deposited with the Assistant Director of Geology and Mining, Virudhunagarthe sum of Rs.10,000/- remitted at India Bank, Virudhunagar Dated:11.04.2023 as security against loss or damage which may be incurred by the Government by reason by any of the said lands being rendered and unfit for cultivation by any mining operations therein of the Registered Holder / lessee or by deposit of mining waste thereon by the Registered Holder / Lessee.

NOW THESE PRESENTS WITNESS and the Registered Holder / Lessee do hereby agree with the Government in the manner following, that is to say:-

1. The Registered Holder / Lessee shall be at liberty at all times during the period of the lease to carry on mining operations for **Rough Stone and Gravel** in the lands in a proper and workman like

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manner and to deposit mining waste on the lands and shall at all times be answerable and accountable to the Government for all acts and defaults by any of his nominees, servants or agents in carrying on such operations or in making such deposit.

2. The Registered Holder shall pay to the Assistant Director of Geology and Mining, Virudhunagar for and on behalf of the Government in addition to the land assessment for the time being payable in respect of the said lands Seigniorage on the minor minerals at the rates specified in the Appendix-II to the Tamil Nadu Minor Mineral Concession Rules, 1959.

3. The Registered Holder shall and will keep correct accounts in such form as the Assistant Director of Geology and Mining, Virudhunagar Shall from time to time require and direct showing the quantities and other particulars of all minerals obtained by the Registered Holder from the said lands and also the number of persons employed in carrying on the said mining operations therein and shall from time to time when so directed by the Assistant Director of Geology and Mining, Virudhunagar prepare and maintain complete and correct plans of all mines and working in the said lands and shall allow any officer hereunto authorised by the Director of Geology and Mining, Tamil Nadu from time to time and at any time to examine such accounts and any such plans and shall when so required supply and furnish all such information and returns regarding all or any of the matter aforesaid as the Government shall, from time to time required and direct.

4. The Registered Holder / Lessee shall and will at all times, allow any officer authorized by the Director of Geology and Mining, Tamil Nadu in that behalf to enter upon any part of the said lands where any mining operations may be carried on for the purpose of inspecting the same.

5. The Registered Holder / Lessee shall forthwith send to the Assistant Director of Geology and Mining, Virudhunagara report of any accident, which may occur at or in the said lands and also of the discovery of any mineral other than Rough stone and Gravel.

6. It shall be lawful for the Registered Holder / Lessee at any time to cease mining operations under these presents provided he shall pay to the Assistant Director of Geology and Mining, Virudhunagar for

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and on behalf of the Government Land assessment, cess and Seigniorage due to the Government and shall restore the said lands or fence, or fill in abandoned pits and excavations therein if required by the Assistant Director of Geology and Mining, Virudhunagar and upon his so doing these presents shall cease and determine.

7. In case the Registered Holder / Lessee shall relinquish the whole or any part of the said lands or in case of the expiry or sooner determination of this agreement then and in any such case, he shall restore the lands so relinquished or so much thereof as the Assistant Director of Geology and Mining, Virudhunagar shall require to be restored to a state fit for cultivation or shall securely and permanently fence or fill in all such abandoned pits and excavations therein as the Assistant Director of Geology and Mining, Virudhunagar shall require to be so fenced or filled in, and in case

the Registered Holder / Lessee shall fail or neglect to restore any such land which he shall be required to restore to a state fit for cultivation or to so fence, or fill in any such abandoned pit or excavation which he shall be required to so fence or fill in them in any such case, it shall be lawful for the Assistant Director of Geology and Mining, Virudhunagar to so restore any such land, or as the case may be, to so fence or fill any such pits or excavation at the expense of the Registered Holder / Lessee and to apply the said sum of Rs.10,000/-E-Challan Dated.11.04.2023, India Bank, Virudhunagar so deposited in or towards the cost of so doing and to deduct from the amount of the said deposit and retain on behalf of the Government a sum equal to thirty times the assessment of the said lands which shall have been rendered unfit for cultivation. If however, the amount of deposit is not sufficient to cover the cost of such restoration or fencing or filling in or to meet thirty times the assessment on the area rendered and uncultivable, it shall be lawful for the Government to recover the balance by resort to civil court.

8. The Registered Holder / Lessee shall not be entitled to any remission of assessment in respect of any of the said lands which shall be rendered unfit for surface cultivation by the carrying on of any mining operation or by the deposit of mining waste, unless

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thirty times the assessment thereon has already been deducted under the preceding clause.

9. The Registered Holder / Lessee shall not assign, lease or part with the possession of the said lands or any part thereof for the whole or any part of the said term without previous intimation in writing to the Assistant Director of Geology and Mining, Virudhunagar.

10. If the registered holder does not intend to carry on mining operations himself, but intends to lease out the right to do so to another person, the registered holder and his Lessee shall enter into an agreement with Government binding themselves jointly and severally to accept the conditions and stipulations herein contained which agreement shall be in the Form set out in Appendix-V to the Tamil Nadu Minor Mineral Concession Rules, 1959.

11. All Land Assessments, Cess and Seigniorage and Penalty payable under these presents shall be recoverable under the provisions of the Tamil Nadu Revenue Recovery Act 1864, as if they were arrears of land revenue.

12. In the event of any breach by the Registered Holder / Lessee by any of the conditions of this agreement, it shall be lawful for the Government to levy enhanced Seigniorage subject to the maximum of fifteen times the normal rate or for the Assistant Director of Geology and Mining, Virudhunagar to give notice in writing to the Registered Holder / Lessee of his intention to cancel these presents where upon the same shall stand cancelled but without prejudice to any rights which the Government may have against the Pattadar in respect of any antecedent claim or breach of covenant or condition.

13 Any notice to be given to the Registered Holder / Lessee may be addressed to his last known place of abode and where a notice has been so addressed, it shall be deemed to have been duly served for the purpose of these presents.

14 Should any question or dispute arise regarding the agreement executed in pursuance of these rules or any matter or thing connected therewith or the powers of the Registered Holder / Lessee there under, the amount or payment of the Seigniorage fee or Area Assessment made payable thereby, the matter in issue shall be decided by the Director of Geology and Mining, in the case the Registered Holder / Lessee is not satisfied with the decision of the

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Director of Geology and Mining, the matter shall be referred to the State Government for decision.

15. The Registered Holder / Lessee shall abide by the conditions laid down in the Payment of Wages Act 1936, (Central Act IV of 1936), the Mines Act, 1952 (Central Act XXXV of 1952) and the Explosives Act 1884 (Central Act IV of 1884).

16. Quarrying operations should be carried out in accordance with the Approved Mining Plan. If the mining operations are not carried out in accordance with the Approved Mining Plan, the Assistant Director of Geology and Mining, Virudhunagarmay order suspension of all quarrying operations, by way of rectification to restore the conditions as may be necessary in the quarry as envisaged under the said mining plan, or may take further action as per the Acts & Rule sinforce.

17 As per Approved Mining Plan the total production of Rough stone and Gravel for the Ten years lease period is 1,70,275 CBM and 58,725 CBM respectively. Hence for the purpose of calculating stamp duty the anticipated Seigniorage fee is Rs.1,19,84,150/- (Rupees One Crore Nineteen Lakhs Eight Four Thousand One Hundred and Fifty only) and security deposit of Rs.10,000/- (Rupees Ten Thousand only) and Area Assessment amount of Rs.3200/- (Rupees Three Thousand Two Hundred only) for the entire lease period of **Ten years.**

18"The mining lease holder shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fooder, flora, fauna etc."

நிபந்தனைகள்:-

1. குத்தகை ஒப்பந்தபத்திரம் நிறைவேற்றப்படும் நாள் குவாரி பணி தொடங்கப்படும் முதல் நாளாக கருதப்பட்டு அன்றைய தினத்திலிருந்து 5 ஆண்டுகளுக்கு மட்டுமே சென்னை மாநில அளவிலான சுற்றுச்சூழல் தாக்கமதிப்பீட்டு ஆணையம் (SEIAA) வழங்கிய சுற்றுச்சூழல் ஒப்புதல் சான்று செல்லத்தக்கது.

2. அரசாணை எண். 208, தொழில் (எம்.எம்.சி.1) துறை, நாள்.21.09.2020-இன்படி, ஐந்து ஆண்டுகள் முடிவடைவதற்கு 180 நாட்களுக்கு முன்னதாக இவரி குத்தகைதாரர் இரண்டாம் [illegible]

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மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் (State level Environment Impact Assessment Authority) (SEIAA) சுற்றுச்சூழல் ஒப்புதலும் பெற்று சமர்ப்பிக்க வேண்டும்.

3. சரியான முறையில் குறிப்பிட்ட படிவத்தில் கணக்குகள் பராமரிக்க வேண்டும் தினந்தோறும் வெட்டிஎடுத்துக் கொண்டு செல்லப்பட்ட கனிம அளவைக்குறித்த பதிவேடுகள் வைத்திருக்க வேண்டும். அவைகளை தணிக்கை செய்யும் அதிகாரிகளுக்கு தவறாமல் காண்பிக்க வேண்டும்.

4. சொந்த செலவிலேயே குறிப்பிட்ட படிவத்தில் நடைச்சீட்டு அச்சிட்டு நடைச்சீட்டில் விருதுநகர் மாவட்டம், புவியியல் மற்றும் சுரங்கத்துறை, உதவி இயக்குநர் அலுவலக முத்திரையுடன் கையொப்பமும் பெறவேண்டும். குவாரியில் இருந்துகனிமம் ஏற்றிச் செல்லும் ஒவ்வொரு வாகனத்திற்கும் நடைச்சீட்டு வழங்கப்பட வேண்டும். சோதனையின் போதுநடைச்சீட்டு இல்லையென்று கண்டுபிடிக்கப்பட்டால் வாகனங்கள் பறிமுதல் செய்யப்படுவதோடு குவாரி குத்தகைதாரர் மீது விதிமுறைகளின் படி நடவடிக்கையும் எடுக்கப்படும்.

5. குத்தகைதாரர் குவாரியின் முகப்பில் குத்தகைதாரர் பெயர், கிராமத்தின் பெயர், வட்டத்தின் பெயர், புலஎண், பரப்பு, குத்தகை ஆணைஎண். குத்தகைகாலம், கனிமத்தின் பெயர், போன்ற விபரங்கள் குறிக்கப்பட்ட தகவல் பலகையை தமது சொந்தசெலவில் வைத்து நன்கு பராமரிக்க வேண்டும்.

6. குத்தகை வழங்கப்பட்ட பாறையில் குண்டுக்கல், ஜல்லி, அரளைகல், வேலிக்கற்கள், போன்ற சிறுகனிமங்கள் உடைத்தெடுக்கமட்டுமே அனுமதியுண்டு. வெளிநாடுகளுக்கு ஏற்றுமதியாகும் மெருகூட்டும் கனவடிவகற்கள் வெட்டி எடுக்கக் கூடாது.

7. குத்தகை ஒப்பந்தப்பத்திரத்தில் குறிக்கப்படாத வேறுஏதாவதொரு கனிமங்கள் கிடைத்தால், அதனை சம்பந்தப்பட்ட அலுவலரின் அனுமதியை பெறாமலும், அதற்குரிய சீனியரேஜ் தொகையைச் செலுத்தாமலும் எடுக்கக்கூடாது. புதிய கனிமம் கிடைத்த விவரத்தை 30 தினங்களுக்குள் தெரிவிக்காமல் எடுத்துச் சென்றால் இக்குற்றத்திற்கு அந்தகனிமத்திற்குரிய சாதாரண சீனியரேஜ் கட்டணத்தைப்போல் 15 மடங்குவரை தொடர்புடைய அலுவலரால் அபராதம் விதித்துவசூலிக்கப்படும்.

8. குவாரியிலிருந்து கொண்டு செல்லப்படும் மேற்கண்ட வகைகற்களுக்கு 1959ம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் பின் இணைப்புII-ல் கண்டுள்ளவாறு உரிம வரி (சீனியரேஜ் தொகை) செலுத்த வேண்டும். அரசு அவ்வப்போது அறிவிக்கும் உரிம வரிமாற்றங்களுக்கு ஏற்பஎவ்வித ஆட்சேபணை இன்றிசெலுத்துதல் வேண்டும்.

9. குவாரி செய்ய அனுமதிக்கப்பட்ட குறிப்பிட்ட புலஎண் மற்றும் குறிப்பிட்ட விஸ்தீரணத்திற்குள் தான் குவாரிசெய்யவேண்டும்.

10. குவாரிப்பணிமேற்கொள்வதற்குமுன்பாகக்குவாரிகுத்தகைஅனுமதிவழங்கப்பட்டபகுதியில் நான்குபக்கங்களிலும் மூன்றுமீட்டர் இடைவெளியில் இரண்டுமீட்டர் உயரத்திற்கும் குறையாமலும் கல் தூண்கள் அமைத்தும் கம்பிவேலிஅமைத்தும் பராமரிக்கவேண்டும்.

11. குத்தகைதாரர் குவாரியை வேறுயாருக்கும் உள் குத்தகைக்கு விடலாகாது.

12. ஒப்பந்தப் பத்திரத்தில் கண்டுள்ள நிபந்தனைகளுக்கு அவர் கட்டுப்பட்டு நடக்க வேண்டும்.

13. பிரதிமாதம் 5-ம் தேதிக்குள் முந்தைய மாதத்தில் குவாரி செய்து எடுக்கப்பட்ட கனிம அளவு வெளியில் அனுப்பப்பட்ட கனிம அளவு குவாரியில் வேலை செய்யவரும் தொழிலாளர்களின் எண்ணிக்கை முதலிய விபரங்களை விருதுநகர் மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை, உதவி இயக்குநருக்கு அனுப்பிவைத்திட வேண்டும்.

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14. உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, விருதுநகர் அவர்களின் அலுவலக முத்திரை, கையொப்ப முத்திரையுடன் கூடிய உரிய அனுப்புகைச் சீட்டை வாகனங்களுக்கு கொடுக்கப்படும் போது அனுப்புகைச் சீட்டில் வாகன எண். தேதி, புறப்படும் நேரம், செல்லும் இடம் ஆகியவற்றை முறையாகக் குறிப்பிட்டு கையொப்பம் இட்ட பின்னரே, குத்தகைதாரரோ அல்லது அவரது அனுமதி பெற்ற நபரோ கொடுக்க வேண்டும். மேற்கண்டவாறு குறிப்பிடுவதில் ஏதேனும் தவறுகள் இருந்தாலோ, கலங்கள் பூர்த்தி செய்யப்படாமல் இருந்தாலோ முறையற்ற வகையில் கனிமம் எடுத்துச் செல்வதாகக் கருதப்பட்டு வாகனத்தைகைப்பற்றி, குத்தகைதாரரை பொறுப்பாக்கி கனிமவிதிகளின் படி குற்றவியல் மேல் நடவடிக்கை எடுக்கப்படும்.

15. சொந்த செலவிலும் முயற்சியாலும் குவாரிக்குச் செல்லும் சாலைகள் மற்றும் பாதை வசதிகள் அமைத்துக்கொள்ள வேண்டும்.

16. தன் சொந்த செலவிலேயே குவாரியில் குத்தகை வழங்கப்பட்ட விஸ்தீரணத்தை வட்ட அளவர் மூலம் அளந்து நான்கு எல்லைக்கும் கல்தூண்கள் நட்டு அமைத்துப் பராமரித்து வரவேண்டும்.

17. குவாரிக்குரிய நடைச்சீட்டுகளை கண்டிப்பாக குவாரியின் நுழைவு வாயிலில் இருந்து தான் வழங்க வேண்டும். நடைச்சீட்டுக்களின் அடிக்கட்டைகளை குவாரியில் வைத்திருக்க வேண்டும்.

18. குவாரிக்கு அருகில் வீடுகள், சாலைகள், பாதைகள், மின்சாரக் கம்பிகள், மின்சாரடி ரான்ஸ்பார்மர்கள் கோவில், ஒடை, குடிநீர் ஆதாரங்கள் மற்றும் சரித்திரப் புகழ் பெற்ற ஸ்தலங்கள் போன்றவை அமைந்திருந்தால் அவைகளுக்கு சேதம் ஏற்படாதவாறு விதி முறைகளின் படிபாதுகாப்பு இடைவெளி விட்டு குவாரி செய்ய வேண்டும்.

19. அனுமதி பெறாமல் குவாரியில் வெடி மருந்துகள் பயன்படுத்தக்கூடாது. வெடிபொருட்கள் சட்டம் கண்டிப்பாக கடைப்பிடிக்கப்பட வேண்டும். குறைந்த அழுத்தமுள்ள வெடிமருந்துகளை பயன்படுத்தி குவாரிப்பணி செய்ய வேண்டும்.

20. குவாரியில் வேலை செய்யும் தொழிலாளர்களின் நலன் பேணப்பட வேண்டும். குழந்தைத் தொழிலாளர்களை குவாரிப் பணியில் ஈடுபடுத்தக்கூடாது.

21. புராதனச் சின்னங்களுக்கோ, அரசாங்க சொத்துக்களுக்கோ எவ்வித சேதமும் இன்றி குவாரி செய்ய வேண்டும்.

22. அருகில் அமைந்துள்ள விவசாய நிலங்களுக்கு எவ்வித பாதிப்பும் இல்லாத வகையில் குவாரிப்பணி மேற்கொள்ள வேண்டும்.

23. அருகில் உள்ளநிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளி தூரம் கடைப்பிடிக்கவேண்டும்.

24. தாழ்வழுத்த மின்கம்பங்கள் பாதிக்காத வண்ணம் 50 மீட்டர் பாதுகாப்பு இடைவெளிவிட்டு குவாரிப்பணிகள் செய்ய வேண்டும்.

25. கிழக்கு பக்கமாக புல எண்.498-ல் உள்ள வண்டிப்பாதைக்கும், வடக்கு பக்கமாக உள்ள புலஎண்.531-ல் உள்ள பூமிதான நிலம் ஆகியவற்றிற்கு 10மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.

26. தெற்கு பக்கமாக உள்ள புல எண்.528/2-ல் செல்லும் நிலவியல் ஒடைக்கு 50மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.

27. மாநிலசுற்றுச்சூழல் பாதிப்புமதிப்பீட்டு ஆணையம், சென்னை கடிதம் எண்: SEIAA-TN/F.No.8855/EC.No.5468/2022, நாள்:20.12.2022. தெரிவிக்கப்பட்டுள்ள நிபந்தனைகளையும் தவறாது கடைபிடிக்கவேண்டும்.

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VIRUDHUNAGAR

28. சுரங்கதிட்டத்தின்படி (Mining Plan) குவாரியணி மேற்கொள்ள வேண்டும்.
29. குவாரி கழிவுகளை குத்தகை உரிமம் வழங்கப்படும் பகுதிக்கு உள்ளேயே இருப்பு வைக்க வேண்டும்.
30. கனிமம் எடுத்துசெல்லும் வாகனங்களால் பொதுமக்களுக்கு எந்த ஒரு பாதிப்பும் இல்லாமல் தார்பாய் போட்டு மூடி எடுத்துச் செல்லவேண்டும்.
31. தொழிலாளர் நலன் கருதிகுவாரியில் பணிபுரியும் அனைத்து தொழிலாளர்களையும் தொழிலாளர் நலவாரியத்தில் பதிவு சான்றிதழ் பெற செய்ய வேண்டும். தொழிலாளாகளின் நலன் கருதி இன்சூரன்ஸ் எடுக்கப்பட வேண்டும்.
32. சீனியரேஜ் தொகைக்கு தலா 10 சதவீதத்தினை மாவட்ட கனிம அறக்கட்டளை நிதி, பகமை நிதியாக செலுத்தல் வேண்டும்.
33. குவாரி உரிமையாளர் குத்தகை உரிமம் வழங்கப்படும் புலங்களின் நான்குமால் எல்லைகளை அரசால் அங்கீகரிக்கப்பட்டநபர்கள் மூலம் சொந்த செலவில் Differential Global Positioning System (DGPS) Survey செய்து ஒரு மாத காலத்திற்குள் அறிக்கையினை விருதுநகர் மாவட்டம், புவியியல் மற்றும் சுரங்கத்துறை, உதவி இயக்குநர் அலுவலகத்தில் அளிக்க வேண்டும். அதன் பின் பேநடைச்சீட்டுகள் வழங்கப்படும்.

THE SCHEDULE

In the Village of Gopalapuram, Vembakottai Taluk & District and Sub-Registration Taluk of Keelarajakularaman within the registration District of Virudhunagar.

SF. Nos	Extent in Hects.	Directions			
		North	South	East	West
532/2C	0.82.0	531	528	533	532/1A,1B
533/1	0.41.50	535	533/3	533/2, 534	532
533/2	0.42.0	534	533/4, 498	498	533/1
533/3	0.25.0	533/1	498	533/4	532
533/4	0.22.0	533/2	498	498	533/3
	2.12.50				

IN WITNESS WHEREOF THIRU.T.SELVASEKARAN S/o. Thomas (Late) Assistant Director of Geology and Mining, Virudhunagar acting for and on behalf and by the order and direction of the Governor of Tamil

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REGISTERED HOLDER-
cum-LESSEE

LESSOR
ASSISTANT DIRECTOR
GEOLOGY AND MINING
VIRUDHUNAGAR DISTRICT
VIRUDHUNAGAR

Nadu and Thiru.A.Seethakumar, S/o. Arumugam residing at Door No.438/543, Mappillai Subbiah Street, Rajapalayam Taluk, Virudhunagar District (Aadhaar Card No:6099 2556 5166) The registered holder have hereunto set their respective hands.

Seethakumar.A
REGISTERED HOLDER-cum-LESSEE

Signed by the above named in the presence of

LESSOR
ASSISTANT DIRECTOR
GEOLOGY AND MINING
VIRUDHUNAGAR DISTRICT

Signed by the above named in the presence of

Witness

1) S. கருத்தபாண்டி S/o சுப்பையா
52B.C காப்பிளிசை சுப்பையா தெரு
இராஜபாளையம் டவுன்
இராஜபாளையம் தாலுக்கா
விருதுநகர் மாவட்டம் -626117

1) Sgt Deputy tahsildar (mines) Virudhunagar

2) S. [illegible] S/o சண்முகம்
1/98 தெற்குத்தெரு கோமாவுரும்
வெம்பக்கோட்டை வட்டம்
விருதுநகர் மாவட்டம் - 626 136

2) S. Nagaraj
SPL. Revenue Inspector (Mines) Virudhunagar.

சான்று செய்தவர்



: மு.முத்துக்குமரேசன் B.B.A.,M.Com., L.L.B
S/o.S.முத்துப்பாண்டி
முகவரி : 245, மெயின்ரோடு, கீழராஜகுலராமன்
கைபேசி எண் : 9443012382
Roll No : MS.3881/2011

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R/கீழராஜகுலராமன்/புத்தகம்-1/1488/2023

1899ம் ஆண்டு இந்திய முத்திரைச் சட்டம் 42வது பிரிவின் கீழான சான்று

2023ம் ஆண்டு வரிசை எண் 1216

438/543, மாப்பிள்ளை சுப்பையா தெரு, இராஜபாளையம், இராஜபாளையம், விருதுநகர், தமிழ்நாடு, இந்தியா, 626117-ல் வசிக்கும் திரு சீதாகுமார் என்பவரிடமிருந்து ₹ 1,19,000/- (ரூபாய் ஒரு இலட்சத்து பத்தொன்பதாயிரம் மட்டும்) இந்த ஆவணத்திற்காக இந்திய முத்திரைச் சட்டம் 41வது பிரிவின் படி குறைவாயிருந்த முத்திரைக் கட்டணம் வசூலிக்கப்பட்டது என நான் இதன் மூலம் சான்றளிக்கிறேன்.

THE SEAL OF THE SUB-REGISTRAR OF

சார்பதிவாளர் : கீழராஜகுலராமன்
நாள்: 24/04/2023

சார்பதிவாளர் மற்றும் இந்திய முத்திரைச் சட்டம் பிரிவு 41ன் படி ஆட்சியர்

2023 ஆம் ஆண்டு ஏப்ரல் மாதம் 24ம் தேதி பி.ப. 01:59 மணியளவில் கீழராஜகுலராமன் சார்பதிவாளர் அலுவலகத்தில் தாக்கல் செய்து கட்டணம் ₹ 20,360/- செலுத்தியவர்.

இடது பெருவிரல்





கூடுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி

பதிவுச் சட்டம் பிரிவு 88(1)ன் கீழ் நேரில் வருவதனிலிருந்து விலக்களிக்கப்பட்ட திரு செல்வகுமார், கஸ்பாவில், விருதுநகர், விருதுநகர், தமிழ்நாடு, இந்தியா, 626001 (துணை மேலாளர், விருதுநகர்) அவர்களால், இந்த ஆவணம் எழுதிக் கொடுத்தமை குறித்து நான் மனநிறைவடைந்துள்ளேன்.

சார்பதிவாளர் : கீழராஜகுலராமன்

எழுதி வாங்கியதாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்





"சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் [illegible] ஒப்பீடு செய்யப்பட்டது.

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Registering Officer.



. 23 ஆம் ஆண்டு ஏப்ரல் மாதம் 24ம் நாள்

செல்லப்பாண்டி கா
சார்பதிவாளர்
கீழராஜகுலராமன்

R/கீழராஜகுலராமன்/புத்தகம்-1/1488/2023 எண்ணாகப் பதிவு செய்யப்பட்டது

நாள் 24/04/2023
கீழராஜகுலராமன்

செல்லப்பாண்டி கா
சார்பதிவாளர்

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மாவட்டம். திருநெல்வேலி

வட்டம். திருநெல்வேலி

புல எண். 532

எண். 35

கிராமம் { பெயர். கோபாலசமுத்திரம்

பரப்பு: ஹெக்டேர் 1 ஏர். 74.5

531

530

535

533

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A

B

C

D

E

1A

1B

1C

1D

2C

116.8

58.4

56.2

(118.4)

18.4

38.2

37.8

54.4

23.4

14.8

11.8

6.0

10.4

33.0

14.8 (33.0)

9.0

(176.4)

145.4

92.0

96.2

102.4

(152.4)

152.8

142.0

114.2

32.4

24.0

52.6

111.4

	A			
	116.4			
	3.2	16.2	B	
	C			
	176.4			
40.4	109.6			
39.8	108.4			
35.6	102.6			
34.4	101.4			
56.0	92.4			
52.2	87.2			
	E			

LESSOR
ASSISTANT DIRECTOR
GEOLOGY AND MINING
VIRUDHUNAGAR DISTRICT
VIRUDHUNAGAR

Seetha Kumari.
LESSEE

Document No. 1588 of 2520 of Book
1 Contains 19 Sheets 18 Sheet
Registering Officer.

வரைபடம்

அளவு 1 மிமீ : 1000 மிமீ

19/11/83

19.11.83

வட்டம். திருமங்கலம்

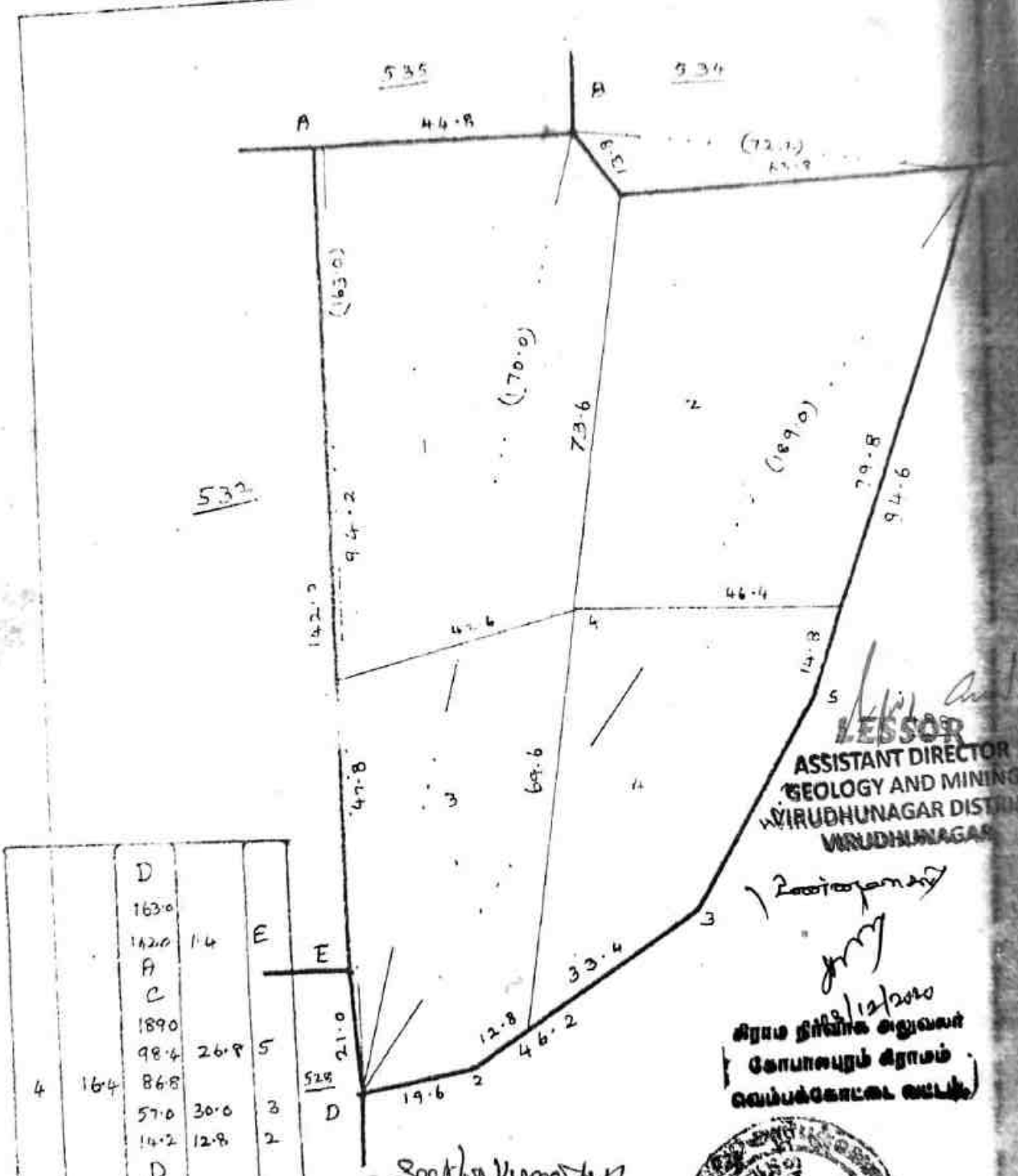
எண். 35

கிராமம் { பெயர் கோவிலாங்குளம்

வட்டம். திருமங்கலம்

புல எண். 533

பரப்பு: ஹெக்டேர் 1 ஏர். 30.7



LESSOR
ASSISTANT DIRECTOR
GEOLOGY AND MINING
VIRUDHUNAGAR DISTRICT
VIRUDHUNAGAR

LESSEE

Seetha Kumari

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தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : விருதுநகர் வட்டம் : வெம்பக்கோட்டை

வருவாய் கிராமம் : கோபாலபுரம் பட்டா எண் : 2119

உரிமையாளர்கள் பெயர்

1. ஆறுமுகம் மகன் சீதாபுரர்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏ	ரூ - பை	ஹெக் - ஏ	ரூ - பை	ஹெக் - ஏ	ரூ - பை	
532	1D	0 - 26.00	0.52	--	--	--	--	2021/0103/26/126560---- 03-09-2021
532	2C	0 - 82.00	1.64	--	--	--	--	2021/0103/26/126560---- 03-09-2021
533	1	0 - 41.50	0.83	--	--	--	--	2021/0103/26/126560---- 03-09-2021
533	2	0 - 42.00	0.84	--	--	--	--	2021/0103/26/126560---- 03-09-2021
533	3	0 - 25.00	0.50	--	--	--	--	2021/0103/26/126560---- 03-09-2021
533	4	0 - 22.00	0.44	--	--	--	--	2021/0103/26/126560---- 03-09-2021
		2 - 38.50	4.77					

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இயறை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **26/09/010/02119/100083** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 20-04-2023 அன்று 04:11:55 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கலாம்.

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Registering Officer.

Government of India



ஆ சீதாகுமார்
A Seethakumar
பிறந்த நாள்/DOB: 06/05/1988
ஆண்/ MALE
9715338066

6099 2556 5166
VID : 9138 3017 1908 6304

Unique Identification Authority of India

முகவரி:
S/O: அருமுகம், 438/543, [illegible]
[illegible]
[illegible],
தமிழ் நாடு - 626117

Address:
S/O: Arumugam, 438/543, MAPPILLAI SUBBIAH STREET, RAJAPALAIYAM, Rajapalayam, Virudhunagar, Tamil Nadu - 626117



6099 2556 5166
VID : 9138 3017 1908 6304

Seethakumar.A

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Sathesh kumar. A

S. கருத்தப்பாண்டி

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இந்திய அரசாங்கம்
Government of India

இந்திய தனித்துவ அடையாள ஆணைய அரசு
Unique Identification Authority of India

பதிவேட்டு எண்/ Enrolment No.: 0644/73008/54431

To
முருகன் சண்முகம்
Murugan Shunmugam
S/O Shunmugam
1/98
SOUTH STREET
Gopalapuram
Virudhunagar Tamil Nadu - 626136
7094086330

Signature valid

உங்கள் ஆதார் எண் / Your Aadhaar No. :

7193 7205 5135

VID : 9120 1316 4875 8691

எனது ஆதார் எனது அடையாளம்

முருகன் சண்முகம்
Murugan Shunmugam
பிறந்த நாள்/DOB: 11/02/1971
ஆண்/ MALE

Issue Date: 17/12/2012

7193 7205 5135

VID : 9120 1316 4875 8691

எனது ஆதார், எனது அடையாளம்

AADHAAR

நகலல்

- ஆதார் அடையாளத்திற்கான சான்று குடியுரிமைக்கு அல்ல
- பாதுகாப்பான QR குறியீடு/ ஆஃலைன் XML/ ஆன்லைன் அங்கீகாரத்தை பயன்படுத்தி அடையாளத்தை சரிபார்க்கவும்
- இது எலக்ட்ரானிக் செயல்முறை மூலம் தயாரிக்கப்பட்ட கடிதமாகும்.

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- Verify identity using Secure QR Code/ Offline XML/ Online Authentication
- This is electronically generated letter.

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- பல்வேறு அரசு மற்றும் அரசு சாரா சேவைகளை எளிதில் பெற ஆதார் உதவுகிறது
- உங்கள் மொபைல் எண் மற்றும் மின்னஞ்சல் ஐடியை ஆதாரில் புதுப்பிக்கவும்
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கோபாலபுரம், விருதுநகர்,
தமிழ்நாடு - 626136

Address:
S/O Shunmugam, 1/98, SOUTH STREET,
Gopalapuram, Virudhunagar,
Tamil Nadu - 626136

7193 7205 5135

VID : 9120 1316 4875 8691

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Sathakumar.A

சொத்தானது நீர்நிலை பகுதியில் அமையப் பெறவில்லை என்பதற்கான சான்று-உறுதிமொழி (Declaration) (நீதிபேராணை எண்.22163-2018ல் வழங்கப்பட்ட தீர்ப்புரையை காண்க)

இந்த ஆவணத்தில் கண்ட சொத்தானது நீர்நிலைகள், நீர்வழிப்பாதைகள், நீர்பிடிப்பு பகுதிகளில் கட்டுப்படவில்லை என சான்றளிக்கிறோம். மேலும் இதனில் தங்களுக்கு தவறான தகவல் அல்லது சான்று அளிக்கப்பட்டதாக பின்னாளில் கண்டுபிடிக்கப்பட்டால் அதனால் நான்-நாங்கள் சட்டபூர்வ நடவடிக்கைகளுக்கு உட்படுத்தப்படுவோம் என்பதையும் அறிவேன்-அறிவோம்.

Sathyakumar J.A

ஆவணத்தை எழுதிப் பெறுபவர்களின் கையொப்பம்

ஆவணத்தைஎழுதிக்கொடுப்பவர்களின் கையொப்பம்

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ANNEXURE-X

NABET CERTIFICATE

भारतीय गुणवत्ता परिषद्
QUALITY COUNCIL® OF INDIA
QCI Creating an Ecosystem for Quality

NABET

National Accreditation Board for Education and Training

Certificate of Accreditation

Eco Tech Labs Pvt. Ltd., Chennai

No.48, 2nd Main Road, Ram Nagar, South Extension, Pallikaranai, Chennai – 600100

*The organization is accredited as **Category-A** under the QCI-NABET **Scheme for Accreditation of EIA Consultant Organization, Version 3**: for preparing EIA/EMP reports in the following Sectors-*

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1.	Mining of minerals including opencast mining only	1	1 (a) (i)	A
2.	Thermal power plants	4	1 (d)	A
3.	Metallurgical industries	8	3 (a)	B
4.	Synthetic organic chemicals industry	21	5 (f)	A
5.	Airports	29	7 (a)	A
6.	Industrial estates/ parks/ complexes/ Areas, export processing zones (EPZs), Special economic zones (SEZs), Biotech parks, Leather complexes	31	7 (c)	A
7.	Building and construction projects	38	8 (a)	B
8.	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated May 09, 2025 posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/25/3622 dated May 19, 2025. The accreditation needs to be renewed before the expiry date by Eco Tech Labs Pvt. Ltd., Chennai following due process of assessment.

Valid up to
April 10, 2028

Issue Date
May 19, 2025

Certificate No.
NABET/EIA/25-28/RA 0400

Varinder Kanwar

Prof (Dr) Varinder S Kanwar
(CEO – NABET)

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website.