

Application Form (Draft EIA Report)

For

Proposed Rough stone and Gravel Quarry –
3.25.50 Ha

at

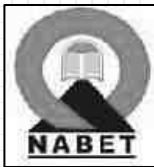
S.F.Nos.: 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2,
109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) of
Sengundrapuram Village, Virudhunagar Taluk and
Virudhunagar District, Tamil Nadu State

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

Category of the Project: B1 Cluster Mining

Baseline Period: November 2024 - January 2025

***Environmental Consultant
& Laboratory details:***
Ecotech Labs Pvt Ltd,



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

Proponent details:
Thiru. G.Pandurangan,
S/o. Govindaraj,
D. No.4/888,
Balaji Nagar,
Soolakkarai
Village & Post,
Virudhunagar –
626 003.

Thiru. G.Pandurangan,
S/o. Govindaraj,
D. No.4/888, Balaji Nagar,
Soolakkarai Village & Post,
Virudhunagar – 626 003

UNDERTAKING

I, Thiru.G.Pandurangan, undertaking that the Draft Environmental Impact Assessment (EIA) Report for Rough Stone and Gravel Quarry over an extent of 3.25.50 Ha at S.F.No. 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) of Sengundrapuram Village, Virudhunagar Taluk and Virudhunagar District, TamilNadu 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. 11306, Dated: 29.11.2024 & ToR identification No: TO24B0108TN5392834N.

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. G.Pandurangan

Plot No.48A, 2nd Main Road,
Ram Nagar, South Extension,
Pailikkaranai, Chennai - 600 100.
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Eco Tech Labs Pvt Ltd

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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 3.25.50 Ha at S.F.No. 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) of Sengundrapuram Village, Virudhunagar Taluk and Virudhunagar District, TamilNadu 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:

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/22-25/SA 0222

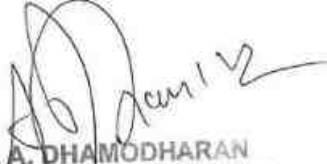
Date:

Place: Chennai

Declaration by Experts contributing to the EIA of Existing Rough Stone Quarry- 3.25.50 Ha by Thiru.G.Pandurangan at S.F.No. 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) of Sengundrapuram Village, Virudhunagar Taluk and Virudhunagar District, TamilNadu State

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


EIA Coordinator: Dr. A. Dhamodharan






Dr. A. DHAMODHARAN
(NABET APPROVED EIA COORDINATOR)
NABET/EIA/22-25/SA 0222
Environmental Consultant
Eco Tech Labs Pvt. Ltd.
Plot No.48A, 2nd Main Road, Ram Nagar South Extn.
Pallikaranai, Chennai - 600 100.





Signature:

Period of involvement: 01.03.2022 to Till now

Contact information: M/s. Ecotech Labs Pvt Ltd.,
No. 48, 2nd Main Road, Ram Nagar South Extension,
Pallikaranai, Chennai – 600100.

S. No.	Functional areas	Name of the experts	Involvement (period and task)	Signature and date
1	AP	Mrs. K. Vijayalakshmi	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 <i>Period: March 2022 – Till now</i>	

2	WP	Dr. A. Dhamodharan	<p>1. Selection of baseline Monitoring Locations for Ground water analysis and also identifying nearest surface water to be studied.</p> <p>2. Interpretation of baseline data collected</p> <p>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</p> <p>4. Preparation of suitable and appropriate mitigation plan.</p> <p>Period: March 2022 – Till now</p>	
3	SHW	Dr. A. Dhamodharan	<p>1. Identification of nature of solid waste generated</p> <p>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</p> <p>3. Suggesting suitable mitigation measures by recommending appropriate disposal method for each category of waste generated</p> <p>4. Top soil and refuse management</p> <p>Period: March 2022 – Till now</p>	
4	SE	Mr. S. Pandian	<p>1. Primary data collection through the census questionnaire</p> <p>2. Obtaining Secondary data from authenticated sources and incorporating the same in EIA report.</p> <p>3. Impact assessment & proposing suitable mitigation plan</p> <p>4. CSR budget allocation by discussing with the local body and allotting the same for need based activity.</p> <p>Period: March 2022 – Till now</p> <p>*Involves Public Hearing</p>	
5	EB	Dr. A. Dhamodharan	<p>1. Primary data collection through field survey and sheet observation for ecology and biodiversity</p>	

			<p>2.Secondary Collection through various authenticated sources</p> <p>3.Prediction of anticipated impacts and suggesting appropriate mitigation measures.</p> <p>Period: March 2022 – Till now</p>	
6	HG	Dr. T. P. Natesan	<p>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</p> <p>2. Determination of groundwater use pattern, development of rainwater harvesting program. Storm water management through garland drainage system.</p> <p>Period: March 2022 – Till now</p>	
7	GEO	Dr. T. P. Natesan	<p>1. Field survey for assessing regional and local geology, aquifer distribution, Determination of groundwater use pattern, development of rainwater harvesting program.</p> <p>Period: March 2022 – Till now</p>	
8	SC	Dr. A. Dhamodharan	<p>1. Interpretation of baseline report</p> <p>2. Identification of possible impacts on soil, prediction of soil conservation and suggesting suitable mitigation measures.</p> <p>Period: March 2022 – Till now</p>	
9	AQ	Mrs. K. Vijayalakshmi	<p>1. Collection of Meteorological data for the baseline study period</p> <p>2. Plotting wind rose plot and thereby selecting the monitoring locations based on the wind pattern</p> <p>3. Estimation of sources of air emissions and air quality modeling is done</p> <p>4. Interpretation of the results obtained</p> <p>5. Identification of the impacts and suggesting suitable mitigation measures.</p> <p>Period: March 2022 – Till now</p>	

10	NV	Mrs. K. Vijayalakshmi	<ol style="list-style-type: none"> 1. Selection of monitoring locations 2. Interpretation of baseline data 3. Prediction of impacts due to noise pollution and suggestion of appropriate mitigation measures <p>Period: May 2022 – Till now</p>	-Kiel
11	LU	Dr. T. P. Natesan	<ol style="list-style-type: none"> 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. <p>Period: March 2022 – Till now</p>	-Kiel
12	RH	Mrs. K. Vijayalakshmi	<ol style="list-style-type: none"> 1. Identification of the risk 2. Interpreting consequence contours 3. Suggesting risk mitigation measures <p>Period: March 2022 – Till now</p>	-Kiel

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 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) of Sengundrapuram Village, Virudhunagar Taluk and Virudhunagar District, TamilNadu 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. & Issue Date: NABET/EIA/22-25/SA 0222

<i>Project</i>	<i>Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.G.Pandurangan</i>	
<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhungan District</i>	

DRAFT EIA REPORT

Project	Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan	<i>Draft EIA Report</i>
Project Proponent	Thiru.G.Pandurangan	
Project Location	Sengundrapuram Village, Virudhunagar Taluk, Virudhungar District	

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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

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<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District</i>	

EXECUTIVE SUMMARY

1. Project Background:

The Proposed project total extent area is 3.25.50 Ha, It is a Patta land in S.F. Nos: 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) of Sengundrapuram Village, Virudhunagar Taluk and Virudhunagar District. The category of project is B1, It is a Rough stone and Gravel quarry in Sengundrapuram village. The area is situated on a plain terrain with Rough Stone which does not sustain any type of vegetation.

The quarry operation is proposed to carry out with open cast mechanized mining with 5.0-meter 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, slurry blasting, Loading and transportation of Rough stone and Gravel to the needy nearby crusher units / road formation works.

The quarry operation is proposed up to depth for 46.0m Below ground level for the proposed mining plan. The Total Geological reserve is about 2,06,010m³ of Gravel and 13,73,400m³ of Rough Stone. The Mineable Reserves are 1,59,150m³ of Gravel and 4,14,870m³ of Rough stone for a period of 10 years. Production schedule is proposed production of 1,03,020m³ of Gravel and 2,86,680m³ of Rough stone for first five years and 1,28,190m³ of Rough stone and 56,130m³ of Gravel for next five years 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 was received from The Assistant Director, Geology & Mining, Virudhunagar vide letter no Roc.No.KV1/623/2024, dated 12.09.2024 for lease period of 10 years and The Mining Plan was approved by the Assistant Director, Geology & Mining, Virudhunagar vide letter Roc.No.KV1/623/2024, dated 20.09.2024 for the period of 10 years. There is no CRZ zone, Western Ghats, notified Bird sanctuaries, wildlife sanctuaries as per Wild life protection Act 1972, within the radius of 15Km.

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Project Proponent	Thiru.G.Pandurangan	
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The project area does not fall in the Hill Area Conservation Authority region. There is no interstate boundary, CRZ zone, Western Ghats, notified Bird sanctuaries, wildlife sanctuaries as per Wildlife protection Act 1972, within the radius of 15Km.

2. Nature & Size of the Project

The Existing Rough Stone Quarry over an extent of 3.25.50 Hectares land is located at Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District.

Mineral intends to quarry	: Rough stone and Gravel Quarry
District	: Virudhunagar
Taluk	: Virudhunagar
Village	: Sengundrapuram
S. F. Nos.	: 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P)
Extent	: 3.25.50 Hectares

Table 1: Brief Description of the Project

S. No	Particulars	Details
1	Latitude	09°36' 27.3458" to 09°36' 36.2543" N
2	Longitude	77°53' 37.2835" to 77°53' 45.9033" E
3	Site Elevation above MSL	The altitude of the lease area is 111m above MSL.
4	Mining plan period	10 Years
5	Topography	Plain topography
6	Land use of the site	Patta Land
7	Extent of lease area	3.25.50 Ha
8	Nearest highway	SH 182 – Watrap – Alagapuri – Virudhunagar Road – 0.38 Km – N NH 44 – Kanniyakumari – Tirunelveli – Madurai – Srinagar Road – 5.50 Km - E
9	Nearest railway station	Virudhunagar Railway Station – 7.03 km, E

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<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District</i>	

10	Nearest airport	Madurai International Airport – 33.09 Km - NE
11	Nearest town / city	Town - Virudhunagar – 6.20 Km - E City - Virudhunagar – 6.20 Km - E District – Virudhunagar – 6.20 Km - E
12	Rivers / Canal / Dam	❖ Kousiga River – 4.96 Km – E ❖ Arjuna River – 10.71 Km – SSW ❖ Kullursandai Dam – 11.35 Km – SE
13	Lake/Pond	❖ Palaiya Urani – 0.22 Km – E ❖ Seeniapuram Kanmai – 0.81 Km – NE ❖ Vadamalaikurichi Kanmai – 2.09 Km – NE ❖ Valayankulam Kanmai – 3.62 Km – W ❖ Vairavankulam Kanmai – 4.44 Km – W ❖ Moolipatti Kanmai – 4.70 Km – SW ❖ Pavali Kanmai – 5.04 Km – E ❖ Amatur Pond – 6.22 Km – SW ❖ Maravapatty Pond – 6.62 Km – N ❖ Appaswamy Oorani – 7.04 Km – N ❖ V.Chatrapatti Kanmai – 7.10 Km – NW ❖ Chittoor Pond – 7.49 Km – NE ❖ Gopinayakanpatti Kanmai – 7.88 Km – NWW ❖ Mathiasenai Kanmai – 8.38 Km - SW ❖ Kundaneri Kanmai – 8.56 Km – W ❖ Vellur Kanmai – 8.90 Km – SW ❖ Erichanatham Kanmai – 8.95 Km – W ❖ Old Ramco quarry pit for Rainwater collection & Supplies to Virudhunagar municipality – 9.02 Km - SE ❖ Nadayaneri Sevalkulam Kanmai – 9.08 Km – W ❖ Servaikaranpatti Kanmai (PWD) – 9.35 Km - SW ❖ Muruganeri Kanmai – 9.40 Km – NW

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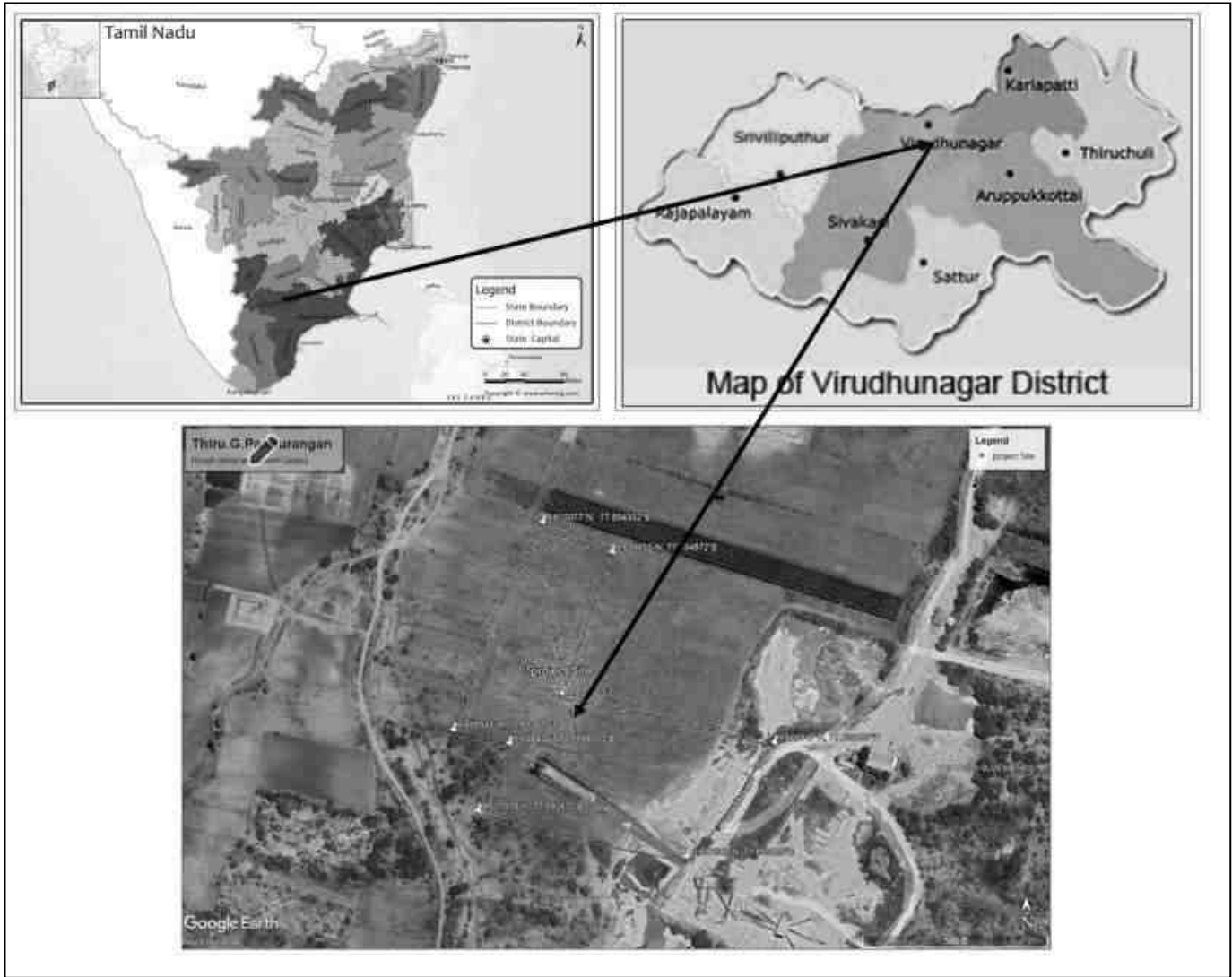
		<ul style="list-style-type: none"> ❖ Kullursandai Reservoir – 9.64 Km – SEE ❖ Nallaiyankulam Kanmai – 10.88 Km – W ❖ Anaikulam Tank – 12.95 Km - SW
14	Hills / valleys	❖ Nil in 15 km radius
15	Archaeologically places	❖ Tirumalai Nayak's Palace, Srivilliputhur – 30.88 Km - SW
16	National parks / Wildlife Sanctuaries	❖ SMTR – 18.56 Km - NW
17	Reserved / Protected Forests	<ul style="list-style-type: none"> ❖ Venkatewarapuram RF – 23.46 Km – SW ❖ Saptur RF – 33.18 Km – W
18	Seismicity	Proposed Lease area come under Seismic zone-III (Moderate risk area)

2. 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 Virudhunagar.
- ❖ 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.

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Figure 1: Location Map of the Project Site



Project	Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan	Draft EIA Report
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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 litho units. Charnockite is interbanded nature with crystalline carbonate rocks observed in most of the quarry in Pandalgudi, Lakshmipuram, Gopalapuram, Sundakottai, Chinnakamanpatti, 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.

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.

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<i>Project Proponent</i>	<i>Thiru.G.Pandurangan</i>	
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Table 2. Geological resources

Section	Length (m)	Width (m)	Height (m)	Rough stone volume m³	Gravel Volume m³
A-A' & B-B'	182	118	6.0	-	128856
	182	118	40.0	859040	-
A-A' & C-C'	63	50	6.0	-	18900
	63	50	40.0	126000	-
C-C' & D-D'	133	73	6.0	-	58254
	133	73	40.0	388360	-
TOTAL GEOLOGICAL RESERVES				13,73,400	2,06,010

Gravel Formation :206010m³

The Geological Resources of Rough stone :1373400m³

Table 3. Mineable Resources

The available mineable reserves are calculated for the proposed lease period of 10 years based on the total minable reserves calculated by safety distances of 10.0m at southeastern side for the small drainage and 7.5m to the patta land on all other sides of the boundary side of the applied area and Bench losses.

SECTION	BENCH	LENGTH (M)	WIDTH (M)	HEIGHT (M)	ROUGH STONE VOLUME (M³)	GRAVEL VOLUME (M³)
A-A' & B-B'	I	171	101	6.0	-	1,03,626
	II	165	89	5.0	73,425	-
	III	160	79	5.0	63,200	-
	IV	155	69	5.0	53,475	-
	V	150	59	5.0	44,250	-
	VI	145	49	5.0	35,525	-

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	VII	135	39	5.0	26,325	-
	VIII	125	29	5.0	18,125	-
	IX	115	19	5.0	10,925	-
A-A' & C-C'	I	55	42	6.0	-	13,860
	II	49	36	5.0	8,820	-
	III	44	31	5.0	6,820	-
	IV	39	26	5.0	5,070	-
	V	34	21	5.0	3,570	-
C-C' & D-D'	I	124	56	6.0	-	41,664
	II	118	44	5.0	25,960	-
	III	113	34	5.0	19,210	-
	IV	108	24	5.0	12,960	-
	V	103	14	5.0	7,210	-
TOTAL MINEABLE RESERVES					4,14,870	1,59,150

The available mineable reserves have been computed as **4,14,870m³** of **Rough Stone** and **1,59,150m³** of **Gravel** up-to the depth of **46.0** meters from the ground level.

Table 4. Year wise Production Plan

Section	Year	Bench	Length (m)	Width (m)	Height (m)	Rough stone Volume (m ³)	Gravel volume (m ³)
A-A' & B-B'	I-Year	I	65	101	6.0	-	39,390
		II	53	89	5.0	23,585	-
		III	43	79	5.0	16,985	-
		IV	33	69	5.0	11,385	-
		V	23	59	5.0	6,785	-
I – YEAR PRODUCTION						58,740	39,390

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A-A' & B-B'	II-Year	I	26	101	6.0	-	15,756
		II	26	89	5.0	11,570	-
		III	26	79	5.0	10,270	-
		IV	26	69	5.0	8,970	-
		V	26	59	5.0	7,670	-
		VI	39	49	5.0	9,555	-
		VII	29	39	5.0	5,655	-
		VIII	19	29	5.0	2,755	-
		II – YEAR PRODUCTION						56,445	15,756
A-A' & B-B'	III-Year	I	26	101	6.0	-	15,756
		II	26	89	5.0	11,570	-
		III	26	79	5.0	10,270	-
		IV	26	69	5.0	8,970	-
		V	26	59	5.0	7,670	-
		VI	26	49	5.0	6,370	-
		VII	26	39	5.0	5,070	-
		VIII	26	29	5.0	3,770	-
		IX	35	19	5.0	3,325	-
III – YEAR PRODUCTION						57,015	15,756
A-A' & B-B'	IV-YEAR	I	26	101	6.0	-	15,756
		II	26	89	5.0	11,570	-
		III	26	79	5.0	10,270	-
		IV	26	69	5.0	8,970	-
		V	26	59	5.0	7,670	-
		VI	26	49	5.0	6,370	-
		VII	26	39	5.0	5,070	-
		VIII	26	29	5.0	3,770	-
		IX	26	19	5.0	2,470	-
IV – YEAR PRODUCTION						56,160	15,756

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<i>Project Proponent</i>	<i>Thiru.G.Pandurangan</i>	
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A-A' & B-B'	V- YEAR	I	27	101	6.0	-	16,362
		II	27	89	5.0	12,015	-
		III	27	79	5.0	10,665	-
		IV	27	69	5.0	9,315	-
		V	27	59	5.0	7,965	-
		VI	27	49	5.0	6,615	-
		VII	27	39	5.0	5,265	-
		VIII	27	29	5.0	3,915	-
		IX	27	19	5.0	2,565	-
		V – YEAR PRODUCTION						58,320	16,362
TOTAL PRODUCTION FOR FIVE YEARS						2,86,680	1,03,020

Year wise Production summary:

YEAR	ROUGH STONE VOLUME (M³)	GRAVEL VOLUME (M³)
I – Year	58,740	39,390
II – Year	56,445	15,756
III – Year	57,015	15,756
IV – Year	56,160	15,756
V – Year	58,320	16,362
Total I to V Years	2,86,680	1,03,020
Balance VI to X years	1,28,190	56,130
Total for 10 Years	4,14,870	1,59,150

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<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhungar District</i>	

6. Mining

Opencast Mining

Open cast Semi-Mechanized Mining with one 6.0 meter bench for Top soil & 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 are 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 6.0 KLD. Domestic water will be sourced from nearby Sengundrapuram Village and other water will be source from nearby road tankers supply.

Table 5. Water Balance

Purpose	Quantity	Sources
Drinking Water	1.0 KLD	Packaged Drinking water vendors are available in Sengundrapuram village which is about 0.44 km NW from the project site.
Afforestation & Green belt	2.0 KLD	Other domestic activities through road tankers supply
Dust suppression Sprinkling	3.0 KLD	From road tankers supply
Total	6.0 KLD	

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8. Manpower

Total manpower required for the project is approximately 16 persons. The workers will be from nearby villages.

Table 6. Man Power

S.No.	Levels & Details		Persons
1.	Skilled	Operators	3
		Mechanic	1
		Blaster/Mate	1
2.	Semi – skilled	Drivers	2
3.	Unskilled	Musdoor/Labours	8
		Cleaners	2
		Office Boy	1
4.	Management & Supervisory staff		2
Total			20

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

9. Solid Waste Management

Table 7. Solid Waste Management

S. No	Type	Quantity	Disposal Method
1	Organic	3.6 kg/day	Municipal bin including food waste
2	Inorganic	5.4 kg/day	TNPCB authorized recyclers

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

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Table 8. 500m Radius Cluster Mine

1) Existing other quarries:

S. No.	Quarry details	Village	S.F. Nos & Extent (Ha)	Proceeding No & Lease Period
I. Existing Quarries				
1	Thiru.G.Pandurangan, S/o.Govindharaj	Sengundrapuram	79/2A (P), 79/2B(P), 81/1(P), 81/2(P), 83/1, 83/2(P), 84/1(P), 85(P) 2.51.0 HA	KV1/533/2020 dated: 30.11.2022 & 07.11.2022 to 06.11.2027
2	Thiru.S.Ramasamy, S/o. Sesathiri	Sengundrapuram	94/1, 94/2, 94/3 1.13.5 Ha	KV1/1174/2022 dated: 06.06.2023 08.06.2023 to 07.06.2028
II. Abandoned Quarry				
1.	Thiru.S.Govindaraj, s/o. Sesathiri	Seeniyapuram	11/1, 11/2, 12/6, 9/7, 9/9 2.37.5 Ha	KV1/541/2018 dated: 15.01.2019 29.01.2019 to 28.01.2024
III. Present Proposed Quarry				
1.	Thiru.G.Pandurangan S/o. Govindaraj	Sengundrapuram	84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) 3.25.50 Ha	KV1/623/2024 Dated: .09.2024
Total Cluster area			6.90.0 Ha	

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<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District</i>	

10. Land Requirement

The total extent area of the project is 3.25.50 Ha, Patta Land in Sengundrapuram Village of Virudhunagar Taluk, Virudhunagar District.

Table 9 Land Use Breakup

S. No.	Land Use	Present Area (Hect)	Area after the quarrying period of 5 years (Hect)
1.	Area under quarrying	Nil	1.70.00
2.	Infrastructures	Nil	0.01.00
3.	Roads, cart tracks etc.,	Nil	0.03.00
4.	Green Belt	Nil	0.62.75
5.	Unutilized Area	3.25.50	0.88.75
	Total	3.25.50	3.25.50

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 10 Habitation

SL. NO	DIRECTION	VILLAGE	POPULATION	DISTANCE
1	North	Pudupatti	1,200	4.2 Km
2	NE	Vadamalaikuruchi	2,200	3.0 Km
3	NW	Kundalapatti	600	1.0 Km
		Sengundrapuram	2,600	2.5 Km
		Elinganaickenpatti	1,100	3.7 Km
4	South	Veerachellaiapuram (Kavalur)	1,200	3.5Km
5	SE	Chandragiripuram	1,000	1.0 Km
		Chokkalingapuram	800	2.5 Km
		Pavali	4,700	3.0 Km

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		Kumaralingapuram	2,600	3.2 Km
6	SW	Nattarmangalam	1,000	1.0 Km
7	East	Seeniyapuram	2,000	1.5 Km
8	West	Moolipatti	3,400	3.6 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 : 30° C
- ii) Average Maximum Temperature: 38°C
- iii) Average Annual Rainfall of the area: 829 mm

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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 (SO₂), Nitrogen Dioxide (NO₂) were monitored, and the results are summarized below.

The baseline levels of PM₁₀ (39- 61 µg/m³), PM_{2.5} (17- 29 µg/m³), SO₂ (5-18 µg/m³), NO₂ (9-18 µg/m³), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from November 2024 to January 2025.

13.3 Noise Environment

The maximum Day noise and Night noise were found to be 61 dB(A) and 51 dB(A) respectively in Sri Bharasakthi Kaliyamman, Maravapatty Velambur . 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 7.27 – 8.20.
- TDS value varied from 325 mg/l to 1851 mg/l
- Hardness varied from 230 to 1730 mg/l
- Chloride varied from 59 to 553 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 7.02 to 7.72 with organic matter 0.22 to 0.65 %. The concentration of Nitrogen, Phosphorus & Potassium has been found to be in good amount in the soil samples.

<i>Project</i>	<i>Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.G.Pandurangan</i>	
<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District</i>	

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 a 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 340 trees per annum with interval 5m.
4. The rate of survival expected to be 70% in this area

Table.11. 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%	1700
Total		1700

16. Anticipated Environmental Impacts

16.1 Air Environment and Mitigation Measures

1. Water sprinkling will be done on the roads & unpaved roads.

<i>Project</i>	<i>Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.G.Pandurangan</i>	
<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District</i>	

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 1,63,40,000/-** 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 .12 Project Cost details

S. No.	Description	Cost (Rs.)
1	Investment Cost	20,00,000/-

<i>Project</i>	<i>Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.G.Pandurangan</i>	
<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District</i>	

2	Expenditure Cost	1,43,40,000/-
	Total	1,63,40,000/-

Total EMP Cost: Rs. 2,62,47,912/- for 10 years, approximately (Rs. 262 Lakhs)

20. Corporate Environmental Responsibility

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

Table 13 CER Cost

S. No.	CER Activity	CER value (Rs)
1.	Panchayat Union Primary School in Kundhalapatti – 626 103, Sengudrapuram (Post), Virudhunagar (Via). Providing facilities are: <ul style="list-style-type: none"> ➤ Renovation of damaged old school building and construction of a classroom building and storeroom (Stock room) and ➤ Basic amenities such as Environmental awareness books (Tamil) in Library for students, Green Belt development, RO water purifiers, Hygienic Toilet and maintenance of toilet upto lease period. 	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.

<i>Project</i>	<i>Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.G.Pandurangan</i>	
<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District</i>	

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 mineral is vital. The mining if not carried out systematically, will result in ill-effects and environmental degradation in project effected area. 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.

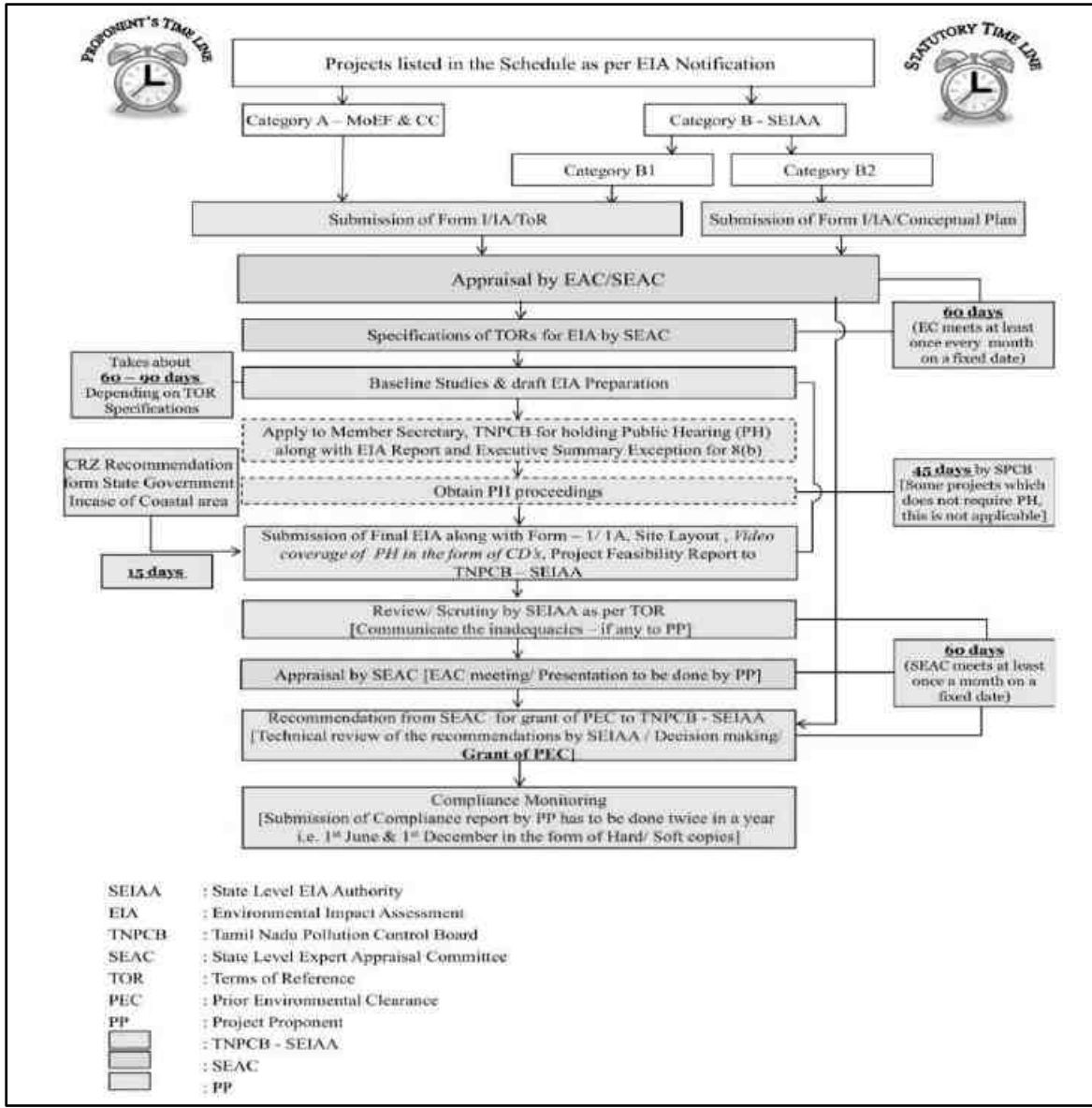
The Mining of minor minerals like Limekankar, Blue metal, Dimension stone, brick sand and Gravels are active in the district. Private companies play a major role in mining activity for minor minerals, whereas the Government agency takes part in mining dimension stones in the district. In total, 143 no's 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

Project	Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan	Draft EIA Report
Project Proponent	Thiru.G.Pandurangan	
Project Location	Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District	

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.



<i>Project</i>	<i>Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.G.Pandurangan</i>	
<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhungan District</i>	

1.4 TERMS OF REFERENCE (TOR)

The Terms of Reference have been issued by SEAC TN vide Letter No. SEIAA-TN/F. No. 11306 Dated: 29.11.2024 & ToR identification number TO24B0108TN5392834N. Additional 43 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.,

<i>Project</i>	<i>Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.G.Pandurangan</i>	
<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhungan District</i>	

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

<i>Project</i>	<i>Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.G.Pandurangan</i>	
<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District</i>	

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.G.Pandurangan,
Status of the Proponent	: Individual
Proponent's name & address	: Thiru.G.Pandurangan, S/o.Govindaraj., D. No.4/888, Balaji Nagar, Soolakkarai Village & Post, Virudhunagar.

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 Rough stone mining project by open cast mechanized method on allotted mine lease area at Sengundrapuram Village, Virudhunagar Taluk of Virudhunagar District, Tamil Nadu. It is a plain terrain. The total allotted mine lease for the proposed project is 3.25.50 Ha with their maximum production capacity i.e. 2,86,680 m³ of Rough stone and 1,03,020 m³ of Gravel upto a depth of 46m for the period of Five years only.

Project	Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan	<i>Draft EIA Report</i>
Project Proponent	Thiru.G.Pandurangan	
Project Location	Sengundrapuram Village, Virudhunagar Taluk, Virudhungar District	

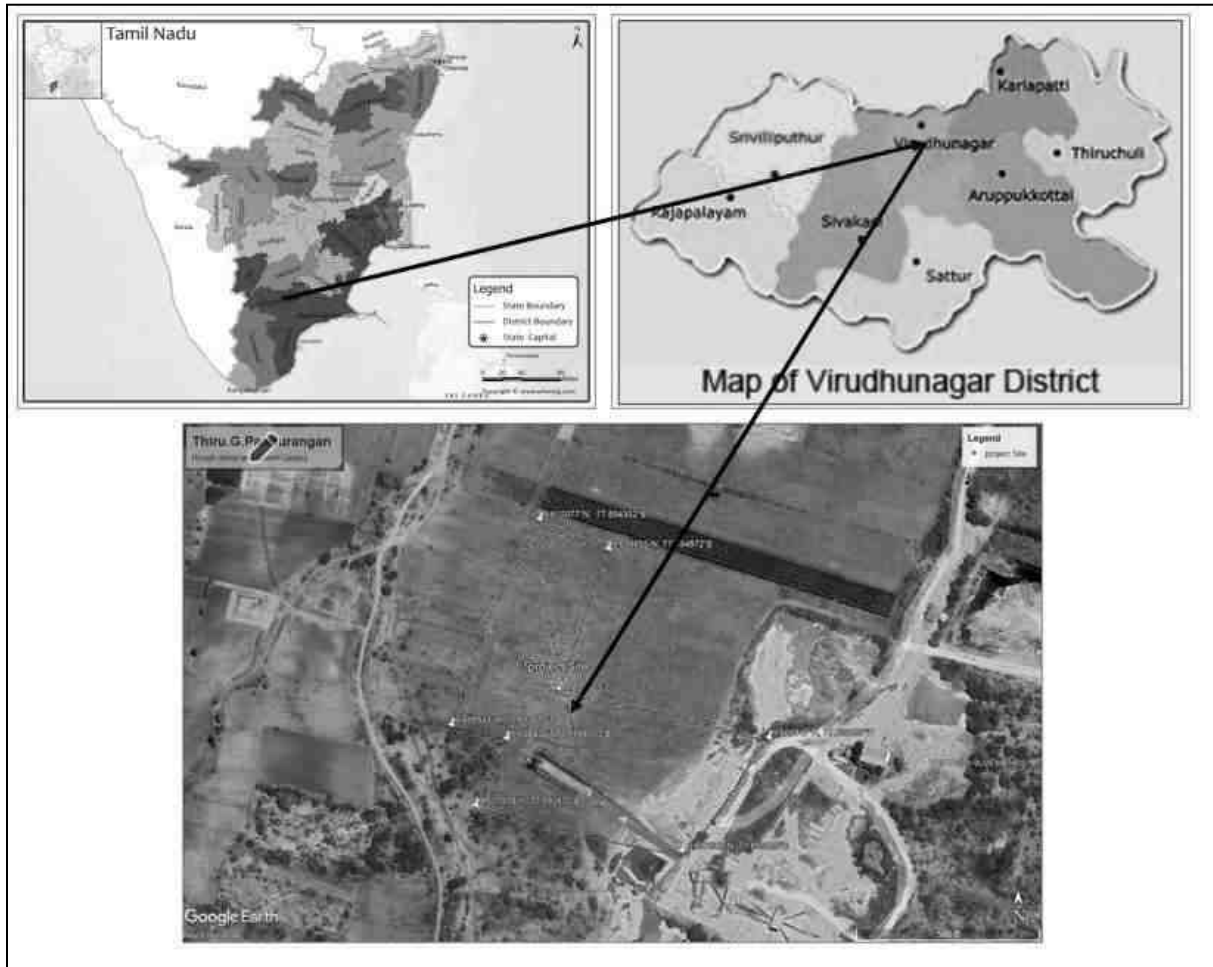


Figure 1.1: Location Map of the Project site

<i>Project</i>	<i>Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.G.Pandurangan</i>	
<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District</i>	

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 Sengundrapuram Village, Virudhunagar Taluk of Virudhunagar District, Tamil Nadu. It is a Plain terrain. We have obtained fresh mining plan from 2025 to 2030 from Department of Geology and Mining, Virudhunagar District for 3.25.50 Ha land area in the S.F.Nos. 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) for a proposed mining depth of 46m below ground level and ten years production of 4,14,870 m³ of Rough stone and 1,59,150m³ of Gravel.

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.

<i>Project</i>	<i>Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.G.Pandurangan</i>	
<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhungan District</i>	

Table 2-1: Quarry within 500m Radius

S. No.	Quarry details	Village	S.F. Nos & Extent (Ha)	Proceeding No & Lease Period
I. Existing Quarries				
1	Thiru.G.Pandurangan, S/o.Govindharaj	Sengundrapuram	79/2A (P), 79/2B(P), 81/1(P), 81/2(P), 83/1, 83/2(P), 84/1(P), 85(P) 2.51.0 HA	KV1/533/2020 dated: 30.11.2022 & 07.11.2022 to 06.11.2027
2	Thiru.S.Ramasamy, S/o. Sesathiri	Sengundrapuram	94/1, 94/2, 94/3 1.13.5 Ha	KV1/1174/2022 dated: 06.06.2023 08.06.2023 to 07.06.2028
II. Abandoned Quarry				
1.	Thiru.S.Govindaraj, s/o. Sesathiri	Seeniyapuram	11/1, 11/2, 12/6, 9/7, 9/9 2.37.5 Ha	KV1/541/2018 dated: 15.01.2019 29.01.2019 to 28.01.2024
III. Present Proposed Quarry				
1.	Thiru.G.Pandurangan S/o. Govindaraj	Sengundrapuram	84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) 3.25.50 Ha	KV1/623/2024 Dated: .09.2024
Total Cluster area			6.90.0 Ha	

The Total extent of the Existing / Lease expired / Proposed quarries are 6.90.0 Ha

<i>Project</i>	<i>Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.G.Pandurangan</i>	
<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District</i>	

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. G.Pandurangan Rough Stone and Gravel Quarry
2	Proponent	Thiru.G. Pandurangan

Project	Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan	Draft EIA Report
Project Proponent	Thiru.G.Pandurangan	
Project Location	Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District	

3	Mining Lease Area Extent	3.25.50 Ha
4	Location	84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P)
5	Latitude	09°36'27.3458" to 09°36' 36.2543" N
6	Longitude	77°53'37.2835" to 77°53' 45.9033" E
7	Topography	Plain terrain
8	Site Elevation above MSL	The altitude of the lease area is 111m above MSL.
9	Topo sheet No.	58 G/14
10	Minerals of Mine	Rough Stone and Gravel Quarry
11	Proposed production	414870m ³ of Rough stone and Gravel 159150 m ³
12	Ultimate depth of Mining	46m below ground level
13	Method of Mining	Open cast mechanized mining
14	Water demand	6.0 KLD
15	Source of water	Water will be supplied through tankers supply
16	Manpower	20 Nos.
17	Mining Plan Approval	Mining Plan was approved by The Assistant Director, Dept. of Geology & Mining, Virudhunagar vide Roc.No.KV1/623/2024, dated 20.09.2024.
18	Precise area communication letter	Precise area communication letter received from The Assistant Director, Dept. of Geology & Mining, Virudhunagar vide Roc.No.KV1/623/2024, dated 12.09.2024.
19	Production details	Geological reserves: 1373400 m ³ of Rough stone and 206010 m ³ of Gravel. Proposed year wise reserves: Rough stone 2,86,680m ³ and Gravel 1,03,020m ³ for first five

<i>Project</i>	<i>Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan</i>	<i>Draft EIA Report</i>
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<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District</i>	

		years & Rough stone 1,28,190m ³ and Gravel 56,130m ³ for the next five years.
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 the 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 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 46.0mts 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 Sengundrapuram village which is 0.45 Km North of the area

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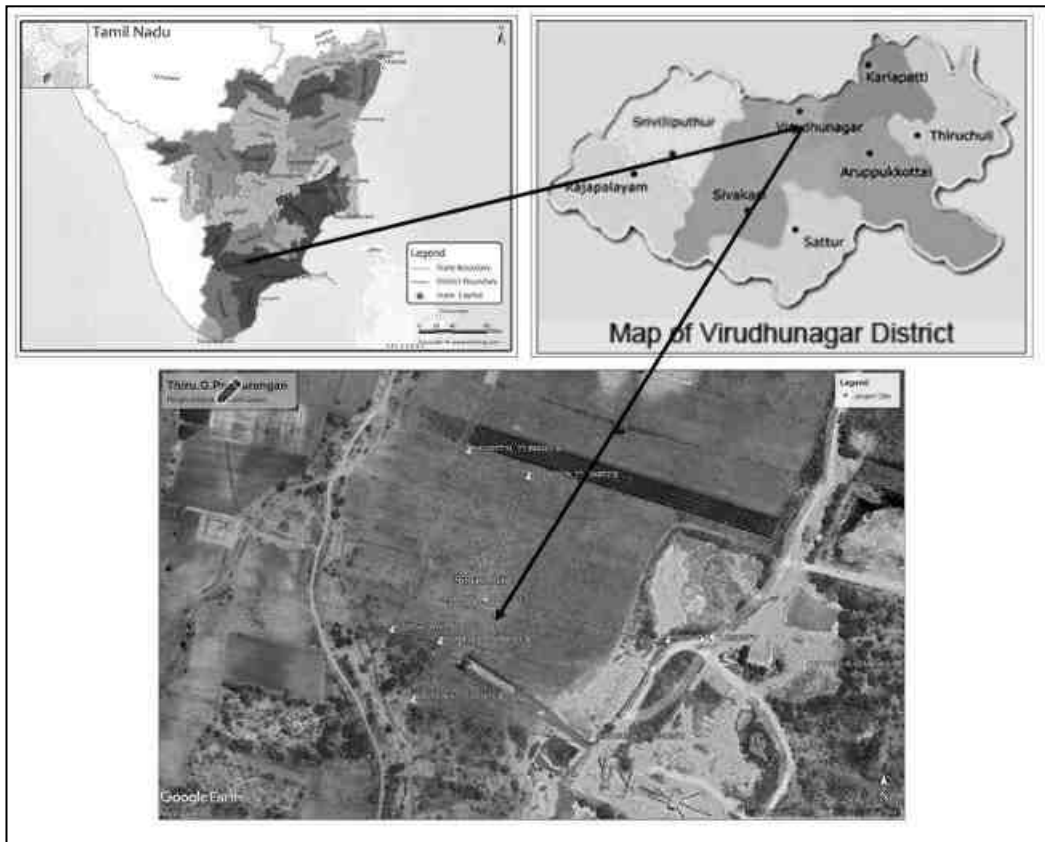


Figure 2.1: Location Map of the Project Site



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

Project	Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan	Draft EIA Report
Project Proponent	Thiru.G.Pandurangan	
Project Location	Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District	

2.2.1 Site Connectivity:

The site is connected to the roadways as follows.

SH 182 – Watrap – Alagapuri – Virudhunagar Road – 0.38 Km – N



Figure 2.3: Site Connectivity

2.3 LOCATION DETAILS:

Table 2-3: Location Details

S. No	Particulars	Details
1.	Latitude	09°36' 27.3458" to 09°36' 36.2543" N
2.	Longitude	77°53' 37.2835" to 77°53' 45.9033" E
3.	Site Elevation above MSL	The altitude of the lease area is 111m above MSL
4.	Topography	Plain Terrain
5.	Land use of the site	Patta land
6.	Extent of lease area	3.25.50 Ha

<i>Project</i>	<i>Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan</i>	<i>Draft EIA Report</i>
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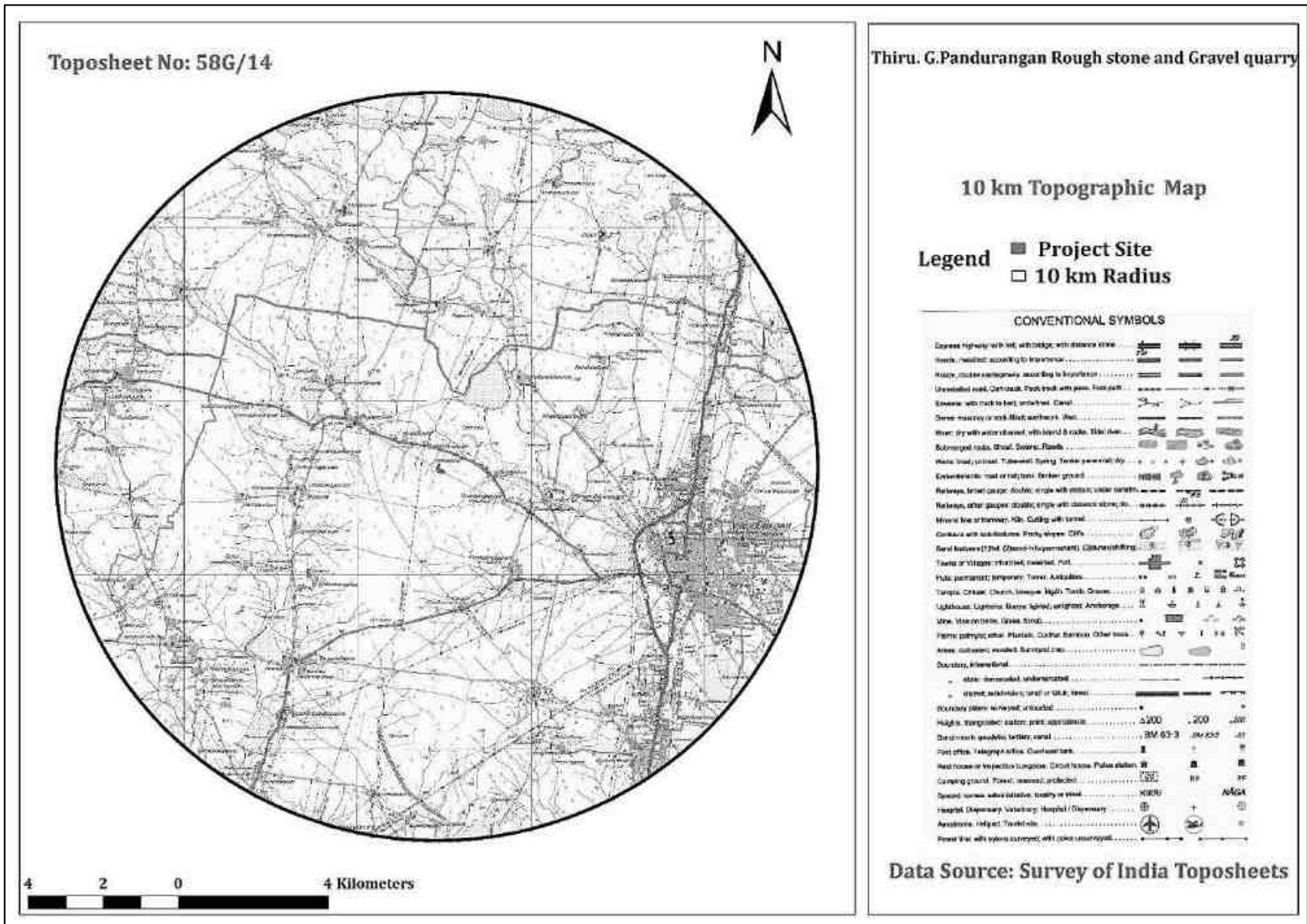


Figure 2.4: Topo Map of Project Site

Project	Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan	Draft EIA Report
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Project Location	Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District	

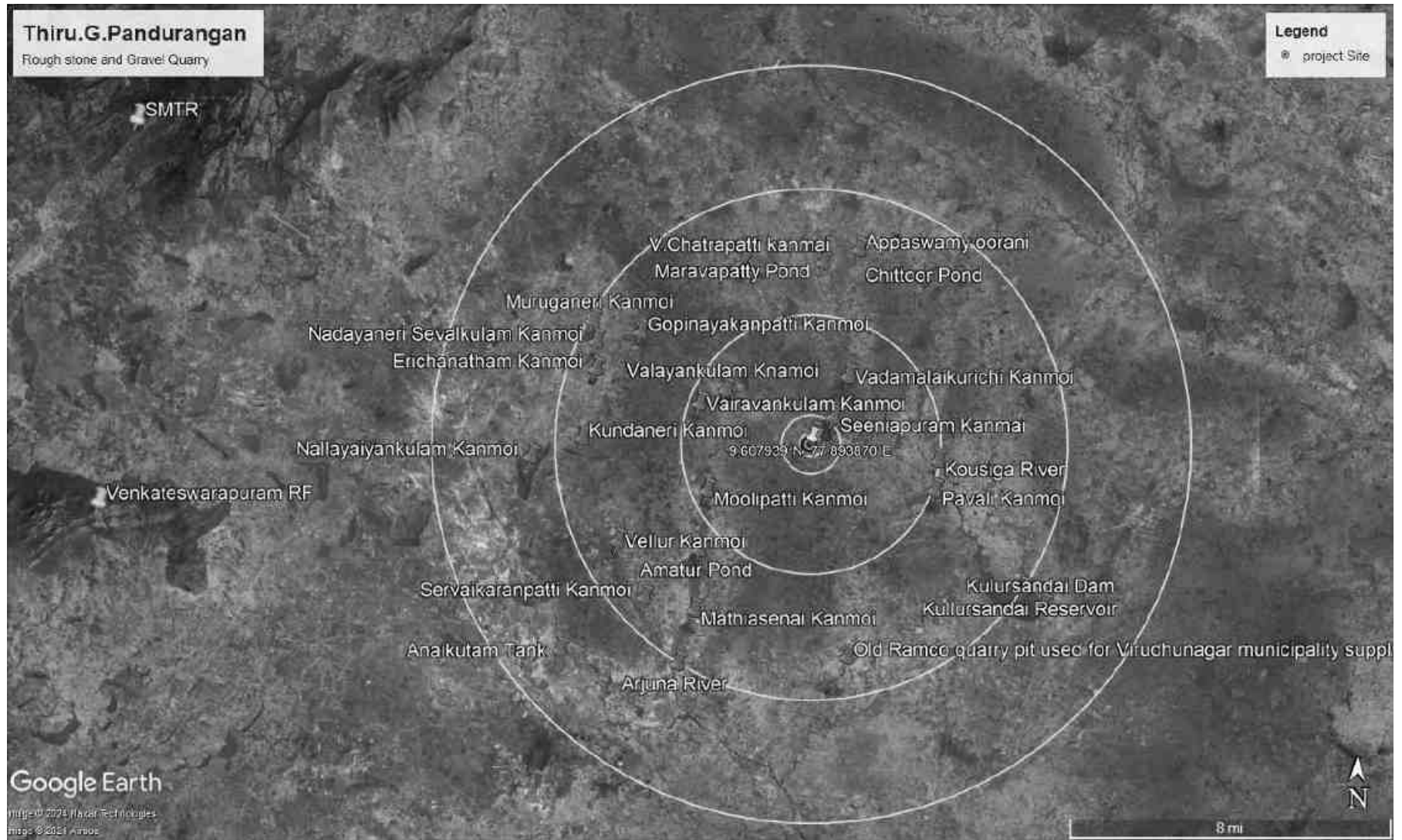


Figure 2.5: Environmental Sensitivity within 15km radius

Project	Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan	<i>Draft EIA Report</i>
Project Proponent	Thiru.G.Pandurangan	
Project Location	Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District	

2.3.1 Site Photographs

The site photographs of the project site are as follows

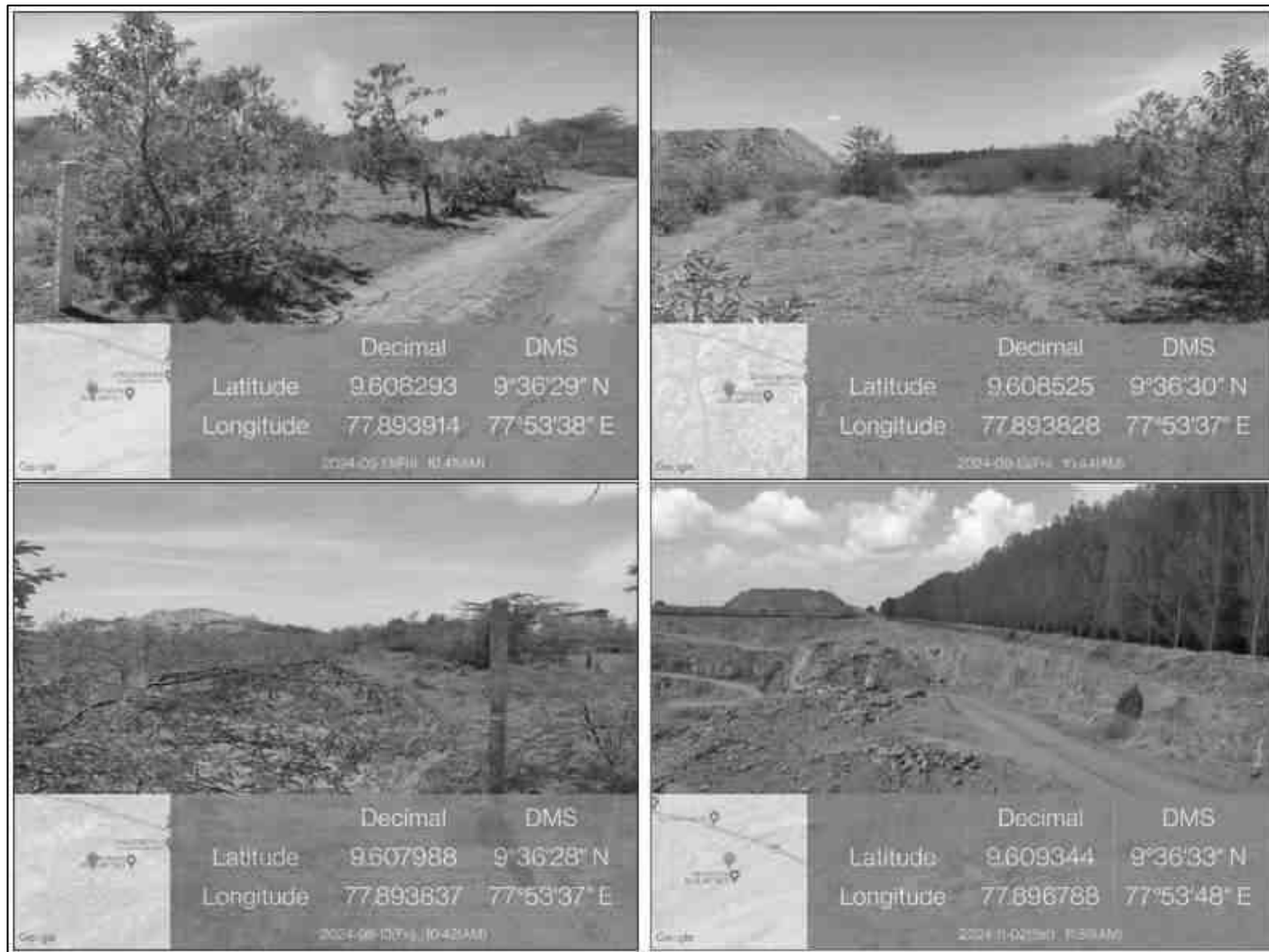


Figure 2.6: Site Photographs

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.

<i>Project</i>	<i>Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan</i>	<i>Draft EIA Report</i>
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<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District</i>	

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	Nil	1.70.00
2.	Infrastructures	Nil	0.01.00
3.	Roads, cart tracks etc.,	Nil	0.03.00
4.	Green Belt	Nil	0.62.75
5.	Unutilized Area	3.25.50	0.88.75
	Total	3.25.50	3.25.50

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	Pudupatti	1,200	4.2 Km
2	NE	Vadamalaikuruchi	2,200	3.0 Km
3	NW	Kundalapatti	600	2.0 Km
		Sengundrapuram	2,600	2.5 Km
		Elinganaickenpatti	1,100	3.7 Km
4	South	Veerachellaiapuram (Kavalur)	1,200	3.5Km
5	SE	Chandragiripuram	1,000	1.0 Km
		Chokkalingapuram	800	2.5 Km
		Pavali	4,700	3.0 Km
		Kumaralingapuram	2,600	3.2 Km
6	SW	Nattarmangalam	1,000	1.0 Km
7	East	Seeniyapuram	2,000	1.5 Km
8	West	Moolipatti	3,400	3.6 Km

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2.4 LEASEHOLD AREA

The Rough Stone Quarry mine of 3.25.50 Ha is a patta land. The lease area falls in S.F No: 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) of Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District. 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).

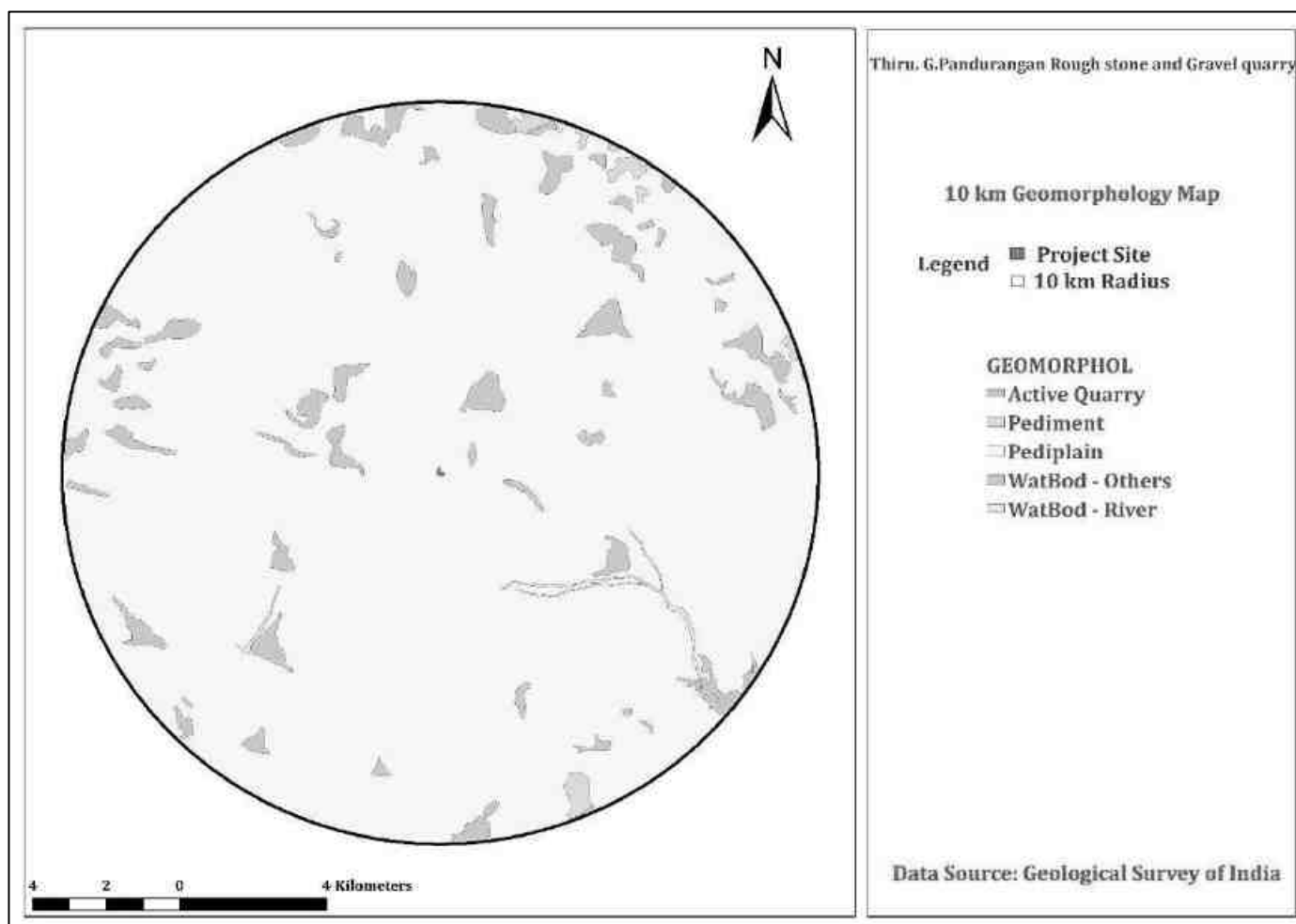


Figure 2.7: Geomorphology

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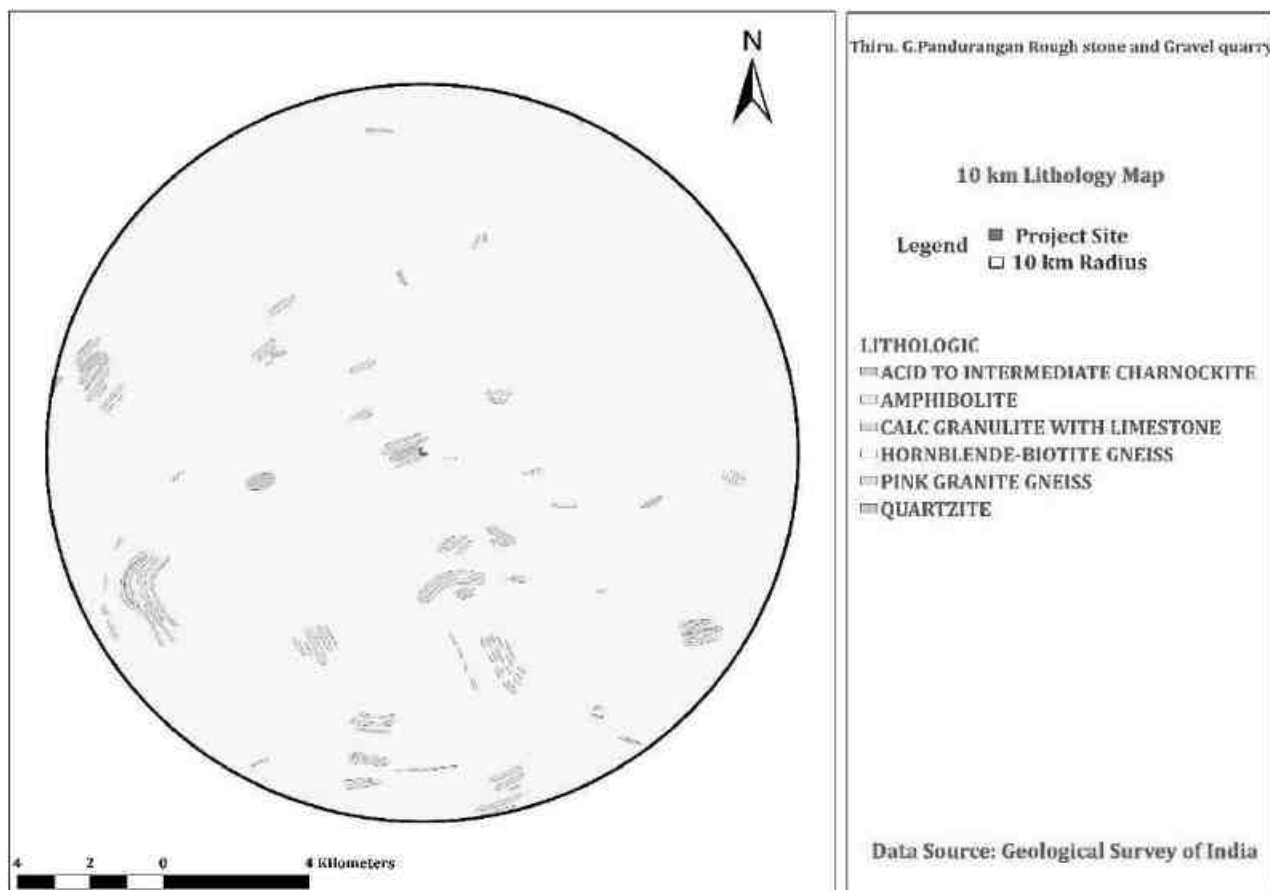


Figure 2.8 Lithology

2.6 QUALITY OF RESERVES:

The mining lease area is 3.25.50 Ha, with production capacity of 4,14,870 m³ of Rough Stone and 1,59,150 m³ 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	1373400m ³ of Rough stone and 206010 m ³ of Gravel
3	Recoverable Reserves	414870 m ³ of Rough stone and 159150 m ³ of Gravel
4	Proposed Production	414870 m ³ of Rough stone and 159150 m ³ of Gravel
5	Elevation Range of the Mine Site	111 m AMSL

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2.6.1 Geological Reserves

Topsoil: The total volume of topsoil will be 206010 Cum

Rough Stone and Gravel:

The Availability Geological Reserve is estimated as 1373400 Cum respectively upto the permissible depth. Topsoil is calculated upto a depth of 6m and Rough stone at a depth of 40m. Total depth – 46m below ground level

Table 2-7: Geological Reserves

Section	Length (m)	Width (m)	Height (m)	Rough stone volume m ³	Gravel Volume m ³
A-A' & B-B'	182	118	6.0	-	128856
	182	118	40.0	859040	-
A-A' & C-C'	63	50	6.0	-	18900
	63	50	40.0	126000	-
C-C' & D-D'	133	73	6.0	-	58254
	133	73	40.0	388360	-
TOTAL GEOLOGICAL RESERVES				13,73,400	2,06,010

Gravel Formation :206010m³

The Geological Resources of Rough stone :1373400m³

2.6.2 Mineable Reserves

Topsoil:

The thickness of the topsoil in this area is 6m and the total volume of topsoil will be 159150 Cum

Rough stone:

Mineable and Recoverable Reserves is estimated as 286680 Cum of Rough Stone and 103020 Cum of gravel for first five years and 128190 Cum of Rough stone and 56130 Cum of Gravel for next five years respectively upto the permissible depth. Total depth – 46m below ground level.

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<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhungan District</i>	

Table 2-8: Mineable Reserves

SECTION	BENCH	LENGTH (M)	WIDTH (M)	HEIGHT (M)	ROUGH STONE VOLUME (M³)	GRAVEL VOLUME (M³)
A-A' & B-B'	I	171	101	6.0	-	1,03,626
	II	165	89	5.0	73,425	-
	III	160	79	5.0	63,200	-
	IV	155	69	5.0	53,475	-
	V	150	59	5.0	44,250	-
	VI	145	49	5.0	35,525	-
	VII	135	39	5.0	26,325	-
	VIII	125	29	5.0	18,125	-
	IX	115	19	5.0	10,925	-
A-A' & C-C'	I	55	42	6.0	-	13,860
	II	49	36	5.0	8,820	-
	III	44	31	5.0	6,820	-
	IV	39	26	5.0	5,070	-
	V	34	21	5.0	3,570	-
C-C' & D-D'	I	124	56	6.0	-	41,664
	II	118	44	5.0	25,960	-
	III	113	34	5.0	19,210	-
	IV	108	24	5.0	12,960	-
	V	103	14	5.0	7,210	-
TOTAL MINEABLE RESERVES					4,14,870	1,59,150

The available mineable reserves have been computed as **4,14,870m³** of **Rough Stone** and **1,59,150m³** of **Gravel** up-to the depth of **46.0** meters from the ground level.

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2.6.3 Year wise Production Plan

The proposed rate of production of Rough Stone is about 414870m³. Total Depth-46 m (6 m Top soil + 40 m Rough Stone).

Table 2-9: Year wise Production Plan

Section	Year	Bench	Length (m)	Width (m)	Height (m)	Rough stone Volume (m ³)	Gravel volume (m ³)
A-A' & B-B'	I-Year	I	65	101	6.0	-	39,390
		II	53	89	5.0	23,585	-
		III	43	79	5.0	16,985	-
		IV	33	69	5.0	11,385	-
		V	23	59	5.0	6,785	-
I – YEAR PRODUCTION						58,740	39,390
A-A' & B-B'	II-Year	I	26	101	6.0	-	15,756
		II	26	89	5.0	11,570	-
		III	26	79	5.0	10,270	-
		IV	26	69	5.0	8,970	-
		V	26	59	5.0	7,670	-
		VI	39	49	5.0	9,555	-
		VII	29	39	5.0	5,655	-
		VIII	19	29	5.0	2,755	-
II – YEAR PRODUCTION						56,445	15,756
A-A' & B-B'	III-Year	I	26	101	6.0	-	15,756
		II	26	89	5.0	11,570	-
		III	26	79	5.0	10,270	-
		IV	26	69	5.0	8,970	-
		V	26	59	5.0	7,670	-
		VI	26	49	5.0	6,370	-
		VII	26	39	5.0	5,070	-
		VIII	26	29	5.0	3,770	-

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		IX	35	19	5.0	3,325	
III – YEAR PRODUCTION						57,015	15,756
A-A' & B-B'	IV- YEAR	I	26	101	6.0	-	15,756
		II	26	89	5.0	11,570	-
		III	26	79	5.0	10,270	-
		IV	26	69	5.0	8,970	-
		V	26	59	5.0	7,670	-
		VI	26	49	5.0	6,370	-
		VII	26	39	5.0	5,070	-
		VIII	26	29	5.0	3,770	-
		IX	26	19	5.0	2,470	-
IV – YEAR PRODUCTION						56,160	15,756
A-A' & B-B'	V- YEAR	I	27	101	6.0	-	16,362
		II	27	89	5.0	12,015	-
		III	27	79	5.0	10,665	-
		IV	27	69	5.0	9,315	-
		V	27	59	5.0	7,965	-
		VI	27	49	5.0	6,615	-
		VII	27	39	5.0	5,265	-
		VIII	27	29	5.0	3,915	-
		IX	27	19	5.0	2,565	-
V – YEAR PRODUCTION						58,320	16,362
TOTAL PRODUCTION FOR FIVE YEARS						2,86,680	1,03,020

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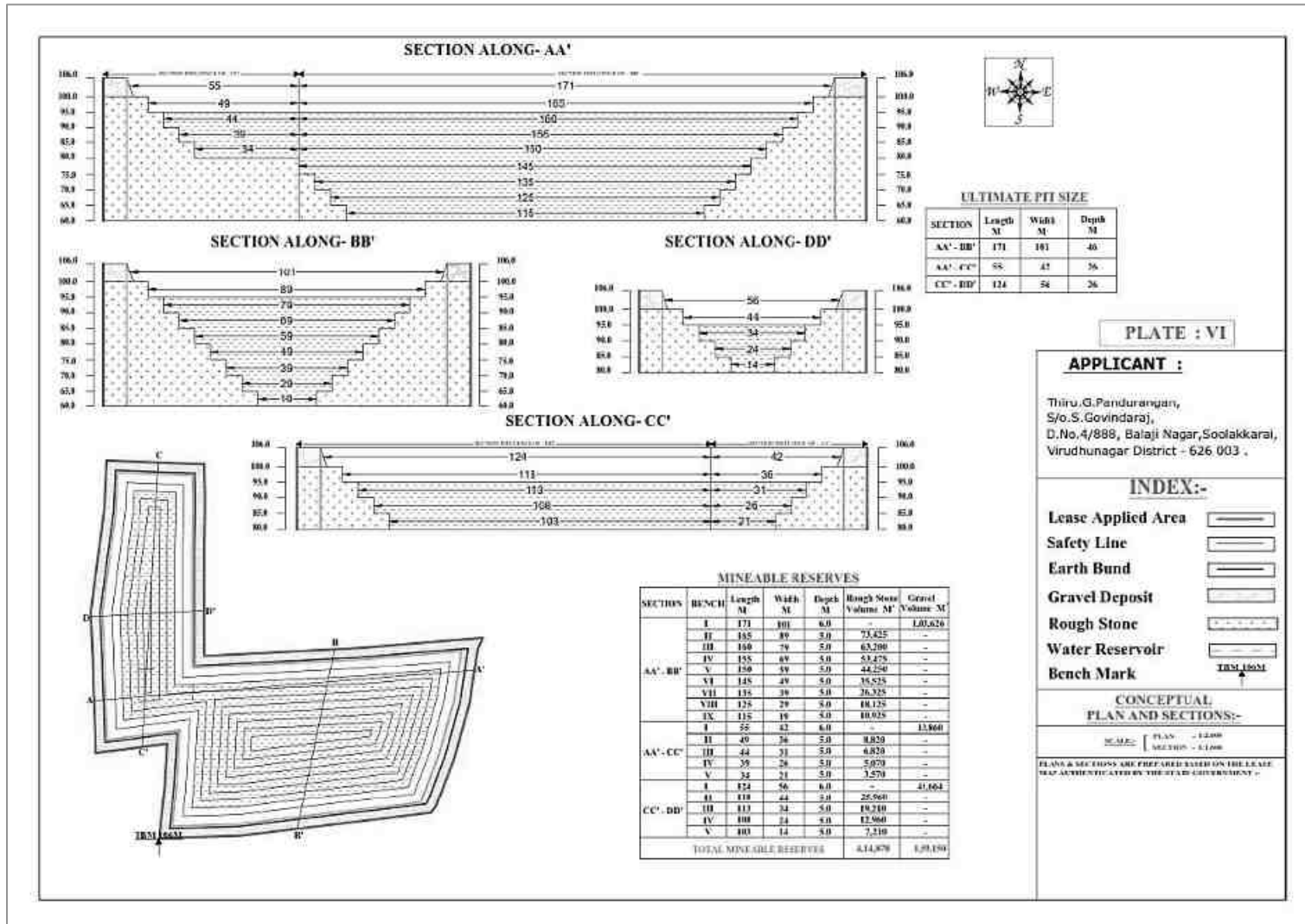


Figure 2.9 Year wise Production Plan

<i>Project</i>	<i>Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan</i>	<i>Draft EIA Report</i>
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<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar taluk, Virudhunagar District</i>	

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 topsoil and weathered rock formation, it will be removed during the quarrying operation, the topsoil 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 for selling purpose locally.

2.7.3 *Machineries to be used*

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

Table 2-10: 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 5 No. of 10/20 M.T capacity

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2.7.4 *Blasting:*

2.7.4.1 **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.

2.7.4.2 **Drilling & Blasting:**

Drilling and Blasting Parameters are as follows

Table 2-11: 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 1 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.

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Table 2-12: 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° 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.G.Pandurangan” 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 2-13: Man Power Requirements

S.No.	Levels & Details		Persons
1.	Skilled	Operators	3
		Mechanic	1
		Blaster/Mate	1
2.	Semi – skilled	Drivers	2
3.	Unskilled	Musdoor/Labours	8
		Cleaners	2
		Office Boy	1
4.	Management & Supervisory staff		2
Total			20

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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 6.0 KLD. Domestic water will be sourced from nearby Sengundrapuram village and other water will be sourced from nearby road tankers supply.

Table 2-14: Water Requirement

Purpose	Quantity	Sources
Drinking Water	1.0 KLD	Packaged Drinking water vendors are available in Sengundrapuram village which is about 0.44 km NW from the project site.
Afforestation & Green belt	2.0 KLD	Other domestic activities through road tankers supply
Dust suppression Sprinkling	3.0 KLD	From road tankers supply
Total	6.0 KLD	

2.9 PROJECT IMPLEMENTATION SCHEDULE

The implementation schedule of the proposed Mine Lease of Thiru.G.Pandurangan (3.25.50 ha) is as follows.

Table 2-15: Mining Schedule

MINING SCHEDULE					
Activity	Jan -26	Jan-27	Jan-28	Jan-29	Jan-30
Site Clearance					
Excavation – Rough stone/Overburden					
I Year Production – 58,740 Cum of Rough Stone and 39,390 Cum of Gravel					

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II Year Production – 56445 Cum of Rough Stone and 15756 Cum of Gravel					
III Year Production – 57015 Cum of Rough Stone and 15756 Cum of Gravel					
IV Year Production - 56160 Cum of Rough Stone and 15756 Cum of Gravel					
V Year Production – 58320 Cum of Rough Stone and 16362 Cum of Gravel					

Year wise Production summary:

YEAR	ROUGH STONE VOLUME (M³)	GRAVEL VOLUME (M³)
I – Year	58,740	39,390
II – Year	56,445	15,756
III – Year	57,015	15,756
IV – Year	56,160	15,756
V – Year	58,320	16,362
Total I to V Years	2,86,680	1,03,020
Balance VI to X years	1,28,190	56,130
Total for 10 Years	4,14,870	1,59,150

2.10 SOLID WASTE MANAGEMENT

Table 2-15: Solid Waste Management

S. No	Type	Quantity	Disposal Method
1.	Organic	3.6 Kg/day	Municipal bin including food waste
2.	Inorganic	5.4 Kg/day	TNPCB authorized recycler

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

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2.11 MINE DRAINAGE

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 46.0mts 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	16,50,000
ii)	Machinery to be used	Hired machinery
iii)	Fencing	2,50,000
iv)	Labourers Shed	50,000
v)	Sanitary facility	25,000
vi)	Other Items	25,000
TOTAL		20,00,000

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

Drilling and Blasting cost / unit production = Rs.120/- including loading & breaking.

(i) Mining cost for rough stone up to 5 Years planned production quantity

Total Movable quantity in M³ - 2,86,680 M³ (1,01,300 Units)

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Total cost of mining Rough Stone = 1,01,300 * Rs. 120/-
= Rs. 1,21,56,000/-

(ii) Mining cost for gravel for 5 Years planned production quantity

Total Movable quantity in M³ - 1,03,020 M³ (36,403 Units)

Total cost of mining - Gravel = 36,403 X Rs. 60/-

= Rs. 21,84,180/-

Total Cost for Mining - Rs. 1,43,40,180/-

Say - Rs. 1,43,40,000/-

Total Project Cost (a+b) = Rs. 1,63,40,000/-.

I. EMP Cost:

Categories	Mitigation Measure	Provision for Implementation	Capital Cost	Recurring Cost
			(Rs)	
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	32550	32550
	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	80000	20000
	Air Quality will be regularly monitored as per norms within ML area	Yearly Compliance as per CPCB norms	0	20000

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	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	0
	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	25000	2500
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	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	5000	0
	Regular monitoring of exhaust fumes as per RTO norms		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	65100
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	20000	10000
	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

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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
Ambient Noise will be regularly monitored as per norms within ML area	Yearly Compliance as per CPCB norms	0	20000
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	30000	2000
NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	100000

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Water Environment	Water Environment	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	32550	5000
	Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	1000	5000
		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
Implementation of EC, Mining Plan & DGMS Condition	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	7000	1000
	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)	80000	20000
	Health checkups for workers will be provisioned	IME & PME Health checkup @ Rs. 1000/- per employee	0	20000
	First aid facilities will be provided	Provision of 2 Kits per Hectare Rs. 2000/-	0	6510
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000
	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	100000	10000

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Implementation of EC, Mining Plan & DGMS Condition	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	50000	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	2000	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	540000
Greenbelt development	Green belt development - 1200 trees for 2.40.0 hectare (480 Inside Lease Area & 720 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)	130200	19530
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	292950	29295

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	Mine Closure activity	100000	0
	Rehabilitation and restoration plan of the mine site & post mine monitoring & restoration to natural conditions	250000	0
Total		1253250	967485
Total Cost		2220735	

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 Vaagai, Naval etc will be planted along the lease boundary and avenues as well as over non-active dumps at a rate of 340 trees per annum with interval 5m.
4. The rate of survival expected to be 70% 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	70%	1700
Total		1700

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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 Letter No. SEIAA-TN/ F. No. 11306 Dated: 23.11.2024. The baseline monitoring is carried out in November 2024 to January 2025 and the analysis

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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 November 2024 to January 2025.

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

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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

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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. 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) - 3.25.50 Ha, Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District, Tamil Nadu State	Field Study
2.	Latitude & Longitude	Latitude : 09°36' 27.3458" to 09°36' 36.2543" N Longitude:77°53' 37.2835" to 77°53' 45.9033" E	Topo Sheet
3.	Topo Sheet No.	57 H/14	Survey of India Toposheet
4.	Mine Lease Area	3.25.50 Ha	-
Demography in the study area (as per Census 2011)			
5.	Total Population	2630	Census Survey of India
6.	Total Number of Households	722	
7.	Maximum Temperature (°C)	38	IMD
8.	Minimum Temperature (°C)	30	
9.	Ecological Sensitive	❖ Palaiya Urani – 0.22 Km – E	Google Earth/

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	Areas - Wetlands, watercourses or other waterbodies, coastal zone, biospheres, mountains, forests	<ul style="list-style-type: none"> ❖ Seeniapuram Kanmai – 0.81 Km – NE ❖ Vadamalaikurichi Kanmai – 2.09 Km – NE ❖ Valayankulam Kanmai – 3.62 Km – W ❖ Vairavankulam Kanmai – 4.44 Km – W ❖ Moolipatti Kanmai – 4.70 Km – SW ❖ Pavali Kanmai – 5.04 Km – E ❖ Amatur Pond – 6.22 Km – SW ❖ Maravapatty Pond – 6.62 Km – N ❖ Appaswamy Oorani – 7.04 Km – N ❖ V.Chatrapatti Kanmai – 7.10 Km – NW ❖ Chittoor Pond – 7.49 Km – NE ❖ Gopinayakanpatti Kanmai – 7.88 Km – NWW ❖ Mathiasenai Kanmai – 8.38 Km - SW ❖ Kundaneri Kanmai – 8.56 Km – W ❖ Vellur Kanmai – 8.90 Km – SW ❖ Erichanatham Kanmai – 8.95 Km – W ❖ Old Ramco quarry pit for Rainwater zcollection & Supplies to Virudhunagar municipality – 9.02 Km - SE ❖ Nadayaneri Sevalkulam Kanmai – 9.08 Km – W ❖ Servaikaranpatti Kanmai (PWD) – 9.35 Km - SW ❖ Muruganeri Kanmai – 9.40 Km – NW ❖ Kullursandai Reservoir – 9.64 Km – SEE ❖ Nallaiyankulam Kanmai – 10.88 Km – W ❖ Anaikulam Tank – 12.95 Km - SW 	Field Study
10.	Densely Populated area	Virudhunagar - 6.20 Km - E	

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11.	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	S. No.	Places	Distance From Project Site	Google Earth/ Field Study
		Schools & Colleges			
		1	PUP School, Kundhalapatti, Virudhunagar,	1.03 Km - NW	
		2	Govt High School, Vadamalaikurichi	3.22 Km - NE	
		Hospital			
		3	Government Medical College Hospital, Virudhunagar.	7.72 km - E	
4	Primary health centre, Sengundrapuram, Kundhalapatti.	0.83 Km - NW			

3.1.7 Site Connectivity:

The site is connected to SH 182 – Watrap – Alagapuri – Virudhunagar Road – 0.38 Km – N



Figure 3.1: Site Connectivity

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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.

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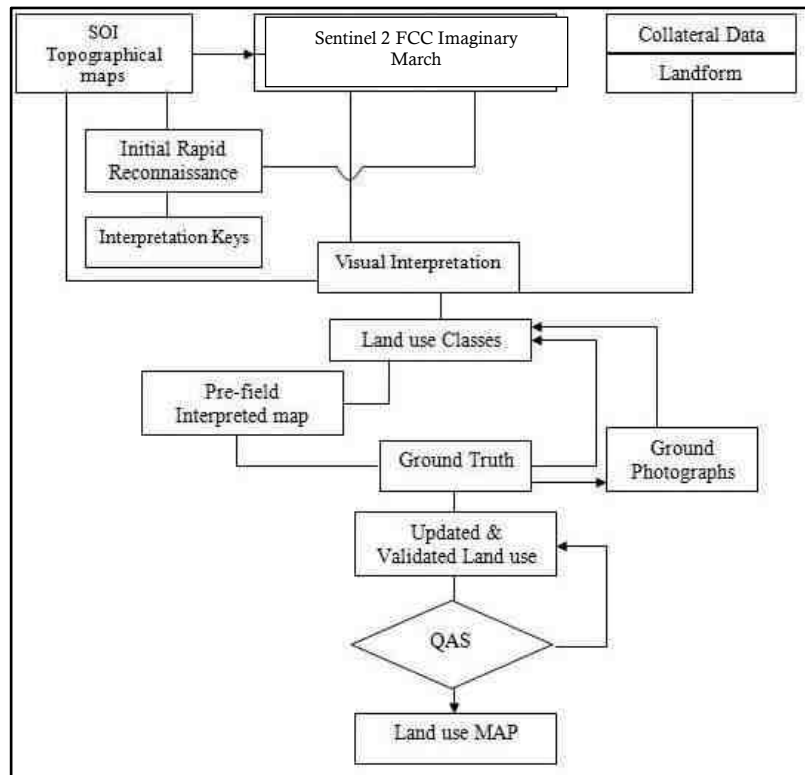


Figure 3.2 Flow Chart showing Methodology of Land use mapping

3.2.3 *Satellite Data*

Sentinel 2 multispectral satellite data of 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 Sentinel 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,

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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 -I 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

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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; contains 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.

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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.

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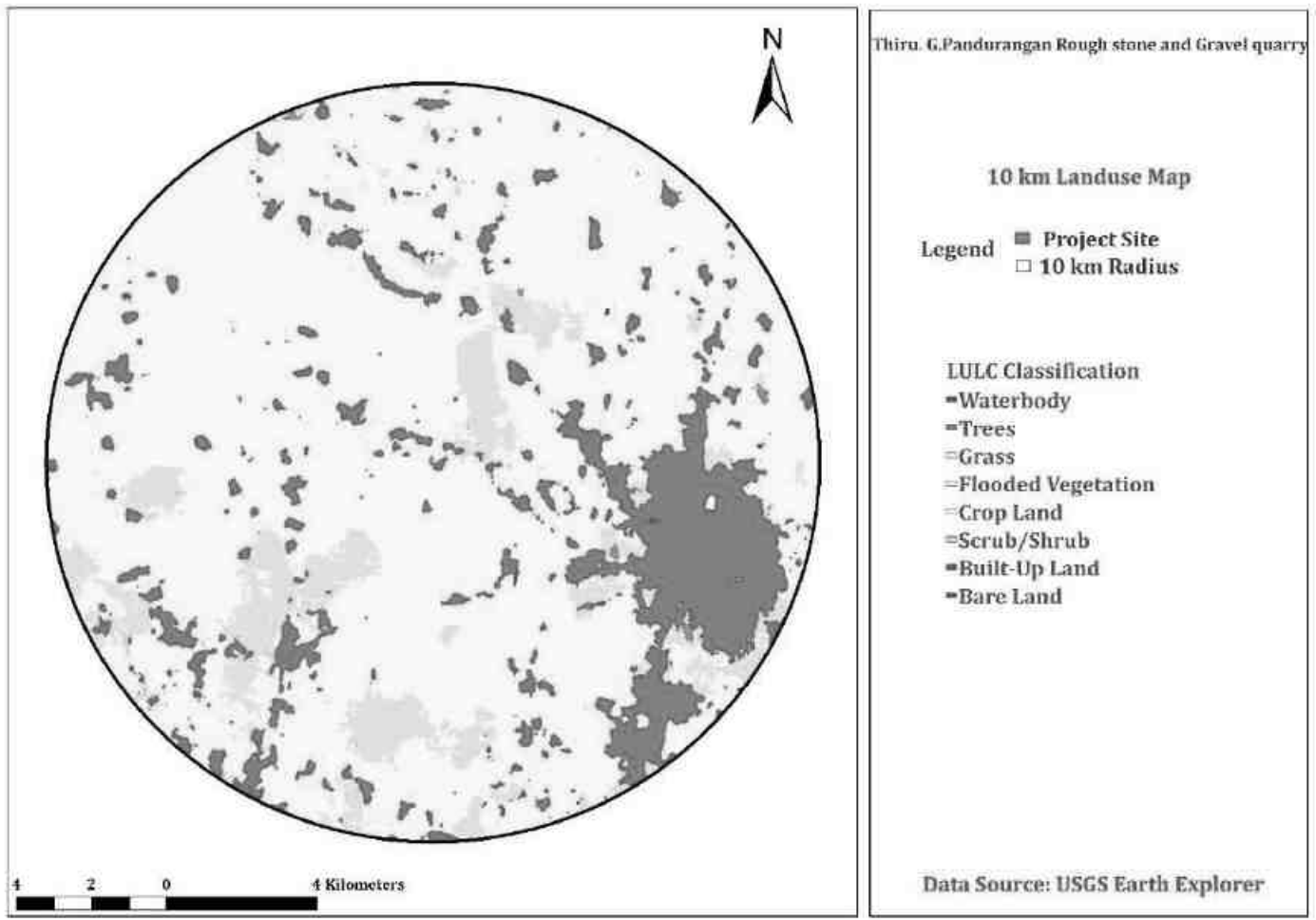


Figure 3.3 Land use classes around 10 km radius from the project site

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	0.04
2	Trees	0.15
3	Grass	0.15
4	Flooded vegetation	0.02
5	Crops	76.07
6	Scrub/Shrub	9.55
7	Built-up Area	14.02
8	Barren Land	0.01

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3.3 WATER ENVIRONMENT

3.3.1 *Contour & Drainage*

The project site is 86 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.

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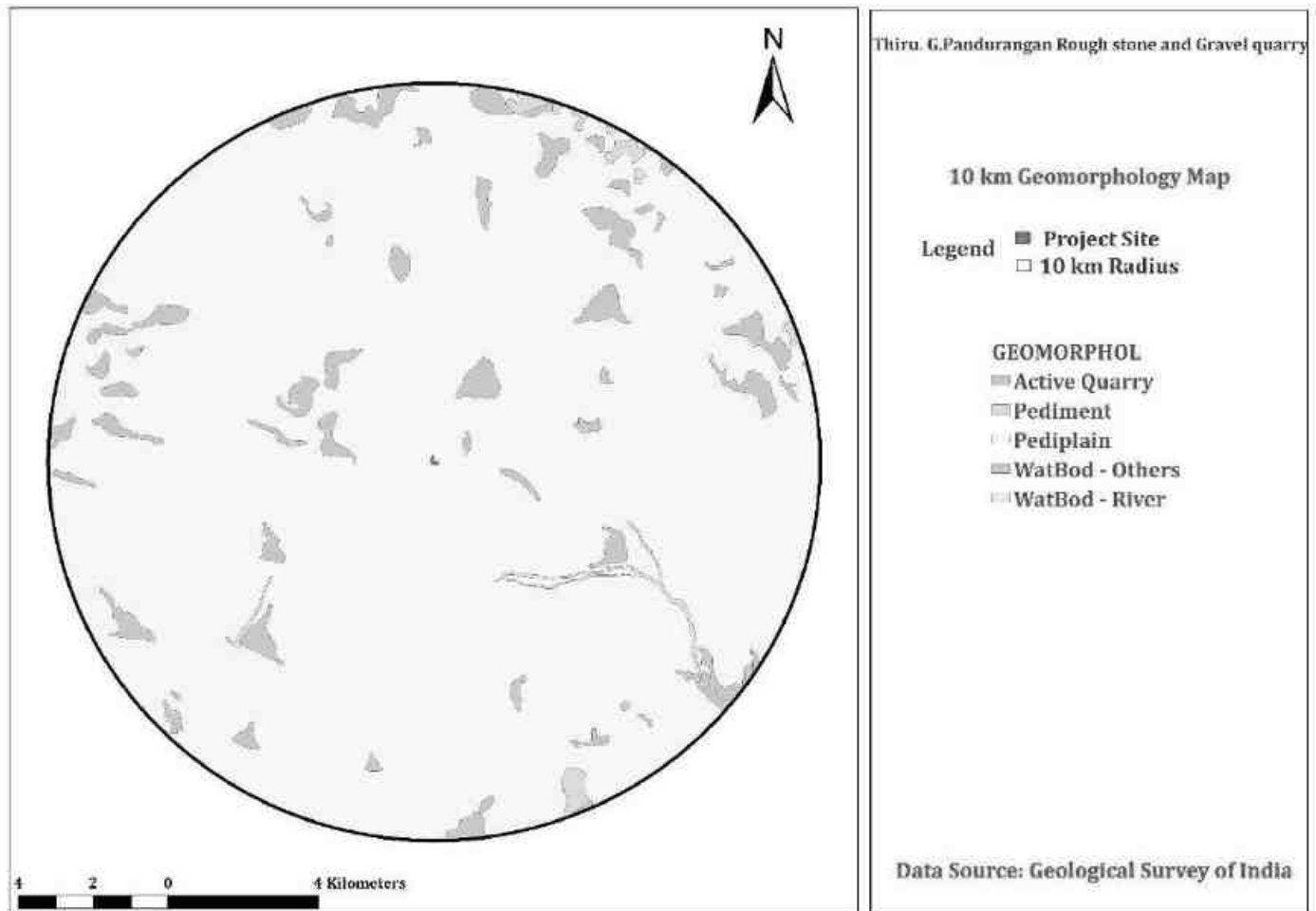


Figure 3.4 Geomorphology within 10km from the project site

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

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

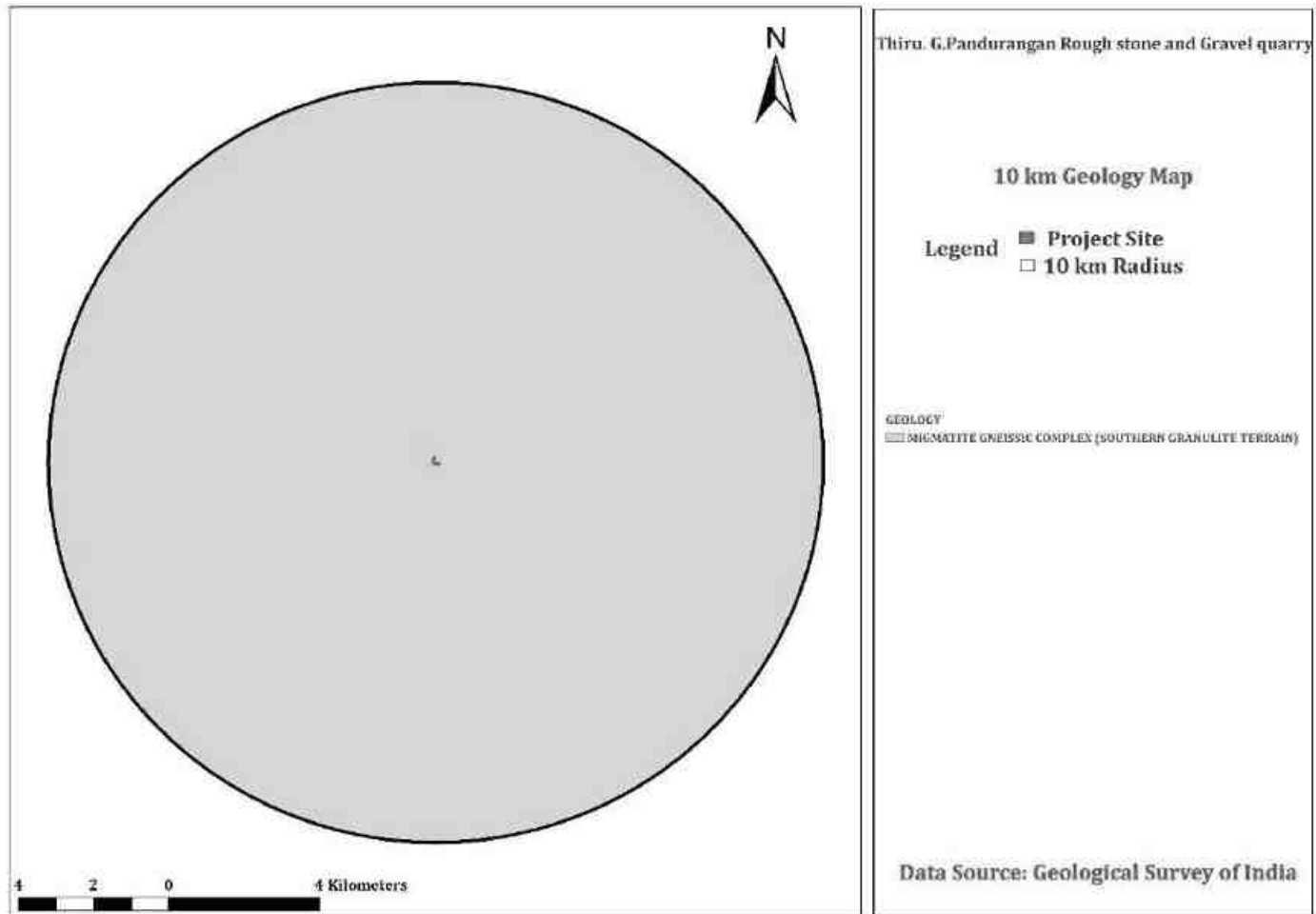


Figure 3.5 Geology within 10km from the project site

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.

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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 program 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).

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Aquifer Parameters:

Formation	Transmissivity (m²/day)	Storability	Specific Yield(%)
Weathered Crystalline	-	-	<2
Fractured Crystalline	1-548	3.41X10 ⁻⁵ to 7.0X10 ⁻³	-

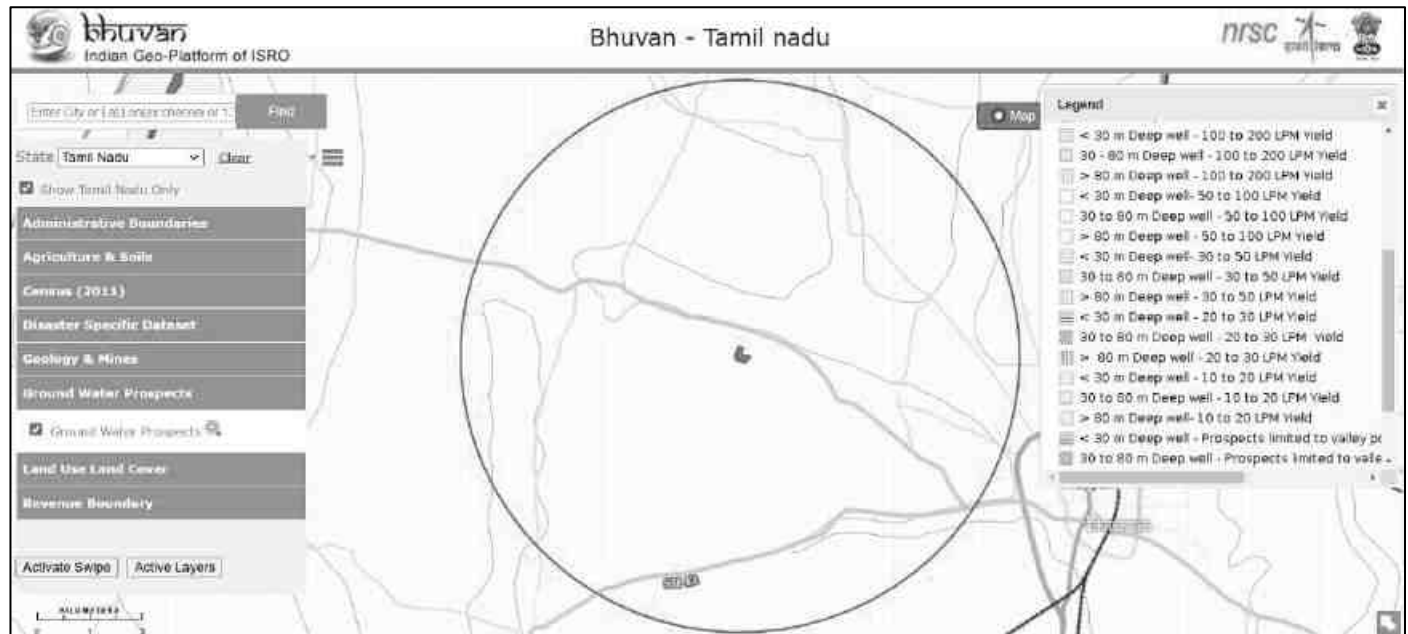


Figure 3.6 Ground water prospects within 5 km radius of the project site

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	November 2024 to January 2025
Design Criteria	Based on the Environmental settings in the study area
Monitoring Locations	Project Site -GW 1 Thanga Perumal Swamy Temple, Vadamalaikurichi- 625707 - GW2

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	Sri Ayyanar Kovil, Vellur - GW 3 Gurunathar/Angala Eswari Temple, Sengundrapuram - GW 4 Sri Vidya College of Arts and Science, Virudhunagar - GW 5 Sri Bharasakthi Kaliyamman, Maravapatty Velambur, Tamil Nadu 625707 – GW 6 Yuvaan Avenue – Amathur, Kavulur – GW 7
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 22 nd Edn.2012-2540-C
6	Total Suspended Solids	IS:3025(P-17)-1984 RA:2012
7	Total Hardness as CaCO ₃	APHA 22 nd Edn.2012-2340-C
8	Calcium as Ca	APHA 22 nd Edn2012.3500 Ca-B
9	Magnesium as Mg	APHA 22 nd Edn.2012-3500 Mg-B
10	Chloride as Cl	IS:3025(P -32)-1988 RA: 2014
11	Sulphate as SO ₄	APHA 22 nd Edn.2012-4500 SO ₄ -E
12	Total Alkalinity as CaCO ₃	APHA 22 nd Edn.2012-2320-B
13	Iron as Fe	IS:3025(P -53):2003 RA: 2014

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14	Silica as SiO ₂	IS:3025(P -35)1988 RA: 2014
15	Fluoride as F	APHA 22 nd 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)	-	8.2	8.05	8.12	7.27	8.21	8.03	7.81
2	Electrical Conductivity	µS/cm	1650	2652	1230	2560	556	1155	1130
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	1056	1815	845	1765	325	765	712
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 CaCO ₃	mg/L	820	550	230	1730	264	440	368
8	Calcium as Ca	mg/L	281	135	64.1	589	98.5	92.2	112
9	Magnesium as Mg	mg/L	28.6	51.6	16.9	63.2	4.31	51.1	21.4
10	Chloride as Cl	mg/L	279	541	132	553	68.5	186	59
11	Sulphate as SO ₄	mg/L	255	410	280	460	56.6	70.2	311
12	Total Alkalinity as CaCO ₃	mg/L	220	365	385	342	182	433	304
13	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)
14	Silica as SiO ₂	mg/L	60.6	53.5	46.5	42.6	22.5	60.6	80.6
15	Sodium	mg/L	244	404	121	361	50.5	89.8	48.3
16	Potassium	mg/L	30.6	110	6.6	80.8	3.5	44.9	5.5
17	NO ₃	mg/L	20.2	34.6	22.2	35.3	10.5	22.2	19.9
18	Ca Hardness	mg/L	700	360	60	1470	246	230	280
19	Mg Hardness	mg/L	120	190	170	260	17.8	210	88

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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): 1 Hazen unit.

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: 8.2

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: 1056 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,

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Calcium:

Value observed in the Project Site: 281 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: 28.6 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: 279 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 CaCO₃:

Value observed in the project site: 220 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.

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Hardness:

Value observed in the Project Site: 820 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 **Palaiya Urani and Vairavankulam Kanmoi**. The results are summarized below.

Table 3-7 Surface Water Sample Results

S. No	Parameters	Units	Palaiya Urani	Vairavankulam Kanmoi
1	pH (at 25°C)	-	7.99	8.42
2	Electrical Conductivity	µS/cm	232	2004
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	151	1182
6	Total Suspended Solids	mg/L	BQL (LOQ:2)	BQL(LOQ:2)
7	Total Hardness as CaCO ₃	mg/L	52	450
8	Calcium Hardness as CaCO ₃	mg/L	50	230
9	Magnesium Hardness as CaCO ₃	mg/L	2	220
10	Calcium as Ca	mg/L	20	92.2
11	Magnesium as Mg	mg/L	BQL(LOQ:1)	53.5
12	Chloride as Cl	mg/L	8.8	157
13	Sulphate as SO ₄	mg/L	BQL(LOQ:1)	60.3
14	Total Alkalinity as CaCO ₃	mg/L	30.6	106
15	Iron as Fe	mg/L	0.646	0.318
16	Silica as SiO ₂	mg/L	5.8	44.8

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17	Fluoride as F	mg/L	0.216	0.336
18	Nitrate as NO ₃	mg/L	11.2	20.3
19	Potassium as K	mg/L	BQL(LOQ:1)	5.8
20	Sodium as Na	mg/L	4.2	75.5
21	Total Kjeldahl Nitrogen as N	mg/L	3.43	4.57
22	Biochemical oxygen Demand @ 27c	mg/L	4.5	10.9
23	Chemical Oxygen Demand	mg/L	20.2	44.4
24	Dissolved Oxygen	mg/L	3.6	4.2

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 Eastern part of the district experiences hot climate and Western part has a contrasting pleasant cold climate. The district is hot and dry in summer i.e., from March to June. From July to November is rainy season and between December to February winter prevails with very cold and misty.

ii) Temperature

The maximum temperature is around 36^oC and minimum temperature is 28^oC.

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<i>Project Proponent</i>	<i>Thiru.G.Pandurangan</i>	
<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District</i>	

iii) Rainfall

Virudhunagar receives rainfall from both the northeast and the southwest monsoons. Monsoon season is from the months of July to November. During this time, temperature is mild and pleasant. Heavy rainfall is expected in short intervals during this period. December to February are winter months. This district gets maximum rainfall in November (274.7mm).

VIRUDHUNAGAR DISTRICT -NORMAL AND ACTUAL RAINFALL

Unit in mm.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F
2016	3	0.0	1.7	3.1	77.6	6.9	60.0	24.0	25.7	72.5	42.9	57.9
2017	23.2	6.2	38.1	14.2	92.4	10.0	24.1	122.5	137.0	125.7	67.6	139.0
2018	0.1	28.4	26.3	62.7	149.0	8.0	52.5	58.5	108.4	182.7	75.2	7.5
2019	8.1	3.5	6.8	0.5	6.0	29.3	12.8	89.7	178.7	203.5	111.9	62.8
2020	7.7	0.0	0.0	32.6	80.4	24.0	78.8	47.9	79.4	127.6	284.0	97.9

Source: District survey report

Meteorological Data

The meteorological data – Temperature, rainfall, Wind Speed, Wind direction are recorded through AWS by setting it up in the site.

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 2022.

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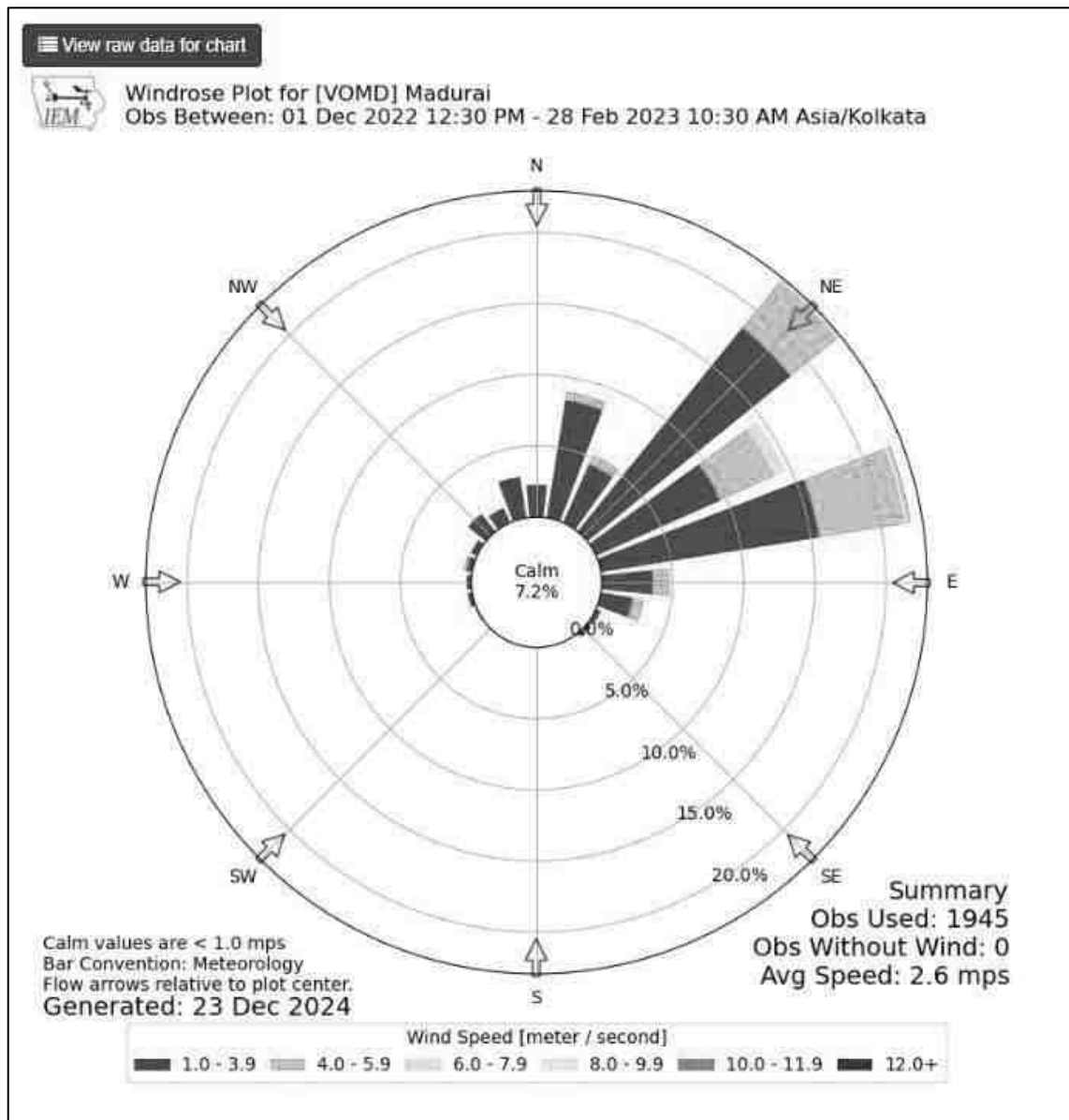


Figure 3.7 Wind rose

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.

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3.4 AMBIENT AIR QUALITY

Table 3-8: Selection of Sampling Location

Environmental Parameters: <i>Ambient Air</i>																							
Monitoring Period	November 2024 to January 2025																						
Design Criteria	The monitoring stations are selected based on factors like topography/terrain, prevailing meteorological conditions like predominant wind direction (November 2024 to January 2025), 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	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Project site</td> <td style="width: 20%; text-align: center;">-</td> <td style="width: 20%; text-align: center;">-</td> </tr> <tr> <td>Thanga Perumal Swamy Temple, Vadamalaikurichi-625707</td> <td style="text-align: center;">3.12 km</td> <td style="text-align: center;">Upwind NE</td> </tr> <tr> <td>Sri Ayyanar Kovil, Vellur</td> <td style="text-align: center;">8.66 km</td> <td style="text-align: center;">Downwind SW</td> </tr> <tr> <td>Gurunathar/Angala Eswari Temple, Sengunrapuram</td> <td style="text-align: center;">0.96 km</td> <td style="text-align: center;">Crosswind NW</td> </tr> <tr> <td>Sri Vidya College of Arts and Science, Virudhunagar.</td> <td style="text-align: center;">4.58 km</td> <td style="text-align: center;">Crosswind SE</td> </tr> <tr> <td>Sri Bharasakthi Kaliyamman, Maravapatty Velambur-625707.</td> <td style="text-align: center;">6.60 km</td> <td style="text-align: center;">Crosswind N</td> </tr> <tr> <td>Yuvaan Avenue – Amathur, Kavulur.</td> <td style="text-align: center;">3.44 Km</td> <td style="text-align: center;">Crosswind S</td> </tr> </table>		Project site	-	-	Thanga Perumal Swamy Temple, Vadamalaikurichi-625707	3.12 km	Upwind NE	Sri Ayyanar Kovil, Vellur	8.66 km	Downwind SW	Gurunathar/Angala Eswari Temple, Sengunrapuram	0.96 km	Crosswind NW	Sri Vidya College of Arts and Science, Virudhunagar.	4.58 km	Crosswind SE	Sri Bharasakthi Kaliyamman, Maravapatty Velambur-625707.	6.60 km	Crosswind N	Yuvaan Avenue – Amathur, Kavulur.	3.44 Km	Crosswind S
Project site	-	-																					
Thanga Perumal Swamy Temple, Vadamalaikurichi-625707	3.12 km	Upwind NE																					
Sri Ayyanar Kovil, Vellur	8.66 km	Downwind SW																					
Gurunathar/Angala Eswari Temple, Sengunrapuram	0.96 km	Crosswind NW																					
Sri Vidya College of Arts and Science, Virudhunagar.	4.58 km	Crosswind SE																					
Sri Bharasakthi Kaliyamman, Maravapatty Velambur-625707.	6.60 km	Crosswind N																					
Yuvaan Avenue – Amathur, Kavulur.	3.44 Km	Crosswind S																					
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 Monitoring	2 days a week, 4 weeks in a month for 3 months in a season.																						

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.

Project	Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan	<i>Draft EIA Report</i>
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Table 3-9 Ambient Air Quality

Code	Location	PM 10 ($\mu\text{g}/\text{m}^3$)			PM 2.5 ($\mu\text{g}/\text{m}^3$)			SO ₂ ($\mu\text{g}/\text{m}^3$)			NO _x ($\mu\text{g}/\text{m}^3$)		
		Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
AAQ 1	Project Site	40	53	47	17	24	21	5	8	7	5	8	6
AAQ 2	Thanga Perumal Swamy Temple, Vadamalaikurichi,	46	56	51	18	26	22	5	11	8	5	11	8
AAQ 3	Sri Ayyanar Kovil, Vellur	50	60	54	20	29	24	7	13	10	7	13	9
AAQ 4	Gurunathar/Angala Eswari Temple, Sengunrapuram	47	57	53	20	27	23	5	10	8	5	10	7
AAQ 5	Sri Vidya College of Arts and Science, Virudhunagar	51	61	56	23	30	26	6	12	9	6	12	9
AAQ 6	Sri Bharasakthi Kaliyamman, Sri Bharasakthi Kaliyamman, Maravapatty Velambur	44	52	48	17	25	22	12	16	14	12	16	14
AAQ 7	Yuvaan Avenue – Amathur, Kavulur.	39	55	48	16	28	21	9	18	14	9	18	13
NAAQ Standards - Residential Area		100 ($\mu\text{g}/\text{m}^3$)			60($\mu\text{g}/\text{m}^3$)			80 ($\mu\text{g}/\text{m}^3$)			80 ($\mu\text{g}/\text{m}^3$)		

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Project Location	Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District	

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 (61($\mu\text{g}/\text{m}^3$), PM 2.5 (23 ($\mu\text{g}/\text{m}^3$), SOx (13($\mu\text{g}/\text{m}^3$), NOx (27($\mu\text{g}/\text{m}^3$) is observed in different places.

Inference:

The monitoring results for PM10, PM2.5, Sox, NOx was found to be high in Sri Vidya College of Arts and Science which is due to the movement of vehicles .

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

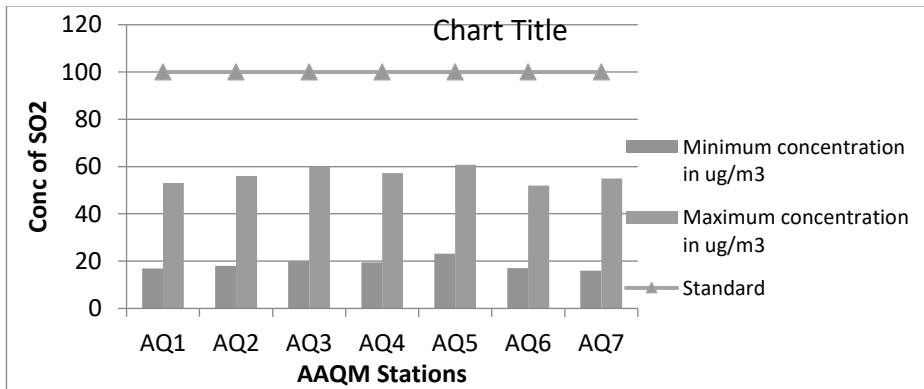


Figure 3.8 Concentration of PM10 ($\mu\text{g}/\text{m}^3$) in Study Area

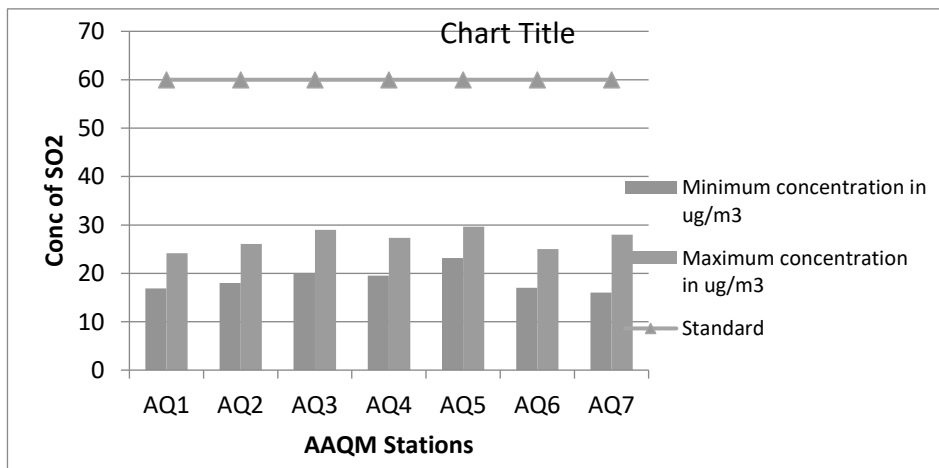


Figure 3.9 Concentration of PM2.5 ($\mu\text{g}/\text{m}^3$) in Study Area

Project	Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan	<i>Draft EIA Report</i>
Project Proponent	Thiru.G.Pandurangan	
Project Location	Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District	

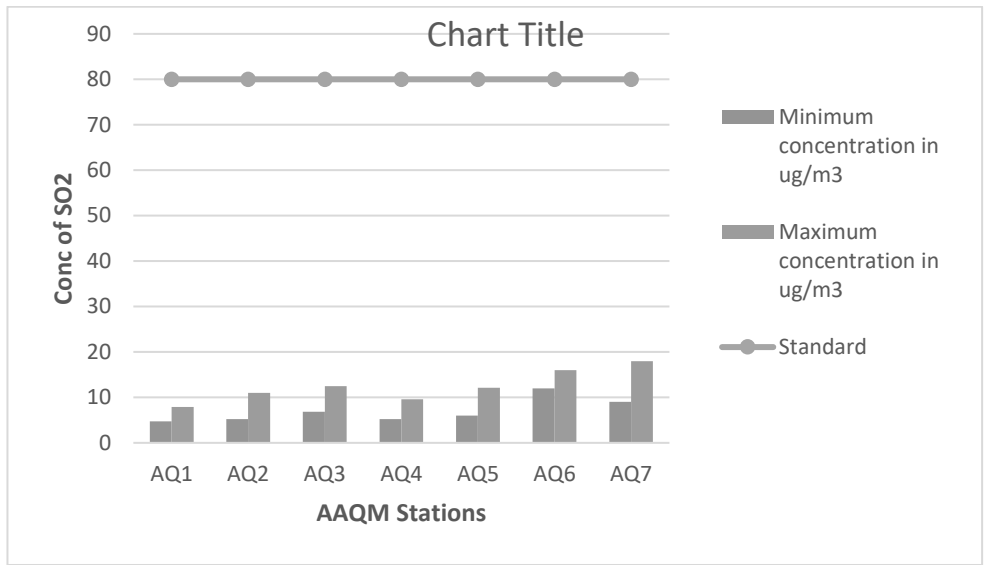


Figure 3.10 Concentration of SO_x (ug/m³) in Study Area

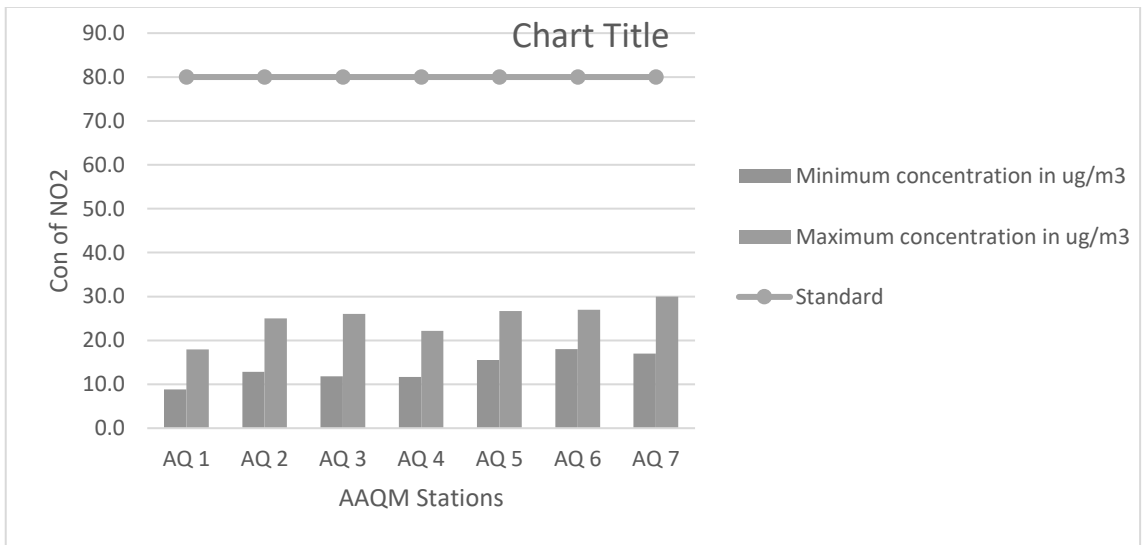


Figure 3.11 Concentration of NO_x (ug/m³) in Study Area

<i>Project</i>	<i>Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.G.Pandurangan</i>	
<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District</i>	

3.5 NOISE ENVIRONMENT:

Table 3-10 Noise Analysis

Environmental Parameters: <i>Noise Analysis</i>	
Monitoring Period	November 2024 to January 2025
Design Criteria	Based on the Sensitivity of the area
Monitoring Locations	Project Site – N 1 Thanga Perumal Swamy Temple, Vadamalaikurichi- 625707 – N2 Sri Ayyanar Kovil, Vellur – N3 Gurunathar/Angala Eswari Temple, Sengundrapuram – N4 Sri Vidya College of Arts and Science, Virudhunagar - N5 Sri Bharasakthi Kaliyamman, Maravapatty Velambur - N6 Yuvaan Avenue – Amathur, Kavulur – N7
Methodology	Noise level measurements were taken at the selected locations using noise level meter both during day and night time. Noise level measurements were taken continuously for 24 hours at hourly intervals
Frequency of Monitoring	Noise samples were collected from 5 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 3-11 Day Noise Level (Leq day)

Location	Leq day in dB(A)		
	Max	Min	Average
Project Site	54	40	49
Thanga Perumal Swamy Temple, Vadamalaikurichi-625707	56	45	52
Sri Ayyanar Kovil, Vellur	60	49	55
Gurunathar/Angala Eswari Temple, Sengunrapuram	54	44	50
Sri Vidya College of Arts and Science, Virudhunagar.	57	48	53
Sri Bharasakthi Kaliyamman, Maravapatty Velambur- 625707.	61	52	56

<i>Project</i>	<i>Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan</i>	<i>Draft EIA Report</i>
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<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District</i>	

Yuvaan Avenue – Amathur, Kavulur.	57	47	53
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3.5.2 Night Noise Level (Leq Night)

Table 3-12 Night Noise Level (Leq Night)

Location	Leq day in dB(A)		
	Max	Min	Average
Project Site	39	32	36
Thanga Perumal Swamy Temple, Vadamalaikurichi- 625707	45	37	40
Sri Ayyanar Kovil, Vellur	47	38	43
Gurunathar/Angala Eswari Temple, Sengundrapuram	43	34	38
Sri Vidya College of Arts and Science, Virudhunagar.	45	38	42
Sri Bharasakthi Kaliyamman, Maravapatty Velambur-625707.	51	43	47
Yuvaan Avenue – Amathur, Kavulur.	45	37	41

Observation:

The maximum Day noise and Night noise were found to be 61 dB(A) and 52 dB(A) respectively in Sri Bharasakthi Kaliyamman, Maravapatty. The minimum Day Noise and Night noise were 39 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.

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Project Location	Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District	

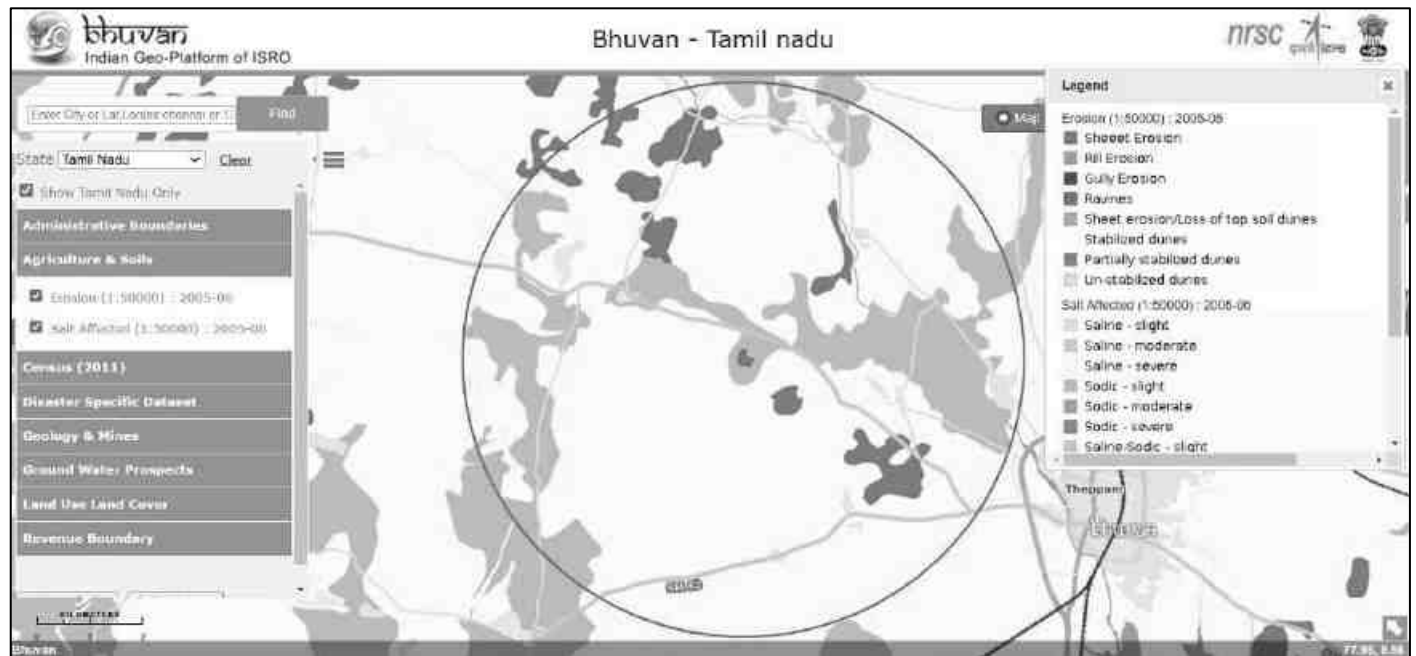


Figure 3.12 Soil Erosion pattern within 5 km radius of the project site

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 3-13 Soil Quality Analysis

Environmental Parameters: <i>Soil Quality Analysis</i>	
Monitoring Period	November 2024 to January 2025
Design Criteria	Based on the environmental settings of the study area
Monitoring Locations	Project Site – SQ1 Thanga Perumal Swamy Temple, Vadamalaikurichi-625707 – SQ2 Sri Ayyanar Kovil, Vellur – SQ3 Gurunathar/Angala Eswari Temple, Sengundrapuram – SQ4

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	Sri Vidya College of Arts and Science, Virudhunagar – SQ5 Sri Bharasakthi Kaliyamman, Maravapatty Velambur- 625707 – SQ6 Yuvaan Avenue – Amathur, Kavulur – 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 3-14 Soil Quality Analysis

Parameters	Unit	SQ 1	SQ 2	SQ 3	SQ 4	SQ5	SQ6	SQ7
pH (at 25°C)	-	7.35	7.72	7.02	7.25	7.11	7.66	7.55
Specific Electrical Conductivity	mS/cm	0.42	0.27	0.21	0.14	0.21	0.34	0.26
Water Holding Capacity	ml/1	4.20	3.30	2.65	1.65	1.68	6.5	4.6
Chloride	g/cm ³	250	205	169	174	188	76.8	72
Soluble Calcium	mg/kg	46.6	43.6	70.1	99.9	101	25.5	20.3
Soluble Sodium	mg/kg	80.1	59.9	30.3	81	79.9	367.0	80.1
Soluble Potassium	mg/kg	66.6	30.1	23.5	60.2	65.5	219.0	22.2
Organic matter	%	0.22	0.60	0.35	0.53	0.26	0.65	0.52
Soluble Magnesium	mg/kg	110	95	125	152	110	11.2	13.3
Total Soluble Sulphates	%	95.5	80.2	87.1	99.9	102	42.9	30.5

<i>Project</i>	<i>Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan</i>		<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.G.Pandurangan</i>		
<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District</i>		

CEC	mg/kg	20.2	26.6	20.2	19.6	13.3	13.4	12.20
Total Nitrogen	%	0.08	0.03	0.02	0.03	0.18	0.21	0.18
Bulk Density	meq/100g	1.26	1.31	1.45	1.83	1.45	1.24	1.31
Phosphorous	meq/kg	184	193	144	163	144	195	183
Sand	%	50.0	52.2	49.6	50.1	49.9	65	56
Clay	mg/kg	20.0	33.1	30.1	28.8	6.72	9	17
Silt	mg/kg	30.0	19.1	20.3	21.1	50.5	26	27
SAR	mg/kg	18.1	16.6	8.2	13.3	7.8	23.3	26.2
Silicon	%	0.93	0.82	0.72	0.93	0.67	0.12	0.11

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 1.24 to 1.83 meq/100g which indicates favorable physical condition for plant growth. The water holding capacity was found in the range of 1.65 ml/1 to 6.50 ml/1.

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 7.11 to 7.72, which it 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 0.22 to 0.65 %, 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.

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<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District</i>	

- 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 neighbor method - Distance is measured from an individual to its nearest neighbor.
- 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.

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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 quadrates 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 3-15 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

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Table 3-16 Tree Species 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	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

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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					

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Table 3-17 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	Stachytarpheartusifolia	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	Unnichi	8	6	24	0.38	0.25	1.5	4.64	6.06	Not Assessed
12	Parthenium hysterophorous	Vishapoond	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

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Table 3-18 Herbs & Grasses 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	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

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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 3-19 Calculation of species diversity

Description	Formula
Species diversity – Shannon – Wiener Index	$H = -\sum[(p_i) * \ln(p_i)]$ 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

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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
Woodfordiafruticosa	Velakkai	4	0.022989	-3.77276	-0.08673
Hibiscus rosa sinensis	Sembaruthi	3	0.017241	-4.06044	-0.07001

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Lantana camara	Unnichi	8	0.045977	-3.07961	-0.14159
Parthenium hysterophorous	Vishapoondi	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

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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.

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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 striped 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.

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Table 3-20 List of fauna species

Scientific Name	Common Name	Schedule of wild life protection act	IUCN conservation status
Mammals			
Funambulus pennanti	Palm Squirrel	IV	Least Concern
Mus rattus	Indian rat	IV	Not listed
Bandicota bengalensis	Indian mole rat	IV	Least Concern
Funambulus palmarum	Three stripped palm squirrel	IV	Least Concern
Herestes edwardsii	Common Mongoose	IV	Not listed
Mus musculus	Common Mouse	IV	Least Concern
Bandicota indica	Rat	IV	Least Concern
Lepus nigricollis	Indian Hare	IV	Least Concern
Felis catus	Cat	Not listed	Not listed
Canis lupus familiaris	Indian dog	Not listed	Not listed
Bos Indicus	Indian Cow	Not listed	Not listed
Bubalus bubalis	Buffalo	I	Not listed
Sus scrofa domesticus	Domestic pig	Not listed	Not listed
Birds			
Milvus migrans	Black kite	IV	Least concern
Saxicoloides fulicatus	Indian Robin	IV	Least concern
Pycnonotus cafer	Red vented Bulbul	IV	Least concern
Phragamaticola aedon	Thick billed warbler	IV	Least concern
Pericrocotus cinnamomeus	Small Minivet	IV	Least concern
Eudynamys scolopaceus	Koel	IV	Least concern
Psittacula krameni	Rose ringed parakeet	IV	Least concern
Dicrurus marcocercus	Black drongo	IV	Least concern
Columba livia	Rock pigeon	IV	Least concern
Corvus splendens	House crow	IV	Least concern

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Alcedo atthis	Small blue kingfisher	IV	Least concern
Cuculus canorus	Common Cukoo	IV	Least concern
Reptiles & Amphibians			
Chameleon zeylanicum	Chameleon	IV	Not listed
Calotes versicolor	Common garden lizard	II	Not listed
Bungarus caeruleus	Common krait	IV	Not listed
Ophisops leschenaultia	Snake eyed lizard	--	Not listed
Bufo melanostictus	Toad	IV	Least concern
Ptyas mucosa	Rat snakes	IV	Least concern
Hemidactylus sp.	House lizard	--	Not listed
Butterflies			
Danaus chrysippus	Plain Tiger	--	Not listed
Papilio demoleus	Common lime	--	Not listed
Euploea core	Common crow	--	Least concern
Danaus genutia	Common tiger	--	Not listed
Eurema brigitta	Small grass yellow	--	Least concern

3.8 DEMOGRAPHY AND SOCIO ECONOMICS

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

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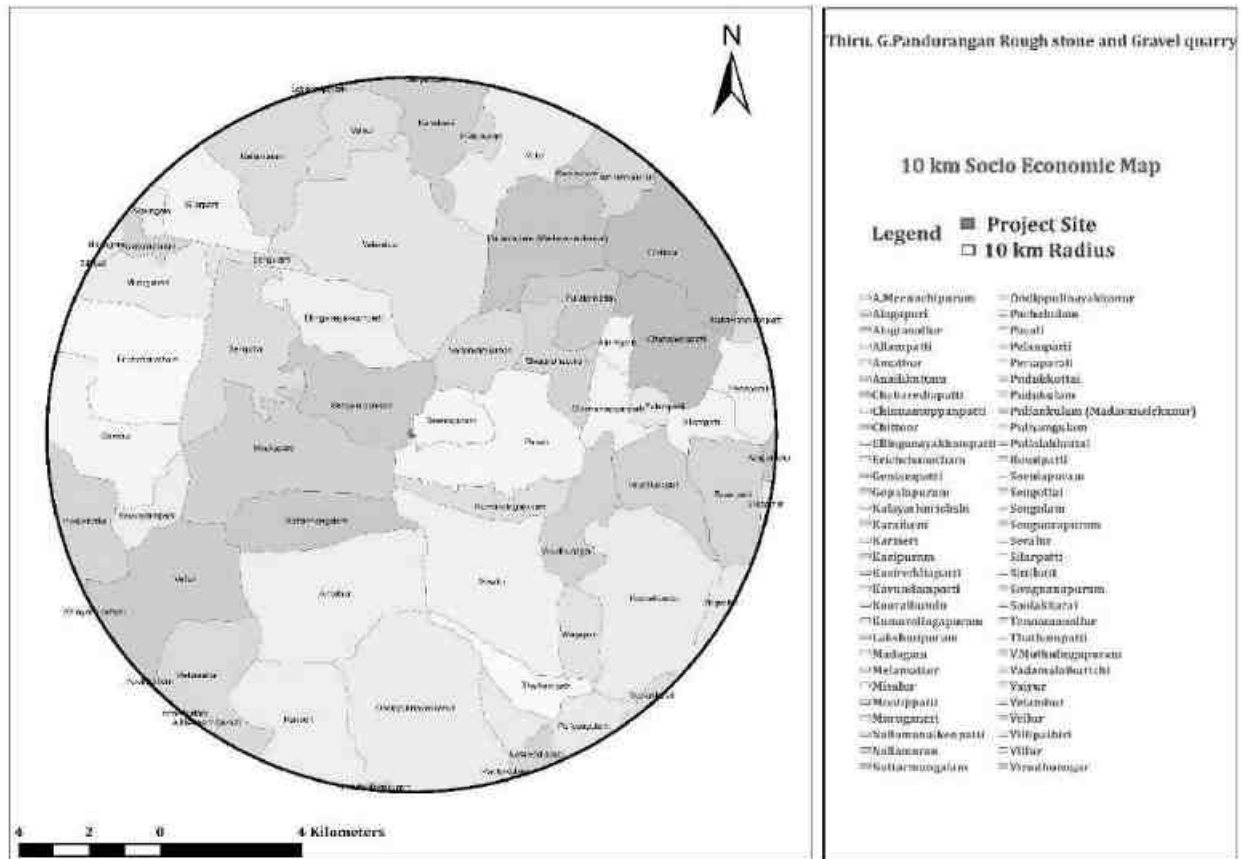


Figure 3.13 Socio Economic map surrounding the project site.

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

Table 3-21: Demography Survey Study

Source: Census of India, 2011

Villages	Household	Population	Sex Ratio		Literacy Rate		SC	ST
			Male	Female	Male	Female		
A. Meenachipuram	377	1359	695	664	73.81	60.39	108	0
Alagapuri	553	3938	1908	2030	75.68	60.69	615	0
Alagiyanallur	1195	4252	2116	2136	75.47	60.44	510	0
Allampatti	79	295	149	146	62.85	70.47	10	0

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Amathur	220	781	399	382	83.21	65.45	87	0
Anaikkuttam	394	1292	629	663	72.97	57.01	108	0
Chinnamuppanpatti	1171	4986	2578	2408	75.26	55.9	768	7
Chittoor	143	614	306	308	57.2	42.86	77	12
Ellinganayakkampatti	1807	7884	3970	3914	84.68	72.76	597	6
Erichchanatham	1743	6057	2980	3077	78.76	61.23	319	0
Genjampatti	1179	5312	2725	2587	65.21	47.49	822	0
Gopalapuram	905	3889	2005	1884	69.12	50.39	121	0
Kalayarkurichchi	582	2139	1051	1088	66.22	50.28	132	0
Karaikeni	164	715	363	352	68.69	53	35	0
Kariseri	154	633	321	312	79.44	60.58	0	0
Kasipuram	852	3681	1898	1783	69.26	52.97	596	0
Kasireddiapatti	620	2709	1414	1295	73.73	54.07	512	6
kavundampatti	217	856	394	462	80.96	59.74	87	0
Kumaralingapuram	724	2590	1293	1297	71.46	57.75	247	0
Melamattur	853	3124	1576	1548	70.24	50.45	284	0
Misalur	874	3224	1614	1610	77.57	63.11	0	0
Moolippatti	946	3386	1691	1695	77.94	57.35	971	0
Muruganeri	275	935	453	482	63.58	46.27	350	0
Nallamanaikenpatti	117	425	204	221	79.41	64.71	149	0
Nallamaran	586	2040	992	1048	72.38	57.54	0	0
Nattarmangalam	48	203	104	99	74.04	55.56	691	0
Ondippulinayakkanur	2113	7395	3633	3762	70.39	78.81	519	0
Pachakulam	171	637	319	318	85.58	74.21	177	7
Periaparali	807	2828	1424	1404	72.47	54.13	0	0
Pullalakkottai	350	1297	662	635	81.27	63.78	539	0
Sevalur	640	2399	1215	1184	75.39	57.01	549	0
Virudhunagar	640	2399	1215	1184	75.39	57.01	431	0

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3.9 TRAFFIC IMPACT ASSESSMENT

Traffic data collected continuously for 24 hours 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

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Table 3-22: No. of Vehicles per Day

S. No	Vehicles Distribution	Number of Vehicles Distribution/Day	Passenger Car Unit (PCU)	Total Number of Vehicle in PCU
		SH 182	-	SH 182
1	Cars	417	1	417
2	Buses	203	3	609
3	Trucks	159	3	477
4	Two wheelers	507	0.5	254
5	Three wheelers	173	1.5	260
	Total	1459	-	2017

Table 3-23: Existing Traffic Scenario and LOS

Road	V (Volume in PCU/hr)	C (Capacity in PCU/hr)	Existing V/C Ratio	LOS
NH844	2017/24=84	221	0.38	B

Note: The existing level may be “Very Good” for SH 182.

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

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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 the 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 the 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

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4.2 LAND ENVIRONMENT:

Aspect	Impact	Mitigation Measures																
<i>Mining of rough stone and Gravel</i>	The proposed 3.25.50 Ha mine located in Sengundrapuram Village having 414870m ³ of Rough stone and 159150m ³ 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.	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 1700 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.																
	<table border="1"> <thead> <tr> <th style="text-align: center;">Description</th> <th style="text-align: center;">Length (Max) (m)</th> <th style="text-align: center;">Width (Max) (m)</th> <th style="text-align: center;">Depth (Max) (m)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">A-A' & B-B'</td> <td style="text-align: center;">171</td> <td style="text-align: center;">101</td> <td style="text-align: center;">46.0</td> </tr> <tr> <td style="text-align: center;">A-A' & C-C'</td> <td style="text-align: center;">55</td> <td style="text-align: center;">42</td> <td style="text-align: center;">26.0</td> </tr> <tr> <td style="text-align: center;">C-C' & D-D'</td> <td style="text-align: center;">124</td> <td style="text-align: center;">56</td> <td style="text-align: center;">26.0</td> </tr> </tbody> </table>	Description	Length (Max) (m)	Width (Max) (m)	Depth (Max) (m)	A-A' & B-B'	171	101	46.0	A-A' & C-C'	55	42	26.0	C-C' & D-D'	124	56	26.0	
	Description	Length (Max) (m)	Width (Max) (m)	Depth (Max) (m)														
	A-A' & B-B'	171	101	46.0														
	A-A' & C-C'	55	42	26.0														
C-C' & D-D'	124	56	26.0															
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.		The source of dust generation is majorly due to drilling, blasting, loading & unloading of the mined-out mineral, the																

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	<p>Impact on soil of the study area will be minimal as there are no wastewater generated, heavy metal infusion, stack emissions.</p> <p>Impact due to transformation of terrain characteristics over the large area results in soil degradation.</p> <p>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.</p>	<p>impact will be mitigated by water sprinkling regularly once in 3hrs.</p> <p>The proposed mining activity is carried out in plain terrain.</p> <p>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.</p> <p>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.</p>
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4.3 WATER ENVIRONMENT:

Aspect	Impact	Mitigation Measures
<i>Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.</i>	<p>The mining in the area may cause ground water contamination due to intersection of the water table and mine runoff.</p> <p>The ground water depletion may occur due to mining activity</p> <p>Chemicals consisting of nitrate used for blasting may pollute the surface run off.</p>	<p>The water table will not be intersected during mining, as the ultimate depth is limited upto 46m (below ground level), whereas the ground water table is at 60 m 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.</p> <p>The ground water table is at a depth of 60 m BGL, the mining operation will not affect the aquifer. The ultimate pit at the end of the mining operation will be used for rain water 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.</p> <p>Further, the run-off water will be stored in sumps and after proper treatment; water will be</p>

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	<p>Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labours.</p>	<p>used in the mining operation for dust suppression.</p> <p>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</p>
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4.4 AIR ENVIRONMENT:

Aspect	Impact	Mitigation Measures
<p><i>Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.</i></p>	<p><i>Impacts during Operation Phase</i></p> <p>During mining operation, fugitive dust and other air pollutants like particulate matter (PM10 & PM 2.5) will be generated.</p> <p>The main source of pollutants arises due to drilling and blasting. 5 Nos of Tipper will be used for loading and unloading, 2 Nos of Hydraulic Excavator (0.90m³) bucket capacity and 4 Nos Jack Hammer will be used for excavation of the mineral which contributes to the generation of fugitive dust. In</p>	<p><i>Mitigation Measures during Operation Phase</i></p> <p>It is proposed to plant 1700 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.</p> <p>Planning transportation routes of the mined out</p>

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	<p>addition, blasting will be done using explosives leading to the generation of dust.</p> <p><u>Effect on Human</u></p> <ul style="list-style-type: none"> • 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. <p><u>Effect on Plants</u></p> <ul style="list-style-type: none"> • Stomatal index may be minimized due to dust deposit on leaf. 	<p>mineral, so as to reach the nearest paved roads (an approach road) by shortest route connecting to SH 182.</p> <p>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.</p> <p>The trucks will be covered by tarpaulin.</p> <p>Overloading will be avoided.</p> <p>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.</p> <p>3.0 KLD of water will be proposed for sprinkling on unpaved roads to avoid dust generation during transportation.</p>
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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 at 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 November 2024 to January 2025 emissions were estimated. Emissions due to haul road and general plant traffic on the unpaved road network were modelled

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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 of 6 meters along the simulated haul roads. The initial lateral dimension of the sources were set to 3 m were used as an input to replicated 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.

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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)	
	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		

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4.5 NOISE ENVIRONMENT:

Aspect	Impact	Mitigation Measures
<i>Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.</i>	<p>Usage of Equipments (Excavator, Tipper, Jack Hammer), Machinery and trucks used for transportation will generate noise.</p> <p>Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc due to prolonged exposure.</p> <p>Number of vehicles will be increased due to the proposed mining activity hence vehicle may collide 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.</p>	<ul style="list-style-type: none"> • 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. <p>The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipments.</p> <ul style="list-style-type: none"> • It is proposed to plant 1700 Nos. of local species (Neem, Mandharai, Athi, Tamarind,

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		<p>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.</p> <ul style="list-style-type: none"> • The trucks will be diverted on two roads viz. SH 182 and a District Road to avoid traffic congestion. • Health check-up camps will be organized once in six month. • 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.
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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 a dry land hence no site clearance is required. Only few shrubs and herbs like parthenium sp., prosopis juliflora were present.

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Planting of trees	Development of afforestation in the mine lease area will have a positive impact as the land was initially a barren.	Safety distance will be provided all along the boundary of the mine lease area and safety. Around 0.62.75 Ha of land is utilized for greenbelt development (1700 Nos – 5 years). This will attract avifauna thus enhancing the existing ecological environment.
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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.G.Pandurangan 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 Sengundrapuram village which is 0.44 km, NW 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	It is proposed to use gravelled road and nearest paved road and preferred not to use unpaved roads. In addition

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	due to the project as the movement of the vehicles may affect/injure the animals	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.	As a part of CER i.e, 5 Lakhs will be allocated to Panchayat Union Primary School in Kundhalapatti – 626 103, Sengudrapuram (Post), Virudhunagar (Via). Providing facilities are: <ul style="list-style-type: none"> ✓ Renovation of damaged old school building and construction of a classroom building and storeroom (Stock room) and ✓ Basic amenities such as Environmental awareness books (Tamil) in Library for students, Green Belt development, RO water purifiers, Hygienic Toilet and maintenance of toilet upto lease period.

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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 particular 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.

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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 Letter No. SEIAA-TN/ F. No. 11306 Dated: 29.11.2024 & ToR Identification number is TO24B0108TN5392834N. 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.

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				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 Sengundrapuram village so they will either reach mine site by bicycle or by foot. Benefits: Cost of transportation of labours 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 Sengundrapuram village which is 0.44 km, NW from site.

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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 selection of 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 Thanga Perumal Swamy Temple, Vadamalaikurichi - 625707 Sri Ayyanar Kovil, Vellur

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NO _x		8 hourly, twice a week 24 hourly, twice a week	Gurunathar/Angala Eswari Temple, Sengundrapuram Sri Vidya College of Arts and Science, Virudhunagar. Sri Bharasakthi Kaliyamman, Maravapatty Velambur- 625707. Yuvaan Avenue – Amathur, Kavulur.
Noise	7 locations	24 hourly Once in 7 locations	Project site Thanga Perumal Swamy Temple, Vadamalaikurichi - 625707 Sri Ayyanar Kovil, Vellur Gurunathar/Angala Eswari Temple, Sengunrapuram Sri Vidya College of Arts and Science, Virudhunagar. Sri Bharasakthi Kaliyamman, Maravapatty Velambur-625707. Yuvaan Avenue – Amathur, Kavulur.
Water (Ground water) • pH • Temperature • Turbidity • Magnesium Hardness	7 locations	Once in 7 locations	Project site Thanga Perumal Swamy Temple, Vadamalaikurichi - 625707 Sri Ayyanar Kovil, Vellur Gurunathar/Angala Eswari Temple, Sengundrapuram Sri Vidya College of Arts and Science, Virudhunagar.

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<ul style="list-style-type: none"> • Total Alkalinity • Chloride • Sulphate • Fluoride • Nitrate • Sodium • Potassium • Salinity • Total nitrogen • Total Coliforms • Fecal Coliforms 			Sri Bharasakthi Kaliyamman, Maravapatty Velambur-625707. Yuvaan Avenue – Amathur, Kavulur.
<p>Water (surface water)</p> <ul style="list-style-type: none"> • 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	Palaiya Urani Vairavankulam Kanmoi

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Soil (Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	7 locations	Once in 7 locations	Project site Thanga Perumal Swamy Temple, Vadamalaikurichi - 625707 Sri Ayyanar Kovil, Vellur Gurunathar/Angala Eswari Temple, Sengundrapuram Sri Vidya College of Arts and Science, Virudhunagar. Sri Bharasakthi Kaliyamman, Maravapatty Velambur, Tamil Nadu 625707. Yuvaan Avenue – Amathur, Kavulur.
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	

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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) Quarterly/half yearly	Half yearly	Project Site

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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**- Thiru.G.Pandurangan – 2.51.0Ha, Thiru. S.Ramasamy – 1.13.5 Ha. **Abandoned /Old Quarries** – Thiru.S.Govindaraj – 2.37.5 Ha **Proposed Quarries** – Thiru.G.Pandurangan - 3.25.50 Ha

Hence under 7(III) of EIA notification 2006 and its subsequent amendments, 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.

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.

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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° 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 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.

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.

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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 machineries will be used in the proposed area:

- For Mining – Excavator of 0.90 Cum Bucket capacity , Jack Hammers (30-32 mm Dia) of 4 Nos.
- Loading Equipment – Excavator of 0.9 Cum Bucket Capacity 2 Nos.
- Transportation (includes within the mine and mine to destination) – Tipper 5 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.

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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 officer 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.

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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 the emergency.

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:

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- 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 honey bees 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.

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- 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 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.

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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 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 1700 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 will be allocated. The detailed agenda, which is to be executed has been framed. The salient features of the programs are as follows:

Renovation of damaged old school building and construction of a classroom building and storeroom (Stock room) and Basic amenities such as Environmental awareness books (Tamil) in Library for students, Green Belt development, RO water purifiers, Hygienic Toilet and

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maintenance of toilet upto lease period to Panchayat Union Primary School in Kundhalapatti – 626 103, Sengudrapuram (Post), Virudhunagar (Via).

8.3 PROJECT COST / INVESTMENT DETAILS

Project Cost

a. Investment Cost

S. No	DETAILS	COST in Rs. /-
i)	Lease rent / Land Cost	16,50,000
ii)	Machinery to be used	Hired machinery
iii)	Fencing	2,50,000
iv)	Labourers Shed	50,000
v)	Sanitary facility	25,000
vi)	Other Items	25,000
TOTAL		20,00,000

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

Drilling and Blasting cost / unit production = Rs.120/- including loading & breaking.

i. Mining cost for rough stone up to 5 Years planned production quantity

Total Movable quantity in M³ - 2,86,680 M³ (1,01,300 Units)

Total cost of mining Rough Stone = 1,01,300 * Rs. 120/-

= Rs. 1,21,56,000/-

ii. Mining cost for gravel for 5 Years planned production quantity

Total Movable quantity in M³ - 1,03,020 M³ (36,403 Units)

Total cost of mining - Gravel = 36,403 X Rs. 60/-

= Rs. 21,84,180/-

Total Cost for Mining - Rs. 1,43,40,180/-

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Say - Rs. 1,43,40,000/-

Total Project Cost (a+b) = Rs. 1,63,40,000/-.

Total Project Cost: Rs. 1,63,40,000/- (One crore sixty-three lakhs and forty thousand rupees only).

Environmental Management Plan Cost:

Categories	Mitigation Measure	Provision for Implementation	Capital Cost	Recurring Cost
			(Rs)	
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	32550	32550
	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	80000	20000
	Air Quality will be regularly monitored as per norms within ML area	Yearly Compliance as per CPCB norms	0	20000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	0
	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	25000	2500
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000

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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	5000	0
Regular monitoring of exhaust fumes as per RTO norms		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	65100
Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	20000	10000
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

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	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
	Ambient Noise will be regularly monitored as per norms within ML area	Yearly Compliance as per CPCB norms	0	20000
	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	30000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	100000
Water Environment	Water Environment	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	32550	5000

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Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	1000	5000
		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
Implementation of EC, Mining Plan & DGMS Condition	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	7000	1000
	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)	80000	20000
	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	20000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	6510
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000
	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	100000	10000

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Implementation of EC, Mining Plan & DGMS Condition	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	50000	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	2000	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	540000
Greenbelt development	Green belt development - 1200 trees for 2.40.0 hectare (480 Inside Lease Area & 720 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)	130200	19530
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	292950	29295
	Mine Closure activity		100000	0

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	Rehabilitation and restoration plan of the mine site & post mine monitoring & restoration to natural conditions	250000	0
Total		1253250	967485
Total Cost		2220735	

Year	Cost (@ 5% per year inflation adjustment) in Rs
1 st Year	2220735
2 nd Year	1015859
3 rd Year	1066652
4 th Year	1119985
5 th Year	1175984
6 th Year	1359783
7 th Year	1296522
8 th Year	1361349
9 th Year	1429416
10 th Year	1500887
Total	13547172

TOTAL PROJECT COST: Rs. 1,63,40,000/- (One Crore Sixty-Three Lakhs Ninety Four Thousand Rupees Only).

Total Environmental Management Plan Cost: Rs. 13547172/- (One Crore Thirty-Five Lakh Forty-Seven Thousand and One Hundred Seventy-Two Rupees Only).

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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, 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° 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

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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 G.Pandurangan will work in association with M/s. Ecotech Labs Pvt Ltd.

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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	Storm water Runoff may result in Soil Erosion	Garland drainage of 1m x 1m will be provided to avoid storm water run- off.

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		of Storm water Runoff		
5.	Social Responsibility	Mining workers	Unhygienic site sanitation facilities may cause health damage to workers.	<p>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</p> <ul style="list-style-type: none"> ✓ 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

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				<p>frequent health checkups to labor and conducting free medical camps</p> <p>✓ Providing safety helmet, Gloves, Jacket & Boots</p> <p>✓ Providing measures to prevent fires. Fire fighting extinguishers and buckets of sand will be provided in the construction site</p>
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.	<ul style="list-style-type: none"> • Use of locally available construction materials.

Project	Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan	<i>Draft EIA Report</i>
Project Proponent	Thiru.G.Pandurangan	
Project Location	Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District	

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.G.Pandurangan site is a cluster of four mining projects. Total cluster area is 6.90.0 Ha. The individual mine lease area is 3.25.50 Ha of Rough Stone and Gravel Quarry located at S.F.Nos. 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) of Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District.

10.2 PROJECT OVERVIEW

Table 10-1: Project Overview

S. No.	Description	Details
1	Project Name	Thiru. G.Pandurangan Rough Stone and Gravel Quarry
2	Proponent	Thiru. G.Pandurangan
3	Mining Lease Area Extent	3.25.50 Ha
4	Location	84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P)
5	Latitude	09°36' 27.3458" to 09°36' 36.2543"N
6	Longitude	77°53' 37.2835" to 77°53' 45.9033"E
7	Topography	Plain terrain
8	Site Elevation above MSL	The altitude of the lease area is 111m above MSL.
9	Topo sheet No.	58 G/14
10	Minerals of Mine	Rough Stone and Gravel Quarry
11	Proposed production of Mine	414870 m ³ of Rough stone and 159150 m ³ of Gravel
12	Ultimate depth of Mining	46 m below ground level

<i>Project</i>	<i>Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.G.Pandurangan</i>	
<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District</i>	

13	Method of Mining	Open cast mechanized mining
14	Water demand	6.0 KLD
15	Source of water	Water will be supplied through tankers supply
16	Man power	20 Nos.
17	Mining Plan Approval	Mining Plan was approved by The Assistant Director, Dept. of Geology & Mining, Virudhunagar vide Roc.No.KV1/623/2024, dated 20.09.2024.
18	Production details	Geological reserves: 1373400 m ³ of Rough stone and 206010 m ³ of Gravel Proposed year wise reserves: 414870 m ³ of Rough stone and 159150 m ³ of Gravel.
19	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.
20	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 the necessary seigniorage fees to the Government.
21	Ground water	Ground water table in this area is below 60 mts from ground level. The quarrying is up to a maximum depth of 46m below the ground level. Hence the quarry operation will not be affected by the ground water. There are few agricultural wells within 1 km radius of the project area. During

<i>Project</i>	<i>Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.G.Pandurangan</i>	
<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District</i>	

		monsoon and rainy seasons the water level is at 10mts BGL and during summer it becomes dry.
22	Habitations within 300m radius of the Project Site	There is no Habitation within 300m radius of the project site.
23	Drinking water	Water will be supplied through tankers from Sengundrapuram village which is 0.45 Km North of the area

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

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<i>Project Proponent</i>	<i>Thiru.G.Pandurangan</i>	
<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District</i>	

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	Periodical monitoring of noise will be done. No other equipments except the transportation vehicles and Excavator

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<i>Project Proponent</i>	<i>Thiru.G.Pandurangan</i>	
<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District</i>	

	<p>movement of vehicles. This may impact the health condition of the workers by creating headache</p>	<p>(as & when required) for loading will be allowed at site.</p> <p>Noise generated by these equipments shall be intermittent and does not cause much adverse impact.</p> <p>Plantation will be carried out along approach roads. The plantation minimizes propagation of noise and also arrest dust.</p>
4	<p>Solid waste will be generated from the mining activity as there will be refuse after 95% recovery and also generation of domestic waste</p>	<p>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.</p>
5	<p>During mining activities, there are chances of workers getting health issues or may be prone to accidents</p>	<p>Dust masks will be provided as additional personal protection equipment to the workers working in the dust prone area.</p> <p>Periodical trainings will be conducted to create awareness about the occupational health hazards due to activities like blasting, drilling, excavation</p> <p>Workers health related problem if any, will be properly addressed.</p>

<i>Project</i>	<i>Rough stone and Gravel Quarry – 3.25.50 Ha by Thiru.G.Pandurangan</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.G.Pandurangan</i>	
<i>Project Location</i>	<i>Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District</i>	

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

**STANDARD TOR CONDITIONS WITH
ADDITIONAL TOR POINTS**



सत्यमेव जयते

File No: 11306
Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment Authority(SEIAA),
TAMIL NADU)



Dated 29/11/2024



To,

Thiru.G .Pandurangan
PANDURANGAN G
4/888, Balaji Nagar, Soolakkarai Village&Post, Virudhunagar , VIRUDHUNAGAR, TAMIL NADU,
Opp. VT Mill, 626003
pandurangang83@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 – Proposed Rough stone & Gravel quarry over an Extent of 3.25.5 Ha at S.F.Nos. 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) & 110/2C(P) of Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District, Tamil Nadu by Thiru.G.Pandurangan - under project category – “B1” and Schedule S.No. 1(a) – ToR issued along with Public Hearing- preparation of EIA report – Regarding.

Ref: 1. Online proposal No. SIA/TN/MIN/499037/2024, Dated: 30.09.2024.
2. Your application submitted for Terms of Reference dated: 01.10.2024.
3. Minutes of the 509th Meeting of SEAC held on 08.11.2024.
4. Minutes of the 773rd Authority meeting held on 25.11.2024 & 26.11.2024.

2. The particulars of the proposal are as below :

(i) TOR Identification No.	TO24B0108TN5392834N
(ii) File No.	11306
(iii) Clearance Type	TOR
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vii) Name of Project	Thiru.G.Pandurangan Rough stone and Gravel quarry
(viii) Name of Company/Organization	PANDURANGAN G
(ix) Location of Project (District, State)	VIRUDHUNAGAR, TAMIL NADU
(x) Issuing Authority	SEIAA

(xii) Applicability of General Conditions	no
(xiii) Applicability of Specific Conditions	no

3. 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.
4. The above-mentioned proposal has been considered by SEIAA in the meeting held on 25/11/2024 & 26.11.2024. 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.
5. 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).
6. 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.G.Pandurangan under the provisions of EIA Notification, 2006 and as amended thereof.
7. The Ministry/SEIAA-TN reserves the right to stipulate additional conditions, if found necessary.
8. 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.
9. This issues with the approval of the Competent Authority..
10. 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

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Additional Chief Secretary to Government, Natural Resources Department, Tamil Nadu.
4. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
5. The Chair Person, TNPC Board,76, Mount Salai, Guindy, Chennai-32
6. The District Collector, Virudhunagar District
7. The Commissioner of Geology and Mines, Guindy, Chennai-32
8. The Assistant Director, Department of Geology & Mining, Virudhunagar District
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Integrated Regional office of MoEF&CC, Sasthri Bhawan, Nungambakkam, Chennai
11. File Copy

Annexure 1

Specific Terms of Reference for (Mining Of Minerals)

1. Seiaa Specific Conditions :

S. No	Terms of Reference
1.1	<p>The Authority noted that the subject was appraised in the 509th meeting of SEAC held on 08.11.2024. SEAC has furnished its recommendations for granting Terms of Reference along with Public Hearing subject to the conditions stated therein.</p> <p>After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant Terms of Reference (ToR) along with Public Hearing under cluster for the production should not exceed 4,14,870 cu.m of Rough stone and 1,59,150 cu.m of Gravel and the annual peak production should not exceed 58,740 cu.m of Rough Stone and 39,390 cu.m of Gravel up to depth of mining 46m BGL, 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 and conditions in Annexure of this minutes.</p>

2. Seac Conditions - Site Specific

S. No	Terms of Reference
2.1	<ol style="list-style-type: none"> 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 required statutory personnel, appropriate environmental management, system of maintaining the haul roads and village/panchayat roads, authorized blasting operation, Monitoring system of the environmental & other statutory compliances & its reporting methodology, etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal: <ol style="list-style-type: none"> (i) Copy of the agreement forming CMC. (ii) The Organisation chart of the Committee with defining the role of the members (iii) The 'Standard Operating Procedures' (SoP) executing the planned activities. 2. The distance between the proposed site and Kundalapatti Village located at Northwest side should be submitted with Revenue Records. 3. Also, the PP shall furnish the details of Schools, PHC and any other educational institutions within 500m radius. 4. The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m & upto 1km 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. and spell out the mitigation measures to be proposed for the protection of the above structures, if any during the quarrying operations. 5. The proponent shall furnish photographs of adequate fencing, garland drainage built with siltation tank & green belt along the periphery including replantation of existing trees; maintaining the safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan. 6. The Proponent shall carry out Bio diversity study as a part of EIA study and the same shall be included in the Report. 7. 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. 8. The PP shall prepare a conceptual working plan accommodating the inclusion of haul road accessibility keeping the benches intact, by ensuring the slope stability of the working benches to be constructed and existing quarry wall.

3. Seac Standard Conditions

S. No	Terms of Reference
3.1	<p>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:</p> <ul style="list-style-type: none"> (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. <p>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.</p> <p>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.</p> <p>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.</p> <p>5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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, I/I Class mines manager appointed by the proponent.</p> <p>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.</p> <p>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.</p> <p>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,</p> <p>13. What was the period of the operation and stoppage of the earlier mines with last work permit</p>

S. No	Terms of Reference
	<p>issued by the AD/DD mines?</p> <p>14. Quantity of minerals mined out.</p> <ul style="list-style-type: none"> · 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. <p>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).</p> <p>16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.</p> <p>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.</p> <p>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.</p> <p>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,</p>

S. No	Terms of Reference
	<p>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.</p> <p>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.</p> <p>28. Impact on local transport infrastructure due to the Project should be indicated.</p> <p>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.</p> <p>30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.</p> <p>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.</p> <p>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.</p> <p>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</p> <p>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.</p> <p>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.</p> <p>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 detailed.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>43. Concealing any factual information or submission of false/fabricated data and failure to</p>

S. No	Terms of Reference
	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 for (Mining of minerals)

1.

S. No	Terms of Reference
1.1	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given
1.2	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
1.3	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/toposheet, topographic sheet, geomorphology and geology of the areashould 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)
1.4	Information should be provided in Survey of India Toposheet 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
1.5	Details about the land proposed for mining activities should be givenwith 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
1.6	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
1.7	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
1.8	The study rea 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
1.9	Land use of the study rea 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

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	land use should be given
1.10	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
1.11	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
1.12	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
1.13	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
1.14	The vegetation in the RF / PF areas in the study area, with necessary details, should be given
1.15	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
1.16	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
1.17	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 alongwith 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
1.18	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
1.19	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies

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	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)
1.20	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
1.21	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
1.22	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
1.23	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
1.24	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
1.25	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
1.26	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 State Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished
1.27	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

S. No	Terms of Reference
1.28	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
1.29	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 clearly 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
1.30	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
1.31	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report
1.32	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
1.33	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
1.34	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
1.35	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
1.36	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
1.37	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
1.38	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given
1.39	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation

S. No	Terms of Reference
	of EMP should be clearly spelt out
1.40	A Disaster management Plan shall be prepared and included in the EIA/EMP Report
1.41	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
1.42	<p>Besides the above, the below mentioned general points are also to be followed:- a) All documents to be properly referenced with index and continuous page numbering. b) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated. c) 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. d) Where the documents provided are in a language other than English, an English translation should be provided. e) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted. f) 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) dated 4th August, 2009, which are available on the website of this Ministry, should be followed. g) 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. h) 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. i) 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</p>

SEIAA STANDARD CONDITIONS:

Cluster Management Committee

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.

Agriculture & Agro-Biodiversity

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.

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

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.

A. 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 clearly 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.

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- 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 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 its acquisition, nearby (in 2-3 km.) water body, population, within 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

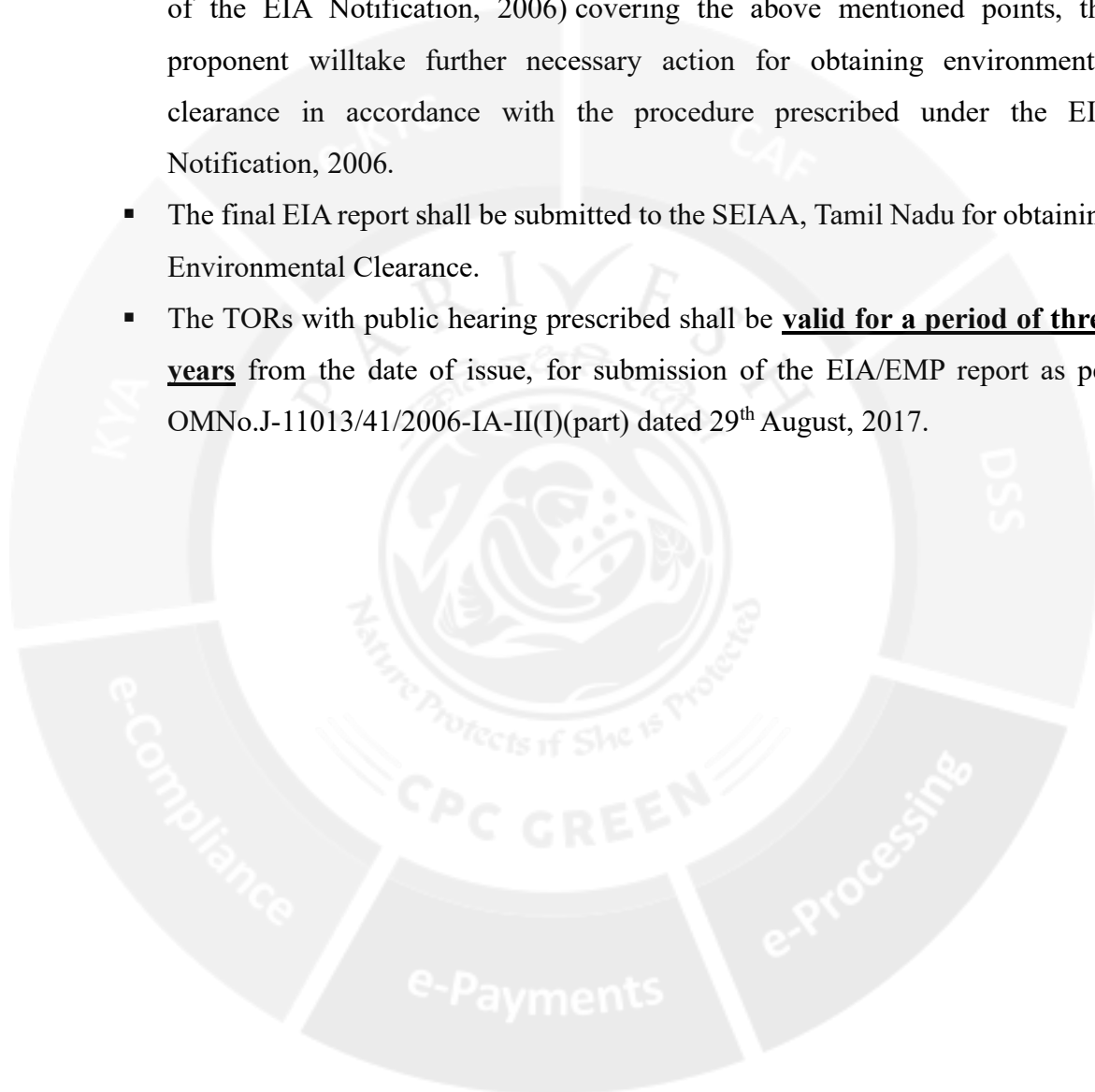
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed 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 -11013/77/2004-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 will take 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.



TOR Reply of Proposed Rough Stone Quarry over an Extent of 3.25.50 Ha

COMPLIANCE OF TOR CONDITIONS

Point wise compliance of TOR points issued by SEIAA, TN vide TOR Identification: TO24B0108TN5392834N Dated: 29.11.2024 for Mining of Minor Minerals in the Mine of “Thiru.G.Pandurangan Rough Stone and Gravel Quarry in S.F.Nos. : 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) of Sengundrapuram Village, Virudhunagar Taluk and Virudhunagar District.

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.	<p>Precise area communication letter received from The Assistant Director, Dept. of Geology & Mining, Virudhunagar vide Roc.No.KV1/623/2024, dated 12.09.2024.</p> <p>Mining Plan was approved by The Assistant Director, Dept. of Geology & Mining, Virudhunagar vide Roc.No.KV1/623/2024, dated 20.09.2024.</p> <p>As area is being exploited for the first time hence Year-wise production details since 1994 and before 1994 are not relevant or applicable.</p> <p>Proposed Production of Rough Stone & Gravel for five years is proposed in the EIA/EMP in chapter no-2.</p>	<p>Chapter-2</p> <p>Table No.2.2</p> <p>Page No.38</p>

TOR Reply of Proposed Rough Stone Quarry over an Extent of 3.25.50 Ha

		<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Year</th> <th>Rough stone (m³)</th> <th>Gravel (m³)</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>58740</td> <td>39390</td> </tr> <tr> <td>II</td> <td>56445</td> <td>15756</td> </tr> <tr> <td>III</td> <td>57015</td> <td>15756</td> </tr> <tr> <td>IV</td> <td>56160</td> <td>15756</td> </tr> <tr> <td>V</td> <td>58320</td> <td>16362</td> </tr> <tr> <td>VI-X</td> <td>128190</td> <td>56130</td> </tr> <tr> <td>Total</td> <td>414870</td> <td>159150</td> </tr> </tbody> </table>			Year	Rough stone (m ³)	Gravel (m ³)	I	58740	39390	II	56445	15756	III	57015	15756	IV	56160	15756	V	58320	16362	VI-X	128190	56130	Total	414870	159150	
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2.	A copy of document in support of the fact that the Proponent is the rightful lessee of the mine should be given.	The mine lease area of 3.25.50 hectare in Sengundrapuram Village for Rough stone and Gravel quarry approved by Assistant Director, Dept. of Geology & Mining, Virudhunagar vide Roc.No.KV1/623/2024, dated 20.09.2024.	Annexure - III																										
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 and mining technology and should be in the name of the lessee.	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. The mining plan of the project site has been submitted to The Assistant Director, Dept. of Geology & Mining, Virudhunagar	Annexure-VI Chapter-II																										
4	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/toposheet should be provided. Such an Imagery of	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. 42																										

TOR Reply of Proposed Rough Stone Quarry over an Extent of 3.25.50 Ha

	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, important water bodies, streams and rivers and soil characteristics	Topo map as attached in Chapter-2	Chapter-2, Fig no. 2.4 Page. no. 44
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 43
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	Noted.	

TOR Reply of Proposed Rough Stone Quarry over an Extent of 3.25.50 Ha

	<p>infringement/deviation/ violation of the environmental or forest norms/ conditions?</p> <p>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.</p>		
8	<p>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.</p>	<p>It is an open cast mining project. Blasting details are incorporated in chapter 2</p>	<p>Chapter-2, Page no.56</p>
9	<p>The study area will comprise of 10 km zone around the mine lease from lease periphery and the data</p>	<p>Study area comprises of 10 km radius from the mine lease boundary. Key Plan showing core zone (ML area).</p>	<p>Chapter-2 Fig no. 2.5</p>

TOR Reply of Proposed Rough Stone Quarry over an Extent of 3.25.50 Ha

	contained in the EIA such as waste generation etc should be for the life of the mine / lease period.		Page no.45
10	<p>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.</p> <p>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.</p>	<p>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-3 of EIA/ EMP Report.</p> <p>There is no wildlife sanctuary and national park, migratory routes of fauna in the study area.</p>	<p>Chapter-2, Table no. 2.4 Page no.47</p>
11	<p>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.</p>	<p>This area is covered 2.0 m Gravel & 1.0 m Weathered Rock in this mine area. Gravel formation will be removed and transported to the needy end user, only after obtaining permission and paying necessary seigniorage fees to the Government. The Gravel of the lease area 96090 m³. Weathered Rock formation will be removed and dumped southwestern side of the lease area.</p>	<p>Chapter-2, Page no.53</p>

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12	<p>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.</p>	<p>Complied. The proposed mining lease area is not falling under forest land.</p>	
13	<p>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.</p>	<p>The proposed mining lease area is not falling under forest land.</p>	

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14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	<p>Not Applicable.</p> <p>There is no involvement of forest land in the project area.</p>	
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 Pg No. 64
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.	<p>There is a relatively poor sighting of animals in the core and buffer areas of the mining lease.</p> <p>No significant impact is anticipated</p>	

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17	<p>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</p>	<p>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.</p>	
18	<p>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 the study area, the necessary</p>	<p>Details biological study (flora & fauna) within 10 km radius of the project site have been incorporated in Chapter-3 of EIA/ EMP Report.</p> <p>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.</p>	<p>Chapter – 3 Pg No. 98</p>

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	<p>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.</p>		
19	<p>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.</p>	<p>The proposed mining lease area is not falling under critically polluted area.</p>	
20	<p>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 demarcating LTL, HTL, CRZ</p>	<p>There is no Coastal Zone within 15km radius of the project site.</p>	

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	<p>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)</p>		
21	<p>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 located in the mine lease area</p>	<p>There is no Rehabilitation and resettlement is involved. Land classified as Patta land</p>	

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	<p>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.</p>		
22	<p>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.</p> <p>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 500m of the mine lease in the</p>	<p>Baseline data collected during Pre-Monsoon Season and Monsoon (November 2024 to January 2025) has been incorporated in EIA/EMP report.</p> <p>The key plan of monitoring station has been discussed in Chapter - 4. 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.</p>	Chapter 3

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	<p>pre- dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.</p>		
<p>23</p>	<p>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.</p> <p>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.</p>	<p>Air quality modelling & Impact of Air quality will be furnished in Final EIA report</p> <p>Transportation of mineral during operation of mines will be done by road & SH 182 through dumpers and the impact of movement of vehicles are incorporated in EIA/EMP report.</p> <p>Air quality modelling & Impact of Air quality will be furnished in Final EIA report</p>	<p>Chapter-4</p> <p>Page No.116</p>

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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.	<p>Total water requirement: 6.0 KLD Dust Suppression: 3.0 KLD Domestic Purpose: 1.0 KLD Plantation :2.0 KLD</p> <p>Domestic Water will be sourced from nearby Sengundrapuram village which is about 0.44 km NW from the project site</p>	<p>Chapter-2</p> <p>Page no.59</p>
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	<p>Not Applicable</p> <p>Water will be taken from nearby villages</p>	
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.	<p>Chapter-4</p> <p>Page No.117</p>
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	<p>Maximum working depth: 46 m BGL</p> <p>The ground water table is reported as 60m below surface ground level in nearby wells of this area. Now, the present quarry shall be proposed above the water table and hence,</p>	<p>Chapter-2</p> <p>Page no. 40</p>

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	<p>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.</p>	<p>quarrying may not affect the ground water So mine working will not be intersecting the ground water table.</p>	
29	<p>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.</p>	<p>There is no any stream crossing in the proposed quarry</p>	<p>Executive Summary</p>
30	<p>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.</p>	<p>The altitude of the lease area is 111m above MSL.</p>	<p>Chapter-2 Table no. 2.2 Page no. 40</p>
31	<p>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</p>	<p>Green Belt Development plan is proved given in Chapter 2.</p>	<p>Chapter-2</p>

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	<p>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</p>		
	<p>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</p>	<p>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.</p>	<p>Chapter-3 Page No.114</p>

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	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 Annexure VII
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. 151

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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. 143
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. 116
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. 145
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	

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	with time bound action plan to implement the same should be provided and 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.	Not applicable No. litigation is pending against the project in any court.													
41	The cost of the project (capital cost and recurring cost) as well as the cost towards implementation of EMP should clearly be spelt out.	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">S. No</th> <th style="text-align: center;">Description</th> <th style="text-align: center;">Cost</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Investment Cost</td> <td style="text-align: right;">20,00,000</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Expenditure/ Production Cost</td> <td style="text-align: right;">1,43,40,000</td> </tr> <tr> <td></td> <td>Total</td> <td style="text-align: right;">1,63,40,000/-</td> </tr> </tbody> </table> <p>EMP Cost: Rs. 13547172/- for 10 years.</p>	S. No	Description	Cost	1	Investment Cost	20,00,000	2	Expenditure/ Production Cost	1,43,40,000		Total	1,63,40,000/-	Chapter-8 Pg No. 151
S. No	Description	Cost													
1	Investment Cost	20,00,000													
2	Expenditure/ Production Cost	1,43,40,000													
	Total	1,63,40,000/-													
42	Disaster Management Plan	Disaster Management and Risk Assessment has been incorporated in Chapter 7	Chapter-7 Pg No. 136												
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.	Benefits of the project has incorporated	Chapter-8 Pg No. 143												
44	Besides the above, the below mentioned general points are also to be followed:														

TOR Reply of Proposed Rough Stone Quarry over an Extent of 3.25.50 Ha

(a)	Executive Summary of the EIA/EMP report	Executive Summary of EIA Report is given from page No.11-29	
(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	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.	

TOR Reply of Proposed Rough Stone Quarry over an Extent of 3.25.50 Ha

	MoEF 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.		
(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 the conditions stipulated in the environment clearance for the existing operations of the project by the Regional Office	Will be complied after grant environment clearance from SEIAA, Tamilnadu	

TOR Reply of Proposed Rough Stone Quarry over an Extent of 3.25.50 Ha

	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 Standard Conditions:

ToR Ref.	Description	Response
1	<p>In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:</p> <ul style="list-style-type: none"> (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. 	It is a fresh Quarry.

TOR Reply of Proposed Rough Stone Quarry over an Extent of 3.25.50 Ha

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, Sengundrapuram 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, Tiger reserve etc., up to a radius of 25 km from the proposed site.	DFO letter will be furnish during final EIA meeting.
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	Scientific Slope study will be carryout and submit along with final presentation.

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	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.	Ultimate Depth of Project is 46m 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, mine foreman, II/I Class mines manager appointed by the proponent.	We have enclosed blasting agreement along with EIA Report.
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.	It is a fresh Quarry and newly operated by PP.

TOR Reply of Proposed Rough Stone Quarry over an Extent of 3.25.50 Ha

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,	It is a fresh quarry.
13	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	It is a fresh quarry hence Not applicable
14	<p>Quantity of minerals mined out Highest production achieved in any one year</p> <ul style="list-style-type: none"> ➤ 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. 	It is a Fresh Quarry
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)	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 mining plan.	Photographs of Fencing, Greenbelt along with Periphery safe distance will be incorporated along with final Presentation

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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.	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.

TOR Reply of Proposed Rough Stone Quarry over an Extent of 3.25.50 Ha

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.	Noted. Agree to Comply.
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 topsoil 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.
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.	Noted.

TOR Reply of Proposed Rough Stone Quarry over an Extent of 3.25.50 Ha

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 generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the	Noted. Agree to comply.

TOR Reply of Proposed Rough Stone Quarry over an Extent of 3.25.50 Ha

	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.
34	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 incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational Health impacts of the project has prepared and incorporated in Environmental management plan.
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.

TOR Reply of Proposed Rough Stone Quarry over an Extent of 3.25.50 Ha

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 Office, Chennai (or) the concerned DEE/TNPCB.	Agree to comply.
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.

TOR Reply of Proposed Rough Stone Quarry over an Extent of 3.25.50 Ha

Seac Conditions - Site Specific

S.No.	Condition	Compliance
1.	<p>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:</p> <p>(i) Copy of the agreement forming CMC.</p> <p>(ii) The Organisation chart of the Committee with defining the role of the members</p> <p>(iii) The 'Standard Operating Procedures' (SoP) executing the planned activities.</p>	Cluster management committee will be frame before obtaining CTO.
2.	The distance between the proposed site and Kundalapatti Village located at Northwest side should be submitted with Revenue Records.	Noted and agreed to comply. We will provide the details with final EIA presentation.
3.	Also, the PP shall furnish the details of Schools, PHC and any other educational institutions within 500m radius	There is no PMC and Schools within 500m radius from the project site.
4.	The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m & upto 1km 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. and spell out the mitigation measures to be proposed for the protection	Will be Complied along with final Presentation.

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	of the above structures, if any during the quarrying operations.	
5.	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.	Will be incorporated in final Presentation.
6.	The Proponent shall carry out Biodiversity study through Department of Ecology and Environmental Sciences, Pondicherry University and the same shall be included in EIA Report.	The Proponent will carry out Biodiversity study through reputed Institution and the same shall be included in EIA Report.
7.	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 Proponent will carry out Biodiversity study through reputed Institution and the same shall be included in EIA Report.
8.	The PP shall prepare a conceptual working plan accommodating the inclusion of haul road accessibility keeping the benches intact, by ensuring the slope stability of the working benches to be constructed and existing quarry wall.	Complied.

TOR Reply of Proposed Rough Stone Quarry over an Extent of 3.25.50 Ha

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.	Agreed to comply.

TOR Reply of Proposed Rough Stone Quarry over an Extent of 3.25.50 Ha

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.	Health of workers and staff is discussed in Chapter 9.
9	Impact on surrounding agricultural fields around the proposed mining area.	There is 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.

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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 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.	The hydro-geological study will be conducted and submitted in EIA presentation.
20	Erosion Control measures.	The soil erosion map 5km surrounding the project site has been given in chapter 3.

TOR Reply of Proposed Rough Stone Quarry over an Extent of 3.25.50 Ha

		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 0.20 km radius, The Palaiya urani located 220m 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.

TOR Reply of Proposed Rough Stone Quarry over an Extent of 3.25.50 Ha

		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.
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.

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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
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 concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	Noted and public hearing details are included in chapter 7 of final EIA report.
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.

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SEIAA SPECIFIC CONDITION

1	After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant Terms of Reference (ToR) along with Public Hearing under cluster for the production should not exceed 4,14,870 cu.m of Rough stone and 1,59,150 cu.m of Gravel and the annual peak production should not exceed 58,740 cu.m of Rough Stone and 39,390 cu.m of Gravel up to depth of mining 46m BGL, 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 and conditions in Annexure of this minutes.	Noted and agreed to comply.
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ANNEXURE-II
PRECISE AREA COMMUNICATION LETTER

புவியியல் மற்றும் சுரங்கத்துறை

ந.க.எண்: கேவி1/623/2024,

உதவி இயக்குநர் அலுவலகம்,
மாவட்ட ஆட்சியர் அலுவலக வளாகம்,
விருதுநகர்.



நாள்:12.09.2024.

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - விருதுநகர் மாவட்டம் மற்றும் வட்டம் - செங்குன்றாபுரம் கிராமம் - பட்டா புல எண்கள்: 84/1(P) (0.04.00), 85(P) (0.30.00), 86/1 (0.30.00), 86/2 (0.32.5), 87/1 (0.25.5), 87/2 (0.40.5), 88 (0.62.00), 109/2 (0.14.00), 109/3A (0.13.5), 109/3B (0.13.5), 110/1B (0.19.00), 110/2B (P) (0.19.50), 110/2C(P) (0.21.5) மொத்தப்பரப்பு 3.25.50 ஹெக்டோஸ் - பத்து வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கல்- சரியான பரப்பு (Precise Area) தேர்வு செய்யப்பட்டது - சுரங்கத்திட்டம் மற்றும் மாநில அளவிலான சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் இசைவினைப் பெற்று சமர்ப்பிக்க கோருவது - தொடர்பாக.

- பார்வை:**
1. திரு.கோ.பாண்டிரங்கன், த/பெ.கோவிந்தராஜ், 4/888, பாலாஜி நகர், சூலக்கரை, அருப்புக்கோட்டை வட்டம் விண்ணப்ப நாள்.03.06.2024. (இவ்வலுவலகத்தில் கிடைக்கப்பெற்ற நாள்.12.06.2024).
 2. இவ்வலுவலக கடிதம் எண் ந.க.கேவி1/623/2024, நாள்: 13.06.2024 (வருவாய் கோட்டாட்சியர், சாத்தூர் அவர்களுக்கு முகவரியிட்டது).
 3. சாத்தூர் வருவாய் கோட்டாட்சியர் கடித எண்.ந.க.எண்.மூ.மு.அ2/3127/2024, நாள்:05.08.2024.
 4. உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை அவர்களின் புலத்தணிக்கை அறிக்கை நாள்:
 5. 1959 -ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 41 மற்றும் 42.
 6. அரசாணை எண்.169 தொழில் (எம்.எம்.சி.1) துறை, நாள்: 04.08.2020.
 7. அரசாணை எண்.208, தொழில் (எம்.எம்.சி.1) துறை, நாள்: 21.09.2020.
 8. தொடர்புடைய ஆவணங்கள்.

விருதுநகர் மாவட்டம் மற்றும் வட்டம், செங்குன்றாபுரம் கிராமம், பட்டா புல எண்கள்: 84/1(P) (0.04.00), 85(P) (0.30.00), 86/1 (0.30.00), 86/2 (0.32.5), 87/1 (0.25.5), 87/2 (0.40.5), 88 (0.62.00), 109/2 (0.14.00), 109/3A (0.13.5), 109/3B (0.13.5), 110/1B (0.19.00), 110/2B (P) (0.19.50), 110/2C(P) (0.21.5) மொத்தப்பரப்பு

3.25.50 ஹெக்டேரில் 10 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் வழங்கக்கோரி விருதுநகர் மாவட்டம், அருப்புக்கோட்டை வட்டம், 4/888, பாலாஜி நகர், குலக்கரை குடியிருந்து வரும் திரு.கோ.பாண்டிரங்கன், த/பெ.கோவிந்தராஜ் என்பவர் பார்வை 1-ல் காணும் விண்ணப்பத்தினை சமர்ப்பித்துள்ளார்.

சாத்தூர் வருவாய் கோட்டாட்சியர் மற்றும் புலியியல் மற்றும் சுரங்கத்துறை, உதவி இயக்குநர் ஆகியோர் கீழ்காணும் நிபந்தனைகளுக்குட்பட்டு மேற்கண்ட புலங்களில் உடைகல், கிராவல் குவாரி குத்தகை உரிமம் பத்தாண்டுகளுக்கு வழங்க பரிந்துரை செய்துள்ளனர்.

நிபந்தனைகள்

- 1) அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீ பாதுகாப்பு இடைவெளி விடுத்து குவாரி செய்தல் வேண்டும்.
- 2) புல எண் 84, 85, 86, 87, 88-ல் செல்லும் நிலவியல் ஓடைக்கு 10 மீ பாதுகாப்பு இடைவெளி விடுத்து குவாரி செய்தல் வேண்டும்.
- 3) ஏற்கனவே, புல எண்.79/2A, 2B, 81/1, 81/2, 83/1, 83/2, 84/1(P), 85(P) செயல்பாட்டில் உள்ள குவாரிக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளி விட வேண்டும். மேலும் தற்சமயம் விண்ணப்பிக்கப்பட்டுள்ள குவாரிக்கு பாதுகாப்பு இடைவெளி 7.5 மீட்டர் என மொத்தம் 15 மீட்டர் பாதுகாப்பு இடைவெளியில் எவ்வித குவாரிப் பணியும் மேற்கொள்ள கூடாது.
- 4) பொதுமக்கள் / விவசாய நிலங்களுக்கு பாதிப்பு ஏற்படாத வகையில் தகுதி வாய்ந்த அங்கீகரிக்கப்பட்ட நபர்கள் மூலம் வெடிமருந்துகள் சேமிக்கப்பட்டு குவாரியில் வெடித்தல் வேண்டும்.
- 5) குத்தகைதாரர், தமக்கு வழங்கப்பட்ட குத்தகை பகுதிக்கு அருகில் உள்ள விவசாய நிலங்களுக்கும் மற்றும் கிராம பொது மக்களுக்கும், சாலைகளுக்கும் மற்றும் ஓடைகளுக்கும் பாதிப்பு ஏற்படாத வகையில் குவாரிப்பணி மேற்கொள்ள வேண்டும்.
- 6) சுரங்கத்திட்டம் மற்றும் சுற்றுச்சூழல் தடையில்லாச் சான்று குத்தகை உரிமம் வழங்குவதற்கு முன் சமர்ப்பிக்க வேண்டும்.
- 7) குவாரியில் வேலை செய்யும் தொழிலாளர்கள் தொழிலாளர் நலவாரியம் மற்றும் காப்பீடு திட்டத்தில் பதிவு செய்து தொழிலாளர் நலன் பேண்பட வேண்டும்.
- 8) குழந்தை தொழிலாளர்களை குவாரி பணியில் அமர்த்தக் கூடாது.
- 9) கனிமங்களை வாகனங்களில் கொண்டு செல்லும் போது பாதுகாபிகள், பொது மக்கள் பாதிக்காதவண்ணம் தார்பாய்கள் கொண்டு மூடி எடுத்துச் செல்ல வேண்டும்.

இந்நிலையில் விண்ணப்பதாரர் 03.06.2024 -ல் இவ்வலுவலகத்தில் அளித்த கடிதத்தில் விண்ணப்பிக்கப்பட்ட புலங்களில் புல எண்கள்: 84/1(P) (0.04.00), 85(P) (0.30.00), 86/1 (0.30.00), 86/2 (0.32.5), 87/1 (0.25.5), 87/2 (0.40.5), 88 (0.62.00), 109/2 (0.14.00), 109/3A (0.13.5), 109/3B (0.13.5), 110/1B (0.19.00), 110/2B (P)



(0.19.50), 110/2C(P) (0.21.5) மொத்தப்பரப்பு 3.25.50 ஹெக்டேரில் கற்குவாரி குத்தகை வழங்க கேட்டுள்ளார்.

புல எண்கள்: 79/2A(P), 79/2B(P), 81/1(P), 81/2(P), 83/1, 83/2(P), 84/1(P) மற்றும் 85(P) ஆனது மாவட்ட ஆட்சியரின் செயல்முறை ஆணை எண்.KV1/533/2020, தேதி: 30.11.2022 முதல் குவாரி குத்தகை உரிமம் வழங்கப்பட்டு பணிகள் நடைபெற்று வருகிறது. தற்சமயம், 12 மீட்டர் ஆழம் வரை குவாரிப்பணிகள் நடைபெற்று வருகிறது. மேலும், அருகில் விண்ணப்பித்துள்ள புல எண்களில் குவாரிப்பணிகள் செய்திட ஏதுவான நிலப்பரப்பாகும்.

எனவே, துறை அலுவலர்களின் பரிந்துரையினை ஏற்றும் நிபந்தனைகளுக்கு உட்பட்டும், விருதுநகர் மாவட்டம் மற்றும் வட்டம், செங்குன்றாபுரம் கிராமம், பட்டா புல எண்கள்: 84/1(P) (0.04.00), 85(P) (0.30.00), 86/1 (0.30.00), 86/2 (0.32.5), 87/1 (0.25.5), 87/2 (0.40.5), 88 (0.62.00), 109/2 (0.14.00), 109/3A (0.13.5), 109/3B (0.13.5), 110/1B (0.19.00), 110/2B (P) (0.19.50), 110/2C(P) (0.21.5) மொத்தப்பரப்பு 3.25.50 ஹெக்டேர் நிலத்திற்கு 1959-ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள் விதி எண்: 19 மற்றும் 20-ன்படி பத்து வருட காலத்திற்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்க தகுதி வாய்ந்த நிலப்பரப்பாக (Precise area) கருதப்படுகிறது.

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 தாக்க மதிப்பீட்டு ஆணையத்தின் (State Level Environmental Impact Assessment Authority) இசைவினைப் பெற்று சமர்ப்பிக்குமாறும் மனுதாரர் திரு.கோ.பாண்டிரங்கன் கேட்டுக் கொள்ளப்படுகிறார்.

உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
விருதுநகர்

பெறுநர்

திரு.கோ.பாண்டிரங்கன்,
த/பெ.கோவிந்தராஜ்,
4/888, பாலாஜி நகர், சூலக்கரை,
அருப்புக்கோட்டை வட்டம்.

நகல்

உறுப்பினர் செயலர்,
மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையம் (SEIAA),
சென்னை.

(Handwritten signature)

ANNEXURE-III
MINING PLAN APPROVED LETTER

From

Dr.Suhatha Rahima, M.Sc., Phd.,
Assistant Director,
Geology and Mining,
Virudhunagar.

To

Thiru.G.Pandurangan
S/o, Govindaraj
4/888, Balaji Nagar,
Soolakkarai Village & Post
Virudhunagar Taluk.

Roc.No: KV1/623/2024, Dated: 20.09.2024

Sub: Mines and Minerals - Minor Mineral - Virudhunagar District and Taluk - Sengundarapuram Village - Patta Land - S.F.Nos: 84/1(P) (0.04.0), 85(P) (0.30.0), 86/1 (0.30.0), 86/2 (0.32.5), 87/1 (0.25.5), 87/2 (0.40.5), 88 (0.62.0), 109/2 (0.14.0), 109/3A (0.13.5), 109/3B (0.13.5), 110/1B (0.19.0), 110/2B(P) (0.19.5), 110/2C((P) (0.21.5) Extent 3.25.50 Hectares - Quarry lease application preferred by Thiru.G.Pandurangan for quarrying Rough Stone and Gravel - Approval of Mining Plan - Regarding.

- Ref:**
1. Quarry lease application received from Thiru.G.Pandurangan dated: 12.06.2024
 2. The Assistant Director, Geology and Mining, Virudhunagar Rc.No.KV1/623/2024, Dated: 12.09.2024
 3. Thiru.G.Pandurangan letter, dated:16.09.2024

Thiru.G.Pandurangan has preferred an application for the grant of quarrying lease to quarry Rough Stone and Gravel over an extent of 3.25.50 Hectares of Patta Land in S.F.Nos: 84/1(P) (0.04.0), 85(P) (0.30.0), 86/1 (0.30.0), 86/2 (0.32.5), 87/1 (0.25.5), 87/2 (0.40.5), 88 (0.62.0), 109/2 (0.14.0), 109/3A (0.13.5), 109/3B (0.13.5), 110/1B (0.19.0), 110/2B(P) (0.19.5), 110/2C((P) (0.21.5) of Sengundarapuram Village, Virudhunagar Taluk and District for a period of 10 (Ten) Years Under Rule 19 of Tamil Nadu Minor Mineral Concession Rules 1959.

2) The application was examined and consented to grant lease to quarrying Rough Stone and Gravel over an extent of 3.25.50 Hectares of Patta Land in S.F.Nos: 84/1(P) (0.04.0), 85(P) (0.30.0), 86/1 (0.30.0), 86/2 (0.32.5), 87/1 (0.25.5), 87/2 (0.40.5), 88 (0.62.0), 109/2 (0.14.0), 109/3A (0.13.5), 109/3B (0.13.5), 110/1B (0.19.0), 110/2B(P) (0.19.5), 110/2C((P) (0.21.5) for a period of 10 years subject to produce Mining Plan for approval and to obtain Environment Clearance from SEIAA in the reference 2nd cited.



3) The applicant has submitted the Mining Plan, prepared as per Rules and Acts. The Geological and Mineable reserves are discussed in Part - A 3. The applicant can quarry the mineral in the following measurements:-

GEOLOGICAL RESERVES (As per Mining Plan)

SECTION	LENGTH (M)	WIDTH (M)	HEIGHT (M)	ROUGHSTONE VOLUME M ³	GRAVEL VOLUME M ³
A-A' & B-B'	182	118	6.0	---	1,28,856
	182	118	40.0	8,59,040	
A-A' & C-C'	63	50	6.0	---	18,900
	63	50	40.0	1,26,000	
C-C & D-D'	133	73	6.0	---	58,254
	133	73	40.0	3,88,360	
TOTAL GEOLOGICAL RESERVES				13,73,400	2,06,010

MINEABLE RESERVES (As per Mining Plan)

SECTION	BENCH	LENGTH (M)	WIDTH (M)	HEIGHT (M)	ROUGH STONE VOLUME M ³	GRAVEL VOLUME M ³
A-A' & B-B'	I	171	101	6.0	---	1,03,626
	II	165	89	5.0	73,425	---
	III	160	79	5.0	63,200	---
	IV	155	69	5.0	53,475	---
	V	150	59	5.0	44,250	---
	VI	145	49	5.0	35,525	---
	VII	135	39	5.0	26,325	---
	VIII	125	29	5.0	18,125	---
	IX	115	19	5.0	10,925	---
A-A' & C-C'	I	55	42	6.0	---	13,860
	II	49	36	5.0	8,820	---
	III	44	31	5.0	6,820	---
	IV	39	26	5.0	5,070	---
	V	34	21	5.0	3,570	---
C-C' & D-D'	I	124	56	6.0	---	41,664
	II	118	44	5.0	25,960	---
	III	113	34	5.0	19,210	---
	IV	108	24	5.0	12,960	---
	V	103	14	5.0	7,210	---
TOTAL MINEABLE RESERVES					4,14,870	1,59,150

Ca

PRODUCTION SCHEDULE FOR 5 YEARS PERIOD

SECTION	YEAR	BENCH	LENGTH (M)	WIDTH (M)	HEIGHT (M)	ROUGH STONE VOLUME M ³	GRAVEL VOLUME M ³
A-A' & B-B'	I-Year	I	65	101	6.0	---	39,390
		II	53	89	5.0	23,585	---
		III	43	79	5.0	16,985	---
		IV	33	69	5.0	11,385	---
		V	23	59	5.0	6,785	---
I - YEAR PRODUCTION						58,740	39,390
A-A' & B-B'	II-Year	I	26	101	6.0	---	15,756
		II	26	89	5.0	11,570	---
		III	26	79	5.0	10,270	---
		IV	26	69	5.0	8,970	---
		V	26	59	5.0	7,670	---
		VI	39	49	5.0	9,555	---
		VII	29	39	5.0	5,655	---
		VIII	19	29	5.0	2,755	---
II - YEAR PRODUCTION						56,445	15,756
3	III-Year	I	26	101	6.0	---	15,756
		II	26	89	5.0	11,570	---
		III	26	79	5.0	10,270	---
		IV	26	69	5.0	8,970	---
		V	26	59	5.0	7,670	---
		VI	26	49	5.0	6,370	---
		VII	26	39	5.0	5,070	---
		VIII	26	29	5.0	3,770	---
		IX	35	19	5.0	3,325	---
III - YEAR PRODUCTION						57,015	15,756
A-A' & B-B'	IV-Year	I	26	101	6.0	---	15,756
		II	26	89	5.0	11,570	---
		III	26	79	5.0	10,270	---
		IV	26	69	5.0	8,970	---
		V	26	59	5.0	7,670	---
		VI	26	49	5.0	6,370	---
		VII	26	39	5.0	5,070	---
		VIII	26	29	5.0	3,770	---
		IX	26	19	5.0	2,470	---
IV - YEAR PRODUCTION						56,160	15,756
A-A' & B-B'	V-Year	I	27	101	6.0	---	16,362
		II	27	89	5.0	12,015	---
		III	27	79	5.0	10,665	---
		IV	27	69	5.0	9,315	---
		V	27	59	5.0	7,965	---
		VI	27	49	5.0	6,615	---
		VII	27	39	5.0	5,265	---
		VIII	27	29	5.0	3,915	---
		IX	27	19	5.0	2,565	---
V - YEAR PRODUCTION						58,320	16,362
TOTAL MINEABLE RESERVES						2,86,680	1,03,020


The available mineable reserves have been computed as 4,14,870m³ as Rough Stone and Gravel as 1,59,150m³ up to the depth of 46m from the ground level.

The Environmental Management Plan and Mine closure plan are discussed Part - B 9 & 10 and all conditions has been incorporated in the Mining Plan as laid down by the authorities.


4) In view of the above, in exercise of the powers delegated under Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959, I hereby approve the Mining Plan submitted by Thiru.G.Pandurangan for quarrying Rough Stone and Gravel over an Extent of 3.25.50 Hectares of Patta Land in S.F.Nos: 84/1(P) (0.04.0), 85(P) (0.30.0), 86/1 (0.30.0), 86/2 (0.32.5), 87/1 (0.25.5), 87/2 (0.40.5), 88 (0.62.0), 109/2 (0.14.0), 109/3A (0.13.5), 109/3B (0.13.5), 110/1B (0.19.0), 110/2B(P) (0.19.5), 110/2C(P) (0.21.5) of Sengundarapuram Village, Virudhunagar Taluk, Virudhunagar District for a period of 10 years to obtain Environment Clearance from SEIAA, Chennai subject to the following conditions:

1. The Mining Plan is approved without prejudice to any other law applicable to the quarry permission from time to time where such Laws are made by the State Government or any other authority.
2. This approval of the Mining Plan does not in any way imply the approval of the Government in terms of any other provisions of the Tamil Nadu Minor Mineral Concession Rules, 1959.
3. The Mining Plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
4. The approval of the Mining Plan does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Amendment Act, 2015 or any other connected Laws including, Environment Protection Act, 1986, and the Rules made there under in Tamil Nadu Minor Mineral Concession Rules, 1959.

Encl: Two copies of Mining Plan.


20/9/24
Assistant Director,
Geology and Mining,
Virudhunagar.

Copy to:
The Member Secretary,
State Level Environmental Impact
Assessment Authority,
PanagalMaligai, No. I Jeenis Road,
Saidapet, Chennai-15.


20/9/2024


ANNEXURE-IV
500M Radius letter

From

Dr.Suhatha Rahima, M.Sc., Phd.,
Assistant Director,
Geology and Mining,
Virudhunagar.

To

Thiru.G.Pandurangan
S/o, Govindaraj
4/888, Balaji Nagar,
Soolakkarai Village & Post
Virudhunagar Taluk.

Roc.No: KV1/623/2024, Dated: 20.09.2024

Sub: Mines and Minerals - Minor Mineral -
Virudhunagar District and Taluk -
Sengundarapuram Village - Patta Land -
S.F.Nos: 84/1(P) (0.04.0), 85(P) (0.30.0), 86/1
(0.30.0), 86/2 (0.32.5), 87/1 (0.25.5), 87/2 (0.40.5), 88
(0.62.0), 109/2 (0.14.0), 109/3A (0.13.5), 109/3B
(0.13.5), 110/1B (0.19.0), 110/2B(P) (0.19.5),
110/2C(P) (0.21.5) Extent 3.25.50 Hectares -
Quarry lease application preferred by
Thiru.G.Pandurangan for quarrying Rough
Stone and Gravel - Details of quarries in 500
meter radius - Regarding.

Ref: 1. Quarry lease application received from
Thiru.G.Pandurangan dated: 12.06.2024
2. The Assistant Director, Geology and
Mining, Virudhunagar Rc.No.KV1/623/
2024, Dated: 12.09.2024
3. Thiru.G.Pandurangan letter, dated:
16.09.2024

Thiru.G.Pandurangan has preferred an application for the grant of quarrying lease to quarry Rough Stone and Gravel over an Extent of 3.25.50 Hectares of Patta Land in S.F.Nos: 84/1(P) (0.04.0), 85(P) (0.30.0), 86/1 (0.30.0), 86/2 (0.32.5), 87/1 (0.25.5), 87/2 (0.40.5), 88 (0.62.0), 109/2 (0.14.0), 109/3A (0.13.5), 109/3B (0.13.5), 110/1B (0.19.0), 110/2B(P) (0.19.5), 110/2C(P) (0.21.5) of Sengundarapuram Village, Virudhunagar Taluk for a period of 10 (Ten) Years Under Rule 19 of Tamil Nadu Minor Mineral Concession Rules 1959.

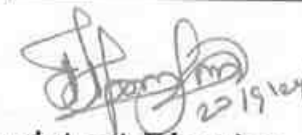
The applicant Thiru.G.Pandurangan in the reference 3rd cited has requested to furnish details of quarries situated within 500 m radial distance from the applied area.



In this connection, it is informed that the details of quarry situated within 500 meter radius from the proposed area for Environmental Clearance as detailed below:

1) Details of quarry within 500 m radius from the applied area

S. No	Quarry detail	Village	S.F. No.& Extent (Hect)	Proceedings No. & Lease Period
I	Existing Quarries:			
1.	Thiru.G.Pandurengan S/o. Govindharaj	Sengun drapuram	79/2A(P) 79/2B(P) 81/1(P) 81/2(P) 83/1 83/2(P) 84/1(P) 85(P) 2.51.00 Hct	KV1/533/2020 dated:30.11.2022 07.11.2022 to 06.11.2027
2.	Thiru.S.Ramasamy S/o, Sesathiri	Sengun drapuram	94/1, 94/2, 94/3 1.13.5 Hct	KV1/1174/2022 Dated:06.06.2023 08.06.2023 to 07.06.2028
II	Abandoned Quarry : NIL			
1.	Thiru.S.Govindaraj S/o, Sesathiri	Seeniya puram	11/1, 11/2 12/6, 9/7 9/9 2.37.5 Hct	KV1/541/2018 Dated: 15.01.2019 29.01.2019 to 28.01.2024
III	Present Proposed Quarry :			
1.	Thiru.G.Pandurengan S/o. Govindharaj	Sengun drapuram	84/1(P) , 85(P), 86/1, 86/2, 87/1, 87/2 , 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B, 110/2C((P) (3.25.50)	KV1/623/2024, Dated: .09.2024.


Assistant Director,
Geology and Mining,
Virudhunagar.

Copy to:

The Member Secretary,
State Level Environmental Impact
Assessment Authority,
PanagalMaligai, No. I Jeenis Road,
Saidapet, Chennai-15.


20/11/24



ANNEXURE-V
PATTA, ADANGAL AND A-REGISTER



தமிழ்நாடு அரசு
வருவாய்த் துறை

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



மாவட்டம் : விருதுநகர்

வட்டம் : விருதுநகர்

வருவாய் கிராமம் : செங்குன்றாபுரம்

பட்டா எண் : 1669

உரிமையாளர்கள் பெயர்

1. கோவிந்தராஜ் மகன் Pentagon blue metals காசு பாண்டிரங்கன்

புல எண்	உட்பிரிவு	புன்செய்		நுன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
117	3B	0 - 12.50	0.50	--	--	--	--	2023/0105/26/292771- -2023/26/05/0001645D -- 28-02-2023
118	2A2	0 - 3.14	0.40	--	--	--	--	2023/0105/26/292771- -2023/26/05/0001645D -- 28-02-2023
73	5B3	0 - 8.50	0.25	--	--	--	--	2023/0103/26/185319- --- -- 23-02-2023
76	2	0 - 79.00	2.18	--	--	--	--	2020/0103/26/090278- -- -- 20-07-2020
80	-	0 - 56.00	1.55	--	--	--	--	2020/0103/26/090278- -- -- 20-07-2020
81	1	0 - 35.00	0.97	--	--	--	--	2020/0103/26/090278- -- -- 20-07-2020
81	2	0 - 61.50	1.69	--	--	--	--	2020/0103/26/090278- -- -- 20-07-2020
83	1	0 - 40.00	1.11	--	--	--	--	2020/0103/26/090278- -- -- 20-07-2020
83	2	0 - 26.00	0.72	--	--	--	--	2020/0103/26/090278- -- -- 20-07-2020
84	1	0 - 53.50	2.23	--	--	--	--	2020/0103/26/090278- -- -- 20-07-2020
84	2	0 - 24.00	1.00	--	--	--	--	2020/0103/26/090278- -- -- 20-07-2020
85	-	0 - 70.50	2.94	--	--	--	--	2020/0103/26/090278- -- -- 20-07-2020
85	1	0 - 30.00	1.26	--	--	--	--	2020/0103/26/090278- -- -- 20-07-2020
85	2	0 - 32.50	1.36	--	--	--	--	2020/0103/26/090278- -- -- 20-07-2020
87	1	0 - 25.50	1.06	--	--	--	--	2020/0103/26/090278- -- -- 20-07-2020
87	2	0 - 40.50	1.69	--	--	--	--	2020/0103/26/090278- -- -- 20-07-2020
88	-	0 - 62.00	2.59	--	--	--	--	2020/0103/26/090278- -- -- 20-07-2020
		6 - 60.14	23.50					

குறிப்பு 2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை நாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 26/05/003/01669/20342 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 15-02-2024 அன்று 09:53:11 AM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



தமிழ்நாடு அரசு
வருவாய்த் துறை

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

மாவட்டம் : விருதுநகர்

வட்டம் : விருதுநகர்

வருவாய் கிராமம் : செங்குன்றாபுரம்

பட்டா எண் : 1670

உரிமையாளர்கள் பெயர்

1. கோவிந்தராஜ் மகன் Pentagonblue metals காக பாண்டுரங்கள்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
109	2	0 - 14.00	0.57	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
109	3A	0 - 13.50	0.57	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
109	3B	0 - 13.50	0.56	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
110	1A	0 - 28.50	0.78	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
110	1B	0 - 19.00	0.53	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
110	2A	0 - 29.00	0.80	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
110	2B	0 - 36.50	1.02	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
110	2C	0 - 35.50	0.98	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
111	1	0 - 34.00	0.94	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
111	2	0 - 38.00	1.05	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
112	1A	0 - 39.00	1.07	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
112	1B1	0 - 19.50	0.54	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
112	1B2	0 - 19.50	0.54	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
112	1D1	0 - 19.50	0.54	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
112	1D2	0 - 19.50	0.54	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
112	2A1	0 - 20.50	0.57	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
112	2B2	0 - 26.00	0.71	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
112	2B3	0 - 6.50	0.18	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
113	2A	0 - 14.00	0.38	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
113	2B	0 - 18.50	0.50	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
113	2C	0 - 2.00	0.06	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
113	2E	0 - 14.50	0.40	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
113	2F	0 - 19.00	0.53	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
115	1	0 - 2.50	0.07	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
115	2	0 - 24.00	0.67	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
115	3	0 - 9.50	0.26	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020



உ. எண் 20 செங்குன்றியூர்.

21

	2	3	4	5	6	7	8	9	10	11	12
79-2பா	ர	4	...	4-3	3	2	77	0 43-5	1 20	761 ரா. தாக ராஜ் (1), லட்சுமணன் (2).	
								1 20-0	3 32		
80	ர	4	...	4-3	3	2	77	0 56-0	1 55	34 ரா. ஆண்டராமம் மாள்.	
81-1	ர	4	...	4-3	3	2	77	0 35-0	0 97	34 ரா. ஆண்டராமம் மாள்.	
-2	ர	4	...	4-3	3	2	77	0 61-5	1 69	639 க. முருகேசன்.	
								0 96-5	2 66		
82	ர	4	...	...	...	...	...	0 56-5	...	.....	ஒடை.
83-பா	ர	4	...	4-3	3	2	77	0 40-0	1 11	502 ரா. சுப்புலட்சுமி.	
-பா	ர	4	...	4-3	3	2	77	0 26-0	0 72	738 கு. சங்கீரமம் மாள் (1), பா. கருப்பாமி (2).	
								0 66-0	1 83		
84-பா	ர	4	...	4-2	2	4	17	0 53-5	2 23	50 மு. கந்தசாமித் தேவர்.	
-பா	ர	4	...	4-2	2	4	17	0 24-0	1 00	265 வெ. வீரனாத் தேவர்.	
								0 77-5	3 23		
85	ர	4	...	4-2	2	4	17	0 70-5	2 94	247 வெ. நாச்சியாள் மாள்.	
86-பா	ர	4	...	4-2	2	4	17	0 30-0	1 26	109 பெ. கிருஷ்ணம் மாள்.	
-பா	ர	4	...	4-2	2	4	17	0 32-5	1 36	720 சி. ராஜ்	
								0 62-5	2 62		
87-பா	ர	4	...	4-2	2	4	17	0 25-5	1 06	961	

Go



1	2	3	4	5	6	7	8	9	10	11	12	13	14	
87	2	87-பா	ர	பு	...	4-2	2	4	17	0	40-5	1	69	739 பெ. கிருஷ்ணம் மாள் (1), சே. ராம கிருஷ்ணன் (2).
										0	66-0	2	75	
88	...	88	ர	பு	...	4-2	2	4	17	0	62-0	2	59	51 க. கந்தசாமி நாயக்கர்.
89	...	89	ர	பு	...	4-2	2	4	17	1	02-5	4	28	615 கோ. முத்தையா நாயக்கர்.
90	1	90-1	ர	பு	...	4-2	2	4	17	1	42-5	5	95	740 க. கிருஷ்ண சாமி (1), பாண்டு ரங்கன் (2).
	2A	-2A	ர	பு	...	4-2	2	4	17	0	69-0	2	87	740 க. கிருஷ்ண சாமி (1), பாண்டு ரங்கன் (2).
	2B	-2B	ர	பு	...	4-2	2	4	17	0	26-5	1	12	516 ரா. பாண்டிய ராஜன்.
	2C	-2C	ர	பு	...	4-2	2	4	17	0	29-0	1	22	233 சி. பழனிச்சாமி.
										2	67-0	11	16	
91	...	91	ர	பு	...	4-2	2	4	17	0	48-0	2	01	740 க. கிருஷ்ண சாமி (1), பாண்டு ரங்கன் (2).
92	...	92	ர	பு	...	4-2	2	4	17	0	48-5	2	03	740 க. கிருஷ்ண சாமி (1), பாண்டு ரங்கன் (2).
93	...	93	ர	பு	...	4-2	2	4	17	0	52-0	2	18	9 மா. அண்ணா மலையம்மாள்.
94	1	94-1	ர	பு	...	4-2	2	4	17	0	40-0	1	66	649 மா. முனி யாண்டி.
	2	-2	ர	பு	...	4-2	2	4	17	0	38-0	1	59	878 பெ. குருநாதத் தேவர் (1), ப. சின்ன சங்கையாத் தேவர் (2), ப. குருசாமித் தேவர் (3).
	3	-3	ர	பு	...	4-2	2	4	17	0	35-5	1	49	197 க. சண்முகத் தேவர்.
										1	13-5	4	74	

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கி. என். 20 செங்குன்றபுரம்.



1	3	4	5	6	7	8	9	10	11	
A	95-1ur	ர	ய	...	4-2	2	4 17	0 22-0	0 92	197 க. சண்முகத் தேவர்.
B	-1ur	ர	ய	...	4-2	2	4 17	0 18-5	0 77	52 க. கந்தசாமித் தேவர்.
	-2	ர	ய	...	4-2	2	4 17	0 63-5	2 65	962 ரா. குக்மிணி யம்மாள்.
								1 04-0	4 34	
	96-ur	ர	ய	...	4-2	2	4 17	0 07-0	4 48	717 ச. ராமச்சந்திர நாயக்கர்.
	-ur	ர	ய	...	4-2	2	4 17	0 30-5	1 27	306 க. ஜீவரத்தினம்.
								1 37-5	5 75	
A	97-1ur	ர	ய	...	4-2	2	4 17	0 35-5	1 48	491 ஸ்ரீ. ரெ. சுப்பு செட்டியார்.
B	-1ur	ர	ய	...	4-2	2	4 17	0 32-0	1 34	290 ஸ்ரீ. ரெ. வேல் சாமிசெட்டியார்.
CA	-2ur	ர	ய	...	4-2	2	4 17	0 39-0	1 63	717 ச. ராமச்சந்திர நாயக்கர்.
CB	-2ur	ர	ய	...	4-2	2	4 17	0 32-0	1 33	306 க. ஜீவரத்தினம்.
								1 38-5	5 78	
	98-ur	ர	ய	...	4-2	2	4 17	0 27-0	1 13	605 ச. மரியப்ப நாயக்கர்.
	-ur	ர	ய	...	4-2	2	4 17	0 28-0	1 17	963 க. வெப்ப நாயக்கர்.
								0 55-0	2 30	
	99-1	ர	ய	...	4-2	2	4 17	0 39-5	3 71	101 பெர். கிருஷ்ண சாமி.
	-2	ர	ய	...	4-2	2	4 17	0 84-0	3 52	287 பெர். வெங்கடேஸ்வரன்.
								1 73-5	7 25	
	100	ர	ய	0 71-5	...	

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1	2	3	4	5	6	7	8	9	10	11	12	
107	1C	107-1பா	ர	4	...	4-2	2	4 17	0 01-0	0 06	741	கு. பாலகிருஷ்ணன். சாமி (1). நா. கோபால் சாமி (2).
	2A	-2பா	ர	4	...	4-2	2	4 17	0 35-0	1 46	518	கு. பாலகிருஷ்ணன்.
	2B	-2பா	ர	4	...	4-2	2	4 17	0 07-0	0 30	518	கு. பாலகிருஷ்ணன்.
	3	-3	ர	4	...	4-2	2	4 17	0 48-0	1 99	744	கு. கருப்பையா.
	4	-4	ர	4	...	4-2	2	4 17	0 47-0	1 96	436	கோ. லட்சுமியம்மாள்.
									1 89-5	7 91		
108	1	108-பா	ர	4	...	4-2	2	4 17	0 70-5	2 95	490	ச. சுப்பா நாயக்கர்.
	2	-பா	ர	4	...	4-2	2	4 17	0 14-0	0 59	490	ச. சுப்பா நாயக்கர்.
	3	-பா	ர	4	...	4-2	2	4 17	0 08-0	0 33	490	ச. சுப்பா நாயக்கர்.
									0 92-5	3 87		
109	1A	109-1பா	ர	4	...	4-2	2	4 17	0 04-0	0 17	892	ரா. ராஜ் மற்றும் முன்று பேர்களும் *
	1B	-1பா	ர	4	...	4-2	2	4 17	0 14-0	0 58	422	ரா. ராஜ் நாயக்கர்.
	1C	-1பா	ர	4	...	4-2	2	4 17	0 13-5	0 57	586	ரா. மாரிச்சாமி.
	1D	-1பா	ர	4	...	4-2	2	4 17	0 13-0	0 55	239	ரா. நாராயண சாமி.
	1E	-1பா	ர	4	...	4-2	2	4 17	0 37-0	1 54	498	கு. சுப்பையா.
	2	-2	ர	4	...	4-2	2	4 17	0 14-0	0 57	91	கு. காந்தி.
	3A	-3பா	ர	4	...	4-2	2	4 17	0 13-5	0 57	40	ல. ஆவுடையம்மாள்.
	3B	-3பா	ர	4	...	4-2	2	4 17	0 13-5	0 56	382	பெ. சுப்பா நாயக்கர்.
									1 22-5	5 11		

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	2	3	4	5	6	7	8	9	10	11	12
							கு. பை.	பெ. ஏர்ஸ்	கு. பை.		
1A	110-1A	ர	பு	...	4-3	3	2 77	0 28-5	0 78	730	பெ. கோவிந்தராஜ் (1), பெ. கந்தசாமி(2).
1B	-1B	ர	பு	...	4-3	3	2 77	0 19-0	0 53	528	இளவர் மா.பார்த்தசாரதி கார்பாளர் தாயார் ராஜம்மாள்.
2A	-2A	ர	பு	...	4-3	3	2 77	0 29-0	0 80	482	ரா. சுப்பாராம்.
2B	-2B	ர	பு	...	4-3	3	2 77	0 36-5	1 02	345	சு. கி. தனுஷ்கோடி.
2C	-2C	ர	பு	...	4-3	3	2 77	0 35-5	0 98	417	நா. ராஜராம் நாயக்கர்.
								1 48-5	4 11		
1	111-1	ர	பு	...	4-3	3	2 77	0 34-0	0 94	53	கு. கந்தசாமி.
2	-2	ர	பு	...	4-3	3	2 77	0 38-0	1 05	171	பெ. கோவிந்தராஜ்.
								0 72-0	1 99		
1A	112-1A	ர	பு	...	4-3	3	2 77	0 39-0	1 07	345	சு. கி. தனுஷ்கோடி.
1B	-1B	ர	பு	...	4-3	3	2 77	0 39-0	1 07	741	நா. அழகர் சாமி (1), நா. கோபால் சாமி (2).
1C	-1C	ர	பு	...	4-3	3	2 77	0 39-0	1 07	156	பெ. கோபால் சாமி நாயக்கர்.
1D	-1D	ர	பு	...	4-3	3	2 77	0 39-0	1 10	741	நா. அழகர் சாமி (1), நா. கோபால் சாமி (2).
2A1	-2A1	ர	பு	...	4-3	3	2 77	0 20-5	0 57	53	கு. கந்தசாமி.
2A2	-2A2	ர	பு	...	4-3	3	2 77	0 22-5	0 63	518	சி. கு. பாலகிருஷ்ணன்.
2B1	-2B1	ர	பு	...	4-3	3	2 77	0 06-0	0 17	518	சி. கு. பாலகிருஷ்ணன்.
2B2	-2B2	ர	பு	...	4-3	3	2 77	0 26-0	0 71	590	சி. கு. பாலகிருஷ்ணன்.

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	2	3	4	5	6	7	8	9	10	11
5	103-பா	ர	பு	...	4-2	2	4 17	0 09.5	0 40	743 சீ. லட்சுமியம் மான் (1). பொ. லட்சுமியம் மான் (2).
								0 86.0	3 58	
1	104-பா	ர	பு	...	4-2	2	4 17	0 24.5	1 02	345 க. கி. நனுஷ் கோடி.
2	-பா	ர	பு	...	4-2	2	4 17	0 29.0	1 22	592 கி. மாரிச்சாமி நாயக்கர்.
3	-பா	ர	பு	...	4-2	2	4 17	0 36.5	1 52	261 மா. நல்லம்மாள்.
4	-பா	ர	பு	...	4-2	2	4 17	0 38.0	1 58	245 கி. நாராயண சாமி.
								1 28.0	5 34	
1	105-1	ர	பு	...	4-2	2	4 17	0 22.5	0 95	417 நா. ராஜாராம் நாயக்கர்.
2	(2)	ர	பு	...	4-2	2	4 17	0 19.5	0 81	741 நா. அழகர் சாமி (1). கோபால் சாமி (2).
3	-3	ர	பு	...	4-2	2	4 17	0 44.0	1 84	156 பெ. கோபால்சாமி நாயக்கர்.
								0 86.0	3 60	
1	106-பா	ர	பு	...	4-2	2	4 17	0 10.5	0 44	212 பொ. சின்ன லட்சுமி.
2	-பா	ர	பு	...	4-2	2	4 17	0 21.5	0 90	51 க. சுந்தராமி நாயக்கர்.
3	-பா	ர	பு	...	4-2	2	4 17	0 32.0	1 34	110 கி. கிருஷ்ணம் மான்.
4	-பா	ர	பு	...	4-2	2	4 17	0 32.0	1 33	291 நா. வேல்சாமி.
								0 96.0	4 01	
2A	107-பா	ர	பு	...	4-2	2	4 17	0 48.5	2 01	741 நா. அழகர் சாமி (1). கோபால் சாமி (2).
2B	-பா	ர	பு	...	4-2	2	4 17	0 03.0	0 13	741 நா. அழகர் சாமி (1). நா. கோபால் சாமி (2).

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AI நோட்டீஸ்

அரசு புறம்போக்கு / வட்டா நிலத்தில் கனிம உரிமம் (கல், மண, கிராவல், கிரானைட்) செய்து கொள்ளும் விண்ணப்பம் குறித்து ஆட்சேபனை இல்லை என்று உறுதிப்படுத்தும் மன்றம் கரங்கத்தி அறிக்கை



இதனால் அறிவிக்கப்படுவது என்னவென்றால்

கிராமத்தில் வசித்து வரும்

கேள்வி 2109

மகன் / மனைவி மரணம் குறிப்பிட்டு

என்பவர்

சுமதி அனாண்டி

க்கு வடக்கிலும்,

மெண்டசன் ஹோட்டல் மரணம் குறிப்பிட்டு குறிப்பிட்டு தெற்கிலும்,

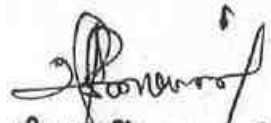
மரணம் குறிப்பிட்டு, ரெஜஸ்டரேஷன் : க்கு கிழக்கிலும்,
ஆரம்பநிலை சிபிஎன்என்

செய்யும் கிராம எல்லை க்கு மேற்கிலும்

84/1, 85, 86/1, 2

சர்வே எண் 71/1, 2, 88, 109/2 சிபிஎன்என் 4.46.50 ஹெக்டேர் நிலத்தில்
109/3A, 3B, 110/1B, 2B, 2C

இல் இவ்வாறு பணி செய்வது தொடர்பாக ஆட்சேபனையுடைய நபர்கள் அதன் விபரத்தை இந்த அறிக்கை பிரசுரித்தம் செய்யப்பட்டு தேதியிலிருந்து பதினைந்து தினங்கள் கொண்ட கால அளவிற்குள் மேற்படி கிராமத்தின் கிராம நிர்வாக அலுவலர் மற்றும் வட்டாட்சியரிடம் தெரிவிக்க வேண்டும்.


கிராம நிர்வாக அலுவலர்
செங்குன்றாபுரம் கிராமம்.
விடுதலைகாட்சி

மேற்படி அறிக்கையானது

தேதியில் தண்டோரா மூலமாகவும், கிராமச் சாவடி

மற்றும் முக்கிய இடங்களிலும் பிரசுரித்தம் செய்யப்பட்டு கையொப்பம் பெறப்பட்டுள்ளது.

க. நாராயணன் 2/10/2024

ம. தாராசாமி 2/10/2024

அ. சிவசாமி 2/10/2024

ஆ. சிவசாமி 2/10/2024

பெ. சிவசாமி 2/10/2024



ANNEXURE-VI
MINING PLAN REPORT & PLATES



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)

Lease Period – Ten (10) years

Mining Plan Period – Five (5) Years

LOCATION OF THE QUARRY LEASE AREA

EXTENT	: 3.25.50 Hectares
SURVEY No.	: 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) & 110/2C(P).
VILLAGE	: SENGUNDRAPURAM
TALUK	: VIRUDHUNAGAR
DISTRICT	: VIRUDHUNAGAR

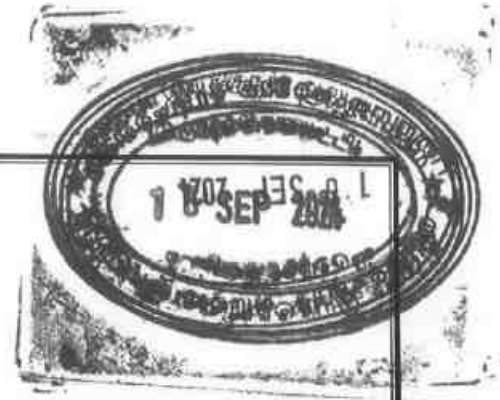
Applicant

**Thiru.G.PANDURANGAN,
S/o.GOVINDARAJ
D No.4/888, BALAJI NAGAR,
SOOLAKKARAI VILLAGE & Post,
VIRUDHUNAGAR - 626 003.**

PREPARED BY

**R.GURURAMACHANDRAN, M.Sc.,
QUALIFIED PERSON (RQP/MAS/224/2010/A)**

Thiru.G.PANDURANGAN
S/o. GOVINDARAJ
D.No.4/888, BALAJI NAGAR,
SOOLAKKARAI VILLAGE & Post – 626 003.
VIRUDHUNAGAR TALUK & DISTRICT.



CONSENT LETTER OF THE APPLICANT

I hereby give my consent to prepare the Mining Plan for the grant of Quarry Lease for quarrying Rough Stone & Gravel over a total extent of 3.25.5 Hectares in SF. Nos.: 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) of Sengundrapuram Village, Virudhunagar Taluk and District for a period of Ten years vide Assistant Director, Geology and Mining, Virudhunagar District letter Na.Ka.No.KV1/623/2024 dated 12.09.2024 and submit for approval before the Competent Authority by


Mr. R. Gururamachandran, M.Sc.,
Qualified Person (RQP/MAS/224/2010/A.)

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

No. 4/864-15, Gandhi Nagar,
Opp.V.T.Mill / behind HP Petrol Pump,
Soolakkarai Medu,
Virudhunagar - 626 003.
Cell :9443434288 / 9750309288
email : gruram@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 : 12-09-2024


G.Pandurangan
Signature of the Applicant.




Thiru.G.PANDURANGAN
S/o. GOVINDARAJ
D.No.4/888, BALAJI NAGAR,
SOOLAKKARAI VILLAGE & Post – 626 003.
VIRUDHUNAGAR TALUK & DISTRICT.

DECLARATION OF THE APPLICANT

The Mining Plan in respect of the grant of quarry lease for quarrying of Rough Stone & Gravel over a total extent of 3.25.5 Hectares in SF. Nos.: 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) of Sengundrapuram Village, Virudhunagar Taluk and District for a period of 10 years has been prepared and submitted for approval in full consultation with me.

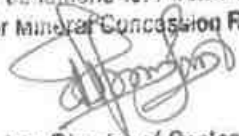
I understand its contents and agree to implement the same in accordance with Laws, Rules and Act applicable to quarry Rough Stone and Gravel.

Place : Virudhungar
Date : 16-09-2024


G.Pandurangan
Signature of the Applicant.

This Mining is approved based on guidelines/ instructions issued in the CGM, Letter No.3868/LC/2012 dated 19-11-2012 and incorporation of the particulars specified in the latter Roc.No. KV1/623/2024.

Dated 20/09/24 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

This Mining Plan is approved Subject to the conditions / Stipulation indicated in the Mining Plan Approval

Letter Roc. No. KV1/623/24 Dated 20/5/24

ASSISTANT DIRECTOR
GEOLOGY AND MINING
VIRUDHUNAGAR DISTRICT
VIRUDHUNAGAR.




R.Gururamachandran , M.Sc.,
No. 4/864-15, Gandhi Nagar,
Opp.V.T.Mill / behind HP Petrol Pump,
Soolakkarai Medu,
Virudhunagar – 626 003.
Cell :9443434288 / 9750309288
email : gruram@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 Mining Plan for Rough stone and Gravel quarry for Thiru.G.Pandurangan over an extent of 3.25.5 Hectares in SF. Nos.: 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) of Sengundrapuram Village, Virudhunagar Taluk and District for a 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 : 16.09.2024


Qualified Person
R. GURURAMACHANDRAN, M.Sc.,
Qualified Person
(RQP / MAS / 224 / 2010/A)
J/A)





CERTIFICATE FROM THE QUALIFIED PERSON

This is to Certify that, I R.Gururamachandran M.Sc., (App.Geology), having an office at No.4/864-15, Gandhi Nagar, Opp.V.T.Mill / behind HP Petrol Pump, Soolakkarai Medu, Virudhunagar - 626 003. I am a Post Graduate in Applied Geology from Madras University, AC Tech Campus.

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 Mining Plan for Rough stone and Gravel quarry for Thiru.G.Pandurangan over an extent of 3.25.5 Hectares in SF. Nos.: 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) of Sengundrapuram Village, Virudhunagar Taluk and District.

Place : Virudhunagar

Date : 16.09.2024

Qualified Person
R. GURURAMACHANDRAN, M.Sc.,
Qualified Person
(RQP / MAS / 224 / 2010/A)



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LIST OF ANNEXURES

S.NO	DESCRIPTION	ANNEXURE
1	Copy of Precise Area Communication	I
2	Copies of Aadhar & PAN card - Id Proof of Applicant	II
3	Copy of FMB & Revenue department FMB	III
4	Copy of Patta, Adangal, A-Register & A1-Notices	IV
5	Copy of Qualified Person Certificates	V

LIST OF PLATES

S.NO	DESCRIPTION	PLATE No.	SCALE
1	LOCATION PLAN	I	Not to Scale
2	ROUTE MAP	IA	Not to Scale
3	KEY PLAN	II	1 : 50,000
4	MINING LEASE PLAN	III	1 : 1,000
5	SURFACE & GEOLOGICAL PLAN & SECTIONS	IV	1 : 2,000
6	YEARWISE PRODUCTION PLAN & SECTIONS	V	1 : 1,000
7	CONCEPTUAL PLAN & SECTIONS	VI	1 : 2,000
8	SATTELITE IMAGERY	VII	1 : 1,000
9	VILLAGE MAP SHOWING ENVIRONMENTAL FEATURES	VII A	1 : 5,000
10	LAND USE PATTERN	VII B	1 : 10,000
11	PROGRESSIVE MINE CLOSURE PLAN	VIII	1 : 10,000

MJNJNG PLAN

and PROGRESSIVE MINE CLOSURE PLAN for ROUGH STONE & GRAVEL QUARRY

**OVER an EXTENT of 3.25.50 Hectares in SF.Nos. 84/1(P),
85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A,
109/3B, 110/1B, 110/2B(P) and 110/2C(P) of
Sengundrapuram Village, Virudhunagar Taluk & District.**

(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 Mining Plan is prepared for Quarrying of Rough Stone and Gravel by systematic and scientific quarrying and to obtain Environment Clearance from State level Environmental Impact Assessment Authority (SEIAA), Chennai. The applicant Thiru.G.Pandurangan of Soolakkarai, Virudhunagar-626003 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 applicant applied this virgin area for quarrying & transportation of Rough Stone and Gravel over an extent of 3.25.50 Hectares in SF. Nos.: 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) of Sengundrapuram Village, Virudhunagar Taluk and District under Rule 19 & 20 of Tamil Nadu Minor Mineral Concession Rules 1959 and the Assistant Director, Geology & Mining, Virudhunagar District communicated the precise area over an extent of 3.25.50 Hectares in SF. Nos.: 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) of Sengundrapuram Village, Virudhunagar Taluk and District for the grant vide letter Na.Ka.No:KV1/623/2024 dated 12.09.2024

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Ga


R. GURURAMACHANDRAN, M.Sc.
Qualified Person
(POP/M)



for a period of 10 years under Rule 19 & 20 of Tamil Nadu Minor Mineral Concession

Rules 1959 subject to the conditions:

சாத்தூர் வருவாய் கோட்டாட்சியர் மற்றும் புவியியல் மற்றும் சுரங்கத்துறை, உதவி இயக்குநர் ஆகியோர் கீழ்க்காணும் நிபந்தனைகளுக்குட்பட்டு மேற்கண்ட புலங்களில் உடைகல், கிராவல் குவாரி குத்தகை உரிமம் பத்தாண்டுகளுக்கு வழங்க பரிந்துரை செய்துள்ளனர்.

நிபந்தனைகள்

- 1) அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீ பாதுகாப்பு இடைவெளி விடுத்து குவாரி செய்தல் வேண்டும்.
- 2) புல எண் 84, 85, 86, 87, 88-ல் செல்லும் நிலவியல் ஓடைக்கு 10 மீ பாதுகாப்பு இடைவெளி விடுத்து குவாரி செய்தல் வேண்டும்.
- 3) ஏற்கனவே, புல எண்.79/2A, 2B, 81/1, 81/2, 83/1, 83/2, 84/1(P), 85(P) செயல்பாட்டில் உள்ள குவாரிக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளி விட வேண்டும். மேலும் தற்சமயம் விண்ணப்பிக்கப்பட்டுள்ள குவாரிக்கு பாதுகாப்பு இடைவெளி 7.5 மீட்டர் என மொத்தம் 15 மீட்டர் பாதுகாப்பு இடைவெளியில் எவ்வித குவாரிப் பணியும் மேற்கொள்ள கூடாது.
- 4) பொதுமக்கள் / விவசாய நிலங்களுக்கு பாதிப்பு ஏற்படாத வகையில் தகுதி வாய்ந்த அங்கீகரிக்கப்பட்ட நபர்கள் மூலம் வெடிமருந்துகள் சேமிக்கப்பட்டு குவாரியில் வெடித்தல் வேண்டும்.
- 5) குத்தகைதாரர், தமக்கு வழங்கப்பட்ட குத்தகை பகுதிக்கு அருகில் உள்ள விவசாய நிலங்களுக்கும் மற்றும் கிராம பொது மக்களுக்கும், சாலைகளுக்கும் மற்றும் ஓடைகளுக்கும் பாதிப்பு ஏற்படாத வகையில் குவாரிப்பணி மேற்கொள்ள வேண்டும்.
- 6) சுரங்கத்திட்டம் மற்றும் சுற்றுச்சூழல் தடையில்லாச் சான்று குத்தகை உரிமம் வழங்குவதற்கு முன் சமர்ப்பிக்க வேண்டும்.
- 7) குவாரியில் வேலை செய்யும் தொழிலாளர்கள் தொழிலாளர் நலவாரியம் மற்றும் காப்பீடு திட்டத்தில் பதிவு செய்து தொழிலாளர் நலன் பேண்பட வேண்டும்.
- 8) குழந்தை தொழிலாளர்களை குவாரி பணியில் அமர்த்தக் கூடாது.
- 9) கனிமங்களை வாகனங்களில் கொண்டு செல்லும் போது பாதசாரிகள், பொது மக்கள் பாதிக்காதவண்ணம் தார்பாய்கள் கொண்டு மூடி எடுத்துச் செல்ல வேண்டும்.

This Mining Plan is prepared under Rule 41(4) & 42 of Tamil Nadu Minor Mineral Concession Rules 1959 for approval in order to obtain the Environmental Clearance from SEIAA-Chennai.

Executive Summary:



i. Area Details :

District	Taluk	Village	Survey Nos.	Extent in Hectrs.	Remarks
Virudhunagar	Virudhunagar	Sengundrapuram	84/1(P),	0.04.00	Ryotwari Patta Nos. 1669 & 1670
			85(P),	0.30.00	
			86/1,	0.30.00	
			86/2,	0.32.50	
			87/1,	0.25.50	
			87/2,	0.40.50	
			88,	0.62.00	
			109/2,	0.14.00	
			109/3A,	0.13.50	
			109/3B	0.13.50	
			110/1B	0.19.00	
			110/2B(P)	0.19.50	
110/2C(P)	0.21.50				
			Total	3.25.50	

ii. The Estimated Reserves are :

Geological available Resources in M ³		Mineable Reserves & Production for 5/10 years in M ³		
Rough Stone	Gravel	Year	Rough Stone	Gravel
13,73,400	2,06,010	I	58,740	39,390
		II	56,445	15,756
		III	57,015	15,756
		IV	56,160	15,756
		V	58,320	16,362
		Total - I to V	2,86,680	1,03,020
		Balance - VI to X	1,28,190	56,130
		Total - 10 Years	4,14,870	1,59,150

- iii. Topography of the area = The area is plain terrain-111m above MSL
- iv. Existing Depth of the quarried pit = Nil
- v. Proposed Total Depth of mining = 46.0m (Below ground level)
- vi. Proposed period of mining = 10 years
- vii. It is a new/Existing quarry lease = New proposed quarry.
- viii. Method of mining / level of mechanization = Opencast semi- mechanized method, the quarry operation involves shallow jack hammer drilling, slurry blasting.



- ix. Type of machineries proposed to be deployed in the quarrying operation.
Excavator of 0.90Cbm bucket capacity (with Rock breaker attachment) - 3 Nos
Jack hammers 30-32mm dia.- 4 Nos.
- x. Tractor mounted compressor (2 jack hammer capacity)- 2 Nos.
- xi. No trees are uprooted due to quarrying operation.
- xii. The existing road from the main road to quarry is in good condition and the same will be maintained and utilized for transport.
- xiii. There is No Export of the Rough stone.
- xiv. The lease area is about 3.25.00 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° 36' 28.5405"N	77° 53' 37.9274"E	1 - 2	60.4m
2	9° 36' 30.3494"N	77° 53' 38.7785"E	2 - 3	47.0m
3	9° 36' 30.7168"N	77° 53' 37.2835"E	3 - 4	90.6m
4	9° 36' 33.5168"N	77° 53' 38.2075"E	4 - 5	63.8m
5	9° 36' 35.3306"N	77° 53' 39.2149"E	5 - 6	31.6m
6	9° 36' 36.2543"N	77° 53' 39.6687"E	6 - 7	62.6m
7	9° 36' 35.4522"N	77° 53' 41.5540"E	7 - 8	20.2m
8	9° 36' 34.8422"N	77° 53' 41.3073"E	8 - 9	111.2m
9	9° 36' 31.6935"N	77° 53' 40.1961"E	9 - 10	95.0m
10	9° 36' 31.1069"N	77° 53' 43.2525"E	10 - 11	84.0m
11	9° 36' 30.3710"N	77° 53' 45.9033"E	11 - 12	8.4m
12	9° 36' 30.2248"N	77° 53' 45.6708"E	12 - 13	34.6m
13	9° 36' 29.2552"N	77° 53' 45.0954"E	13 - 14	37.0m
14	9° 36' 28.2687"N	77° 53' 44.4012"E	14 - 15	33.8m
15	9° 36' 27.4107"N	77° 53' 43.7089"E	15 - 16	5.2m
16	9° 36' 27.3458"N	77° 53' 43.5516"E	16 - 17	124.4m
17	9° 36' 28.1165"N	77° 53' 39.5498"E	17 - 1	51.2m

- xv. 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.
- xvi. There is 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.
- xvii. Around 20 employees are proposed to be deployed for quarrying operation.



xviii. 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.

xix. TOTAL COST OF THE PROJECT:

A. Investment cost	=	Rs.	20,00,000/-
B. Mining cost	=	Rs.	1,43,40,000/-
Total Project Cost (A+B)	=	Rs.	1,63,40,000/-
xx. EMP Cost	=	Rs.	17,80,000/-
xxi. CER Cost@2.0% over (A+B) (allocation Rs.5.0 lacs)	=	Rs.	5,00,000/-

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1. GENERAL INFORMATION :

1.1	a)	Name of the applicant	Thiru. G.PANDURANGAN, S/o.GOVINDARAJ.
	b)	Address of the applicant (with phone No. & e-mail)	Address : D. No.4/888, Balaji Nagar, Soolakkarai Village & Post, Virudhunagar. District : Virudhunagar Pin Code : 626 003. Mobile No : 98421 18297 Email id: pandurangang83@gmail.com
	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	Assistant Director, Geology & Mining Department, Virudhunagar District Precise area communication letter Na.Ka.No:KV1/623/2024 dated 12.09.2024.



c)	Period of permission / lease to be granted	Period of lease to be granted per Rule 19 & 20 Mineral Concession Rules 1959.
d)	Name and address of the RQP / Authorized person preparing the mining plan	<p>Name : R. Gururamachandran, M.Sc., Address : No.4/864-15, Gandhi Nagar, Opp.V.T.Mill/behind HP Petrol Pump, Soolakkarai Medu, Virudhunagar - 626 003.</p> <p>Cell : 9443434288 / 9750309288. E-Mail : gruram@gmail.com Registration No : RQP/MAS/224/2010/A.</p>

2. LOCATION :

2.1	a)	Details of the area with location map																																																			
<p>The applied area is located 7 kms northwest of Virudhunagar town and 2.5 kms southeast of Sengundrapuram village on the State Highway-182 Virudhunagar - Azhagapuri - Watrayiruppu and kutchra road from state highway between Seeniyapuram - Sengundrapuram connects the area applied for quarry lease formed through the patta lands of the applicant. The area bounded by following villages within 5 kms circle - refer Plate-IA & Plate-II.</p>																																																					
<p>Table -1</p>																																																					
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">DIRECTION</th> <th style="width: 45%;">VILLAGE</th> <th style="width: 15%;">POPULATION</th> <th style="width: 25%;">DISTANCE</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>Pudupatti</td> <td>1,200</td> <td>4.2 Km</td> </tr> <tr> <td>NE</td> <td>Vadamalaikuruchi</td> <td>2,200</td> <td>3.0 Km</td> </tr> <tr> <td rowspan="2">NW</td> <td>Kundalapatti</td> <td>600</td> <td>1.0 Km</td> </tr> <tr> <td>Sengundrapuram</td> <td>2,600</td> <td>2.5 Km</td> </tr> <tr> <td rowspan="2">South</td> <td>Elinganaickenpatti</td> <td>1,100</td> <td>3.7 Km</td> </tr> <tr> <td>Veerachellaiapuram (Kavalur)</td> <td>1,200</td> <td>3.5Km</td> </tr> <tr> <td rowspan="4">SE</td> <td>Chandragiripuram</td> <td>1,000</td> <td>1.0 Km</td> </tr> <tr> <td>Chokkalingapuram</td> <td>800</td> <td>2.5 Km</td> </tr> <tr> <td>Pavali</td> <td>4,700</td> <td>3.0 Km</td> </tr> <tr> <td>Kumaralingapuram</td> <td>2,600</td> <td>3.2 Km</td> </tr> <tr> <td>SW</td> <td>Nattarmangalam</td> <td>1,000</td> <td>4.0 Km</td> </tr> <tr> <td>East</td> <td>Seeniyapuram</td> <td>2,000</td> <td>1.5 Km</td> </tr> <tr> <td>West</td> <td>Moolipatti</td> <td>3,400</td> <td>3.6 Km</td> </tr> </tbody> </table>			DIRECTION	VILLAGE	POPULATION	DISTANCE	North	Pudupatti	1,200	4.2 Km	NE	Vadamalaikuruchi	2,200	3.0 Km	NW	Kundalapatti	600	1.0 Km	Sengundrapuram	2,600	2.5 Km	South	Elinganaickenpatti	1,100	3.7 Km	Veerachellaiapuram (Kavalur)	1,200	3.5Km	SE	Chandragiripuram	1,000	1.0 Km	Chokkalingapuram	800	2.5 Km	Pavali	4,700	3.0 Km	Kumaralingapuram	2,600	3.2 Km	SW	Nattarmangalam	1,000	4.0 Km	East	Seeniyapuram	2,000	1.5 Km	West	Moolipatti	3,400	3.6 Km
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West	Moolipatti	3,400	3.6 Km																																																		



	i)	District, Taluk and Village	District : Virudhunagar Taluk : Virudhunagar Village : Sengundrapuram
	ii)	Survey Nos.	84/1(P)(0.04.00 Hc.), 85(P)(0.30.00 Hc.), 86/1(0.30.00Hc.), 86/2(0.32.50Hc.), 87/1(0.25.5Hc.), 87/2(0.40.50 Hc.), 88(0.62.00Hc.), 109/2(0.14.00Hc.), 109/3A (0.13.50 Hc.), 109/3B(0.35.50Hc.), 110/1B(0.19.00Hc.), 110/2B(P)(0.19.50 Hc.) and 110/2C(P)(0.21.50 Hc.)
	iii)	Total Extent in Ha.	3.25.50 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.G.Pandurangan, S/o. Govindaraj vide Patta Nos. 1669 & 1770 of Sengundrapuram Revenue Village, Virudhunagar 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/14. Latitude between : 09° 36' 27.3458" to 09° 36' 36.2543"N Longitude between: 77° 53' 37.2835" to 77° 53' 45.9033"E
2.5	e)	Existence of public road / Railway line, if any nearby and approximate distance:	The State HighWay-182 Virudhunagar – Azhagapuri – Watrayiruppu is at 370mts north, National Highway NH-44 4-Lane at 6Kms southeast and the State Highway SH-42 between Virudhunagar – Sivakasi at 5Kms southeast. The Nearest Railway station is Virudhunagar at about 7 Kms, the nearest Airport is Madurai at 35 kms northeast and Sea Port is Thoothukudi at 103 Kms southeast.

SITE PHOTOS:

இணை இயக்குநர் அலுவலகம்
செருதூர் மாவட்டம்
16 SEP 2024
செருதூர்
பெரியடி மற்றும் கரங்குடி கிழக்கு



	Decimal	DMS
Latitude	9.608293	9°36'29" N
Longitude	77.893914	77°53'38" E

2024-09-13 (Fri) 10:41(AM)



	Decimal	DMS
Latitude	9.607988	9°36'28" N
Longitude	77.893837	77°53'37" E

2024-09-13 (Fri) 10:42(AM)



	Decimal	DMS
Latitude	9.608525	9°36'30" N
Longitude	77.893828	77°53'37" E

2024-09-13 (Fri) 10:44(AM)



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 111m above MSL, is plain terrain with very gentle slope towards north and covered thin layer of clayey black cotton soil followed by gravel, weathered rock formation and massive Charnockite rock formations. The massive rock formation is noticed / occurred at an average depth of 6.0 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 nearby working quarry adjoining the proposed site on east and north.
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Go



3.3	Estimation of reserves
	a) Geological reserves with geological sections on a scale of 1:1000/1:2000.
	<p>The practical method of the systematic geological mapping and delineation of Rough stone (Charnockite) within the field was done and careful evaluation of body luster, physical properties, engineering properties, commercial aspects etc.,</p> <p>Totally 4 sections have been drawn as (A-A'), (B-B') (C-C') and (D-D') 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 13,73,400 CuM of Rough Stone and 2,06,010 CuM of Gravel.</p> <p>Please refer the Surface & Geological plan and sections Plate No- IV.</p>

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)	HEIGHT (M)	ROUGH STONE VOLUME M ³	GRAVEL VOLUME M ³
A-A' & B-B'	182	118	6.0	-	1,28,856
	182	118	40.0	8,59,040	-
A-A' & C-C'	63	50	6.0	-	18,900
	63	50	40.0	1,26,000	-
C-C' & D-D'	133	73	6.0	-	58,254
	133	73	40.0	3,88,360	-
TOTAL GEOLOGICAL RESERVES				13,73,400	2,06,010

Available Mineable Reserves (Plate No. VI):

The available mineable reserves are calculated for the proposed lease period of 10 years based on the total minable reserves calculated by safety distances of 10.0m at southeastern side for the small drainage 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)	ROUGH STONE VOLUME (M ³)	GRAVEL VOLUME (M ³)
A-A' & B-B'	I	171	101	6.0	-	1,03,626
	II	165	89	5.0	73,425	-
	III	160	79	5.0	63,200	-
	IV	155	69	5.0	53,475	-
	V	150	59	5.0	44,250	-
	VI	145	49	5.0	35,525	-
	VII	135	39	5.0	26,325	-
	VIII	125	29	5.0	18,125	-
	IX	115	19	5.0	10,925	-
A-A' & C-C'	I	55	42	6.0	-	13,860
	II	49	36	5.0	8,820	-
	III	44	31	5.0	6,820	-
	IV	39	26	5.0	5,070	-
	V	34	21	5.0	3,570	-
C-C' & D-D'	I	124	56	6.0	-	41,664
	II	118	44	5.0	25,960	-
	III	113	34	5.0	19,210	-
	IV	108	24	5.0	12,960	-
	V	103	14	5.0	7,210	-
TOTAL MINEABLE RESERVES					4,14,870	1,59,150

The available mineable reserves have been computed as **4,14,870m³** of **Rough Stone** and **1,59,150m³** of **Gravel** up-to the depth of **46.0** meters from the ground level.

4. MINING :

4.1	Method of mining (opencast / underground) :
	<p>Open cast Semi-Mechanized Mining with one 6.0 meter bench for Gravel followed by charnockite rock / Rough Stone 5.0 meter vertical bench with a bench width not less than the bench height.</p> <p>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.</p> <p>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.</p>



4.2	Mode of working (mechanized, semi mechanized, manual)	<p>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.</p> <p>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.</p>
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.)	
	<p>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.</p> <p>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.</p>	

Table-3
Year wise - Production Schedule

SECTION	YEAR	BENCH	LENGTH (M)	WIDTH (M)	HEIGHT (M)	ROUGH STONE VOLUME (M ³)	GRAVEL VOLUME (M ³)
A-A' & B-B'	I-Year	I	65	101	6.0	-	39,390
		II	53	89	5.0	23,585	-
		III	43	79	5.0	16,985	-
		IV	33	69	5.0	11,385	-
		V	23	59	5.0	6,785	-
I - YEAR PRODUCTION						58,740	39,390



A-A' & B-B'	II-Year	I	26	101	6.0	-	-
		II	26	89	5.0	-	15,756
		III	26	79	5.0	10,270	-
		IV	26	69	5.0	8,970	-
		V	26	59	5.0	7,670	-
		VI	39	49	5.0	9,555	-
		VII	29	39	5.0	5,655	-
		VIII	19	29	5.0	2,755	-
II - YEAR PRODUCTION						56,445	15,756
A-A' & B-B'	III-Year	I	26	101	6.0	-	15,756
		II	26	89	5.0	11,570	-
		III	26	79	5.0	10,270	-
		IV	26	69	5.0	8,970	-
		V	26	59	5.0	7,670	-
		VI	26	49	5.0	6,370	-
		VII	26	39	5.0	5,070	-
		VIII	26	29	5.0	3,770	-
		IX	35	19	5.0	3,325	-
III - YEAR PRODUCTION						57,015	15,756
A-A' & B-B'	IV-YEAR	I	26	101	6.0	-	15,756
		II	26	89	5.0	11,570	-
		III	26	79	5.0	10,270	-
		IV	26	69	5.0	8,970	-
		V	26	59	5.0	7,670	-
		VI	26	49	5.0	6,370	-
		VII	26	39	5.0	5,070	-
		VIII	26	29	5.0	3,770	-
		IX	26	19	5.0	2,470	-
IV - YEAR PRODUCTION						56,160	15,756
A-A' & B-B'	V-YEAR	I	27	101	6.0	-	16,362
		II	27	89	5.0	12,015	-
		III	27	79	5.0	10,665	-
		IV	27	69	5.0	9,315	-
		V	27	59	5.0	7,965	-
		VI	27	49	5.0	6,615	-
		VII	27	39	5.0	5,265	-
		VIII	27	29	5.0	3,915	-
		IX	27	19	5.0	2,565	-
V - YEAR PRODUCTION						58,320	16,362
TOTAL PRODUCTION FOR FIVE YEARS						2,86,680	1,03,020

Year wise Production summary:

YEAR	ROUGH STONE VOLUME (M ³)	GRAVEL VOLUME (M ³)
I - Year	58,740	39,390
II - Year	56,445	15,756
III - Year	57,015	15,756
IV - Year	56,160	15,756
V - Year	58,320	16,362
Total I to V Years	2,86,680	1,03,020
Balance VI to X years	1,28,190	56,130
Total for 10 Years	4,14,870	1,59,150



The applicant has proposed to carry out **2,86,680m³** of Rough Stone and **1,03,020m³** of Gravel production for the period of first **FIVE** years up to a depth of **46m** from the ground level (Table-3).

The Balance quantity of **1,28,190m³** of Rough Stone and **56,130m³** of Gravel production planned for the period of next **FIVE** years up to the ultimate depth of **46m** from the ground level.

4.5	Machineries to be used	
	a) For Mining :	
		Excavator of 0.90Cbm bucket capacity (with Rock breaker attachment) - 2 Nos. Jack hammers 30-32mm dia. - 2 sets (4 Nos.) Tractor mounted compressor (2 jack hammer capacity) -2 Nos.
	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 5 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 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'	171	101	46.0
A-A' & C-C'	55	42	26.0
C-C' & D-D'	124	56	26.0



Afforestation has been proposed in the 10.0m & 7.5m safety zone for planting 1650 nos. for the first five years as said below:

Table-4A

YEAR	No. of TREES	TYPE of TREES
I - Year	165	NEEM / PUNGAI
II - Year	165	USIL / TAMARIND
III - Year	165	OAK / PUVARASU
IV - Year	165	PANAI / SAVUKKU
V - Year	165	MANTHARAI / OAK

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.

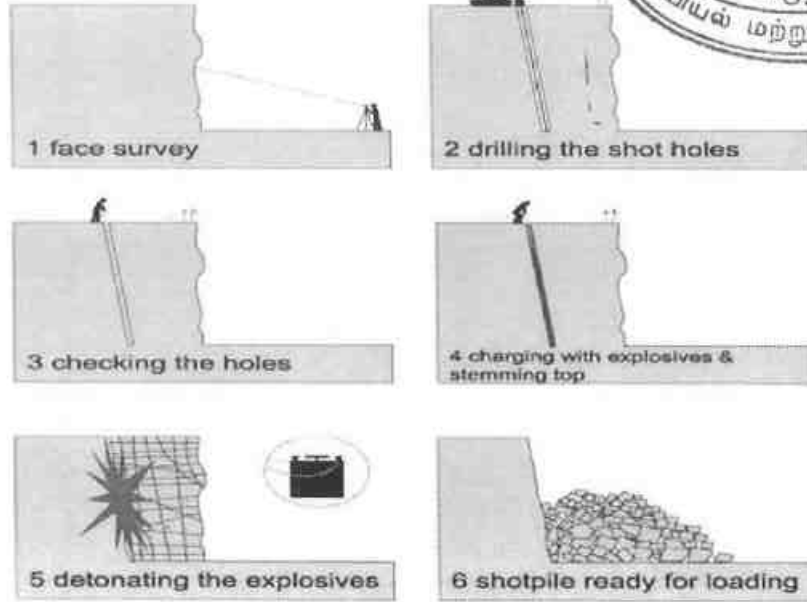
Please refer plate No. V & VI.

5. BLASTING :

5.1	Blasting pattern	<p>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.</p> <p>Drilling and Blasting:</p> <p>Drilling and blasting parameters are as follows:</p> <table border="1" style="width: 100%;"> <tr> <td>Diameter of the hole</td> <td>:</td> <td>32-36 mm</td> </tr> <tr> <td>Spacing</td> <td>:</td> <td>0.5m</td> </tr> <tr> <td>Depth</td> <td>:</td> <td>1.2m to 1.5m</td> </tr> <tr> <td>Burden per hole</td> <td>:</td> <td>0.5m</td> </tr> <tr> <td>Pattern of hole</td> <td>:</td> <td>Zig Zag Staggered in 2 to 3 rows</td> </tr> <tr> <td>Inclination of holes</td> <td>:</td> <td>80° from the horizontal.</td> </tr> <tr> <td>Use of delay detonators</td> <td>:</td> <td>25 milli-second delays</td> </tr> <tr> <td>Detonating fuse</td> <td>:</td> <td>NONEL "Detonating" Cord</td> </tr> </table>	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
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



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- 40 holes per batch of blasting in 2 batches, total 80 holes per day.
Powder factor	:	6 Ts/Kg of explosives
Total explosive required/day	:	40 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 46.0mts 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 Seeniyapuram kanmoi at 750m northeast. The nearest odai located at 65m western side drains rain water from south to northeast side village tanks. 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 SH-75 between Palayamkottai - Ottapidaram - Vilathikulam at 0.55km south of the proposed lease area and National Highway NH-44 between Kanniyakumari - Tirunelveli - Madurai - Srinagar at 7.5 Km Northwest. The NH-138 between Tirunelveli - Thoothukudi is at 10.17Kms south of the proposed lease area.
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.

Table-5 Habitations / Villages

SL. NO	DIRECTION	VILLAGE	POPULATION	DISTANCE
1	North	Pudupatti	1,200	4.2 Km
2	NE	Vadamalaikuruchi	2,200	3.0 Km
3	NW	Kundalapatti	600	1.0 Km
		Sengundrapuram	2,600	2.5 Km
		Elinganaickenpatti	1,100	3.7 Km
4	South	Veerachellaiapuram (Kavalur)	1,200	3.5Km
5	SE	Chandragiripuram	1,000	1.0 Km
		Chokkalingapuram	800	2.5 Km
		Pavali	4,700	3.0 Km
		Kumaralingapuram	2,600	3.2 Km
6	SW	Nattarmangalam	1,000	1.0 Km
7	East	Seeniyapuram	2,000	1.5 Km
8	West	Moolipatti	3,400	3.6 Km

Table-6 - Nearest Infrastructures :

Sl. No	Name of infrastructure	Name of village	Distance from area applied for M.L
1	Post office	Sengundrapuram B.O Pin:626 103.	2.5 Km
2	Police station	Amathur	7.0 Km
3	Town	Virudhunagar	7.0 Km
4	Panchayat	Sengundrapuram	2.5 Km
5	Union	Virudhunagar	7.0 Km
6	DSP office	Virudhunagar	7.0 Km
7	Hospital	Virudhunagar GH & Private	7.0 Km
8	School	Panchayat Union School, Kundalapatti	1.0 Km
9	Railway station	Virudhunagar Jn.	7.0 Km
10	Airport	Madurai	45.0 Km
11	Sea Port	Thoothukudi	110.0 Km



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	3
		Mechanic	1
		Blaster/Mate	1
2.	Semi - skilled	Drivers	2
3.	Unskilled	Musdoor/Labours	8
		Cleaners	2
		Office Boy	1
4.	Management & Supervisory staff		2
Total			20

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	1.0 KLD	Purified water for drinking purposes and others uses by road tankers supply. Requirement will be arranged from nearby sources
Afforestation / Green belt	2.0 KLD	
Dust suppression sprinkling	3.0 KLD	
Total	6.0 KLD	

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 7.0 Km in Virudhunagar 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 :

9.1	Existing land use pattern:														
	<p>The lease area is plain terrain with very gently sloping towards north. The proposed lease area is dry barren lands and occasionally covered by thorny bushes. The area is mostly dry and barren. The dry crop agricultural activities are noticed sporadically within 1 km scattered manner and remaining area is mostly dry.</p> <p>Land use pattern in percentage wise within 1.0 Km radius is follows:</p> <table style="margin-left: 40px;"> <tr><td>1. Quarries & Crusher area</td><td>- 13%</td></tr> <tr><td>2. Habitations</td><td>- 6%</td></tr> <tr><td>3. Roads & cart tracks</td><td>- 8%</td></tr> <tr><td>4. Water bodies odai & Kanmoi</td><td>- 13%</td></tr> <tr><td>5. Dry Lands & open scrubs</td><td>- 21%</td></tr> <tr><td>6. Green Belt</td><td>- 6%</td></tr> <tr><td>7. Seasonal Agricultural lands</td><td>- 33%</td></tr> </table> <p>The land use pattern within the proposed lease area in the beginning of the lease period:</p>	1. Quarries & Crusher area	- 13%	2. Habitations	- 6%	3. Roads & cart tracks	- 8%	4. Water bodies odai & Kanmoi	- 13%	5. Dry Lands & open scrubs	- 21%	6. Green Belt	- 6%	7. Seasonal Agricultural lands	- 33%
1. Quarries & Crusher area	- 13%														
2. Habitations	- 6%														
3. Roads & cart tracks	- 8%														
4. Water bodies odai & Kanmoi	- 13%														
5. Dry Lands & open scrubs	- 21%														
6. Green Belt	- 6%														
7. Seasonal Agricultural lands	- 33%														

Ga



Table 9 Land Use Pattern

S. No.	Land Use	Present Area (Hect)	Area after the quarrying period of 5 years (Hect)
1.	Area under quarrying	Nil	1.70.00
2.	Infrastructures	Nil	0.01.00
3.	Roads, cart tracks etc.,	Nil	0.03.00
4.	Green Belt	Nil	0.62.75
5.	Unutilized Area	3.25.50	0.88.75
	Total	3.25.50	3.25.50

Details furnished in the **Plate Nos. VIIA, VIIB & VIII.**

9.2 Water regime

This proposed quarry operation is up to a maximum depth of 46m below the ground level will not be affected by the ground water table below 60 mts from ground level. There are 10 agricultural open wells within 500m and 15 wells between 500m to 1000m 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
	<p>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.</p>
9.7	Plan for noise level control
	<p>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 during the transportation not exceeding 40 km per hour. Sentries with flags & whistle will be posted in village junction and regulate traffic.</p>
9.8	Environmental impact assessment statement describing impact of mining on the next five years
	<p>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.</p>
9.9	Proposal for waste management
	<p>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.</p>
9.10	Proposal for reclamation of land affected during mining activities and at the end of mining (refilling / fencing etc.)
	<p>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.</p>



9.11 Program of afforestation (indicate extend, number, name of species to be afforested)

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
I	165	80%	627.5	NEEM / PUNGAI	132
II	165	80%	627.5	USILAM / TAMARIND	132
III	165	80%	627.5	OAK / PUVARASU	132
IV	165	80%	627.5	PANAI / SAVUKKU	132
V	165	80%	627.5	MANTHARAI / OAK	132

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	16,50,000
ii)	Machinery to be used	Hired machinery
iii)	Fencing	2,50,000
iv)	Labourers Shed	50,000
v)	Sanitary facility	25,000
vi)	Other Items	25,000
TOTAL		20,00,000

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

Drilling and Blasting cost / unit production including loading & breaking. = Rs.120/-

i).Mining cost for rough stone up to 5 Years planned production quantity

Total Minalbe quantity in M³ - 2,86,680 M³ (1,01,300 Units)

Total cost of mining Rough Stone = 1,01,300 X Rs. 120/-

= Rs. 1,21,56,000/-

ii).Mining cost for gravel for 5 Years planned production quantity

Total Minalbe quantity in M³ - 1,03,020 M³ (36,403 Units)



Total cost of mining - Gravel = 36,403 X Rs. 60/-
 = Rs. 21,84,180/-
 Total Cost for Mining - Rs. 1,43,40,180/-
 Say - Rs. 1,43,40,000/-
Total Project Cost (a+b) = Rs. 1,63,40,000/-.

II. EMP Cost :

Sl. No.	DETAILS	COST per MONTH (Rs.)	Total Cost per Year (Rs.)	TOTAL COST for 5 years LEASE PERIOD (Rs.)
i)	Drinking Water facility for 20 peoples from water vendors	2000	24,000	1,20,000
ii)	Sanitary maintenance for Rest rooms	1500	18,000	90,000
iii)	Safety kits(mask, helmet, sanitizer, gloves, etc.,)	1000	12,000	60,000
iv)	Water Sprinkling using own tractor for the area	15,000	1,80,000	9,00,000
v)	Afforestation, Plantation & Maintenance	50,000 (annual)	50,000	2,50,000
vi)	Environmental parameters testing expenses fees for every six months	(bi-annual)		3,60,000
	a. Air Monitoring	25,000	50,000	
	b. Water analysis	5,000	10,000	
	c. Noise Monitoring	3,000	6,000	
	d. Soil Testing	3,000	6,000	
TOTAL				17,80,000

III. CER cost @2% on Project cost (a+b) - Rs. 5,00,000/-

CER Activity	CER cost (Rs)
Carrying out provisions for Drinking Water with dispenser, Library Racks & books and Toilet /sanitary facilities for students in Panchayat Primary School, Kundalapatti, Virudhunagar Block & District. @2% of the total project cost (Rs.1,63,40,000/-)	3,27,000/-
Revised Cost Allocation	5,00,000/-

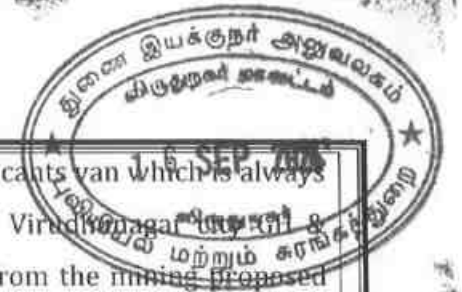
10. MINE CLOSURE PLAN :

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 (46.0m 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 Virudhunagar city and private hospitals located at the distance of 7.0 Km from the mining Proposed 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 : 16.09.2024

RQP SIGNATURE

R. GURURAMACHANDRAN, M.Sc
Qualified Person
(RQP / MAS / 224 / 2010/A)

District : Virudhunagar

Taluk : Virudhunagar

Village : Sengundrapuram [3]

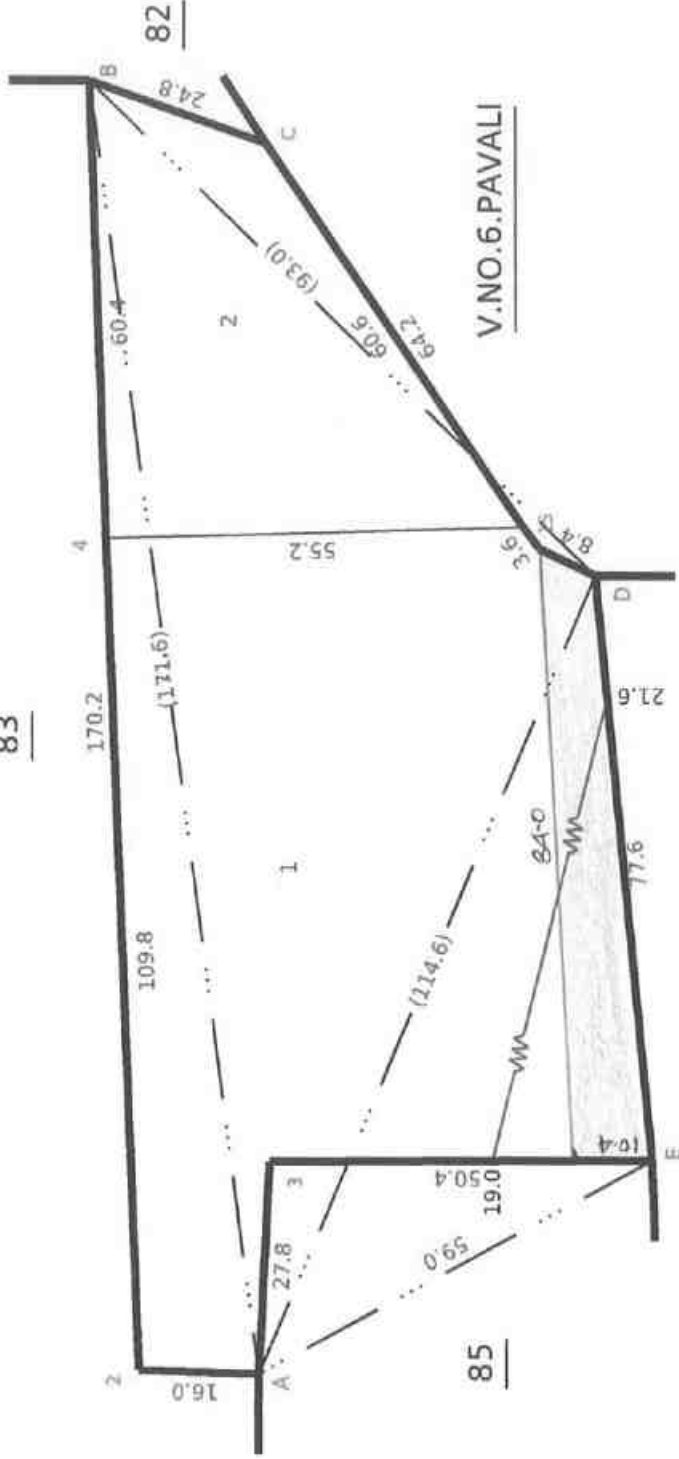
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Signed By Tahsildar
Name of approval officer
Date of Approval : 12-05-2017

Date of Issue: 28-05-2024 19:19:54

Survey and Settlement Department, Government of TamilNadu

240 IV.1

District : Virudhunagar

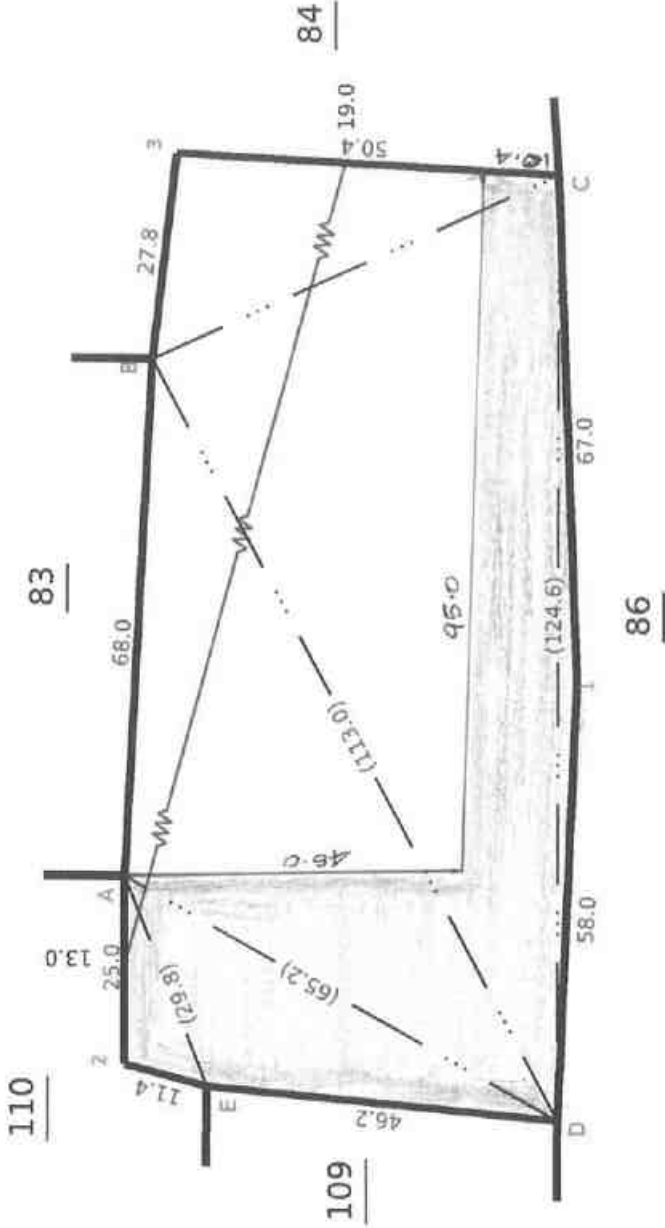
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Village : Sengundrapuram [3]

Survey No : 85

Area : Hect 00 Ares 70.50

Scale : 1 : 1000



Signed By: Tahsildar
 Name of Approver: tahsildar
 Date of Approval: 12/09/2024

Co

Date of Issue: 28-05-2024 19:22:31

Survey and Settlement Department, Government of TamilNadu

District : Virudhunagar

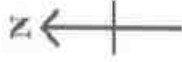
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Village : Sengundrapuram [3]

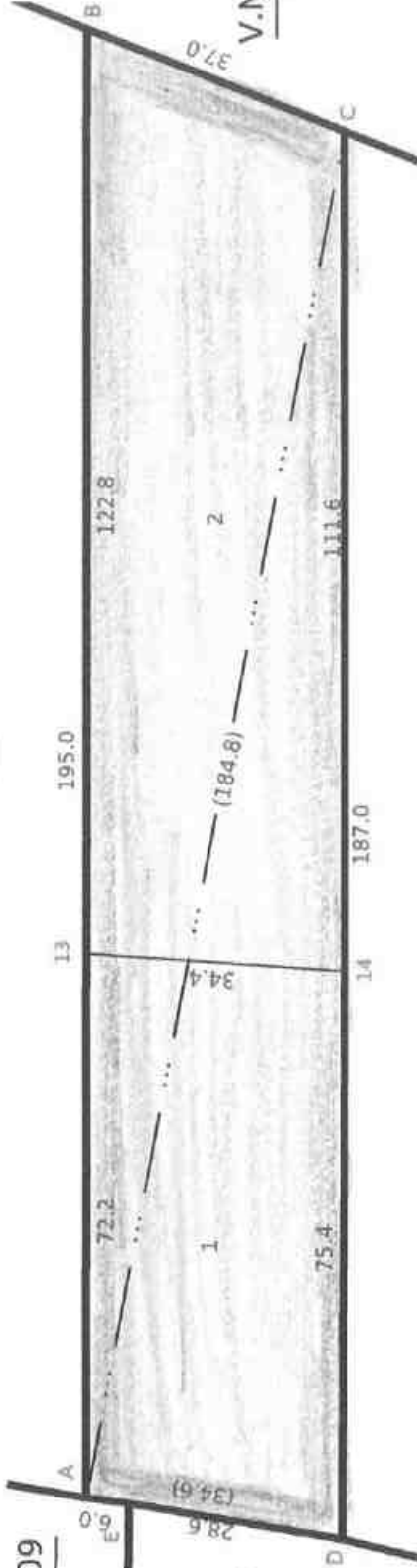
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Area : Hect 00 Ares 66.00

Scale : 1 : 1000



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V.NO.6.PAVALI

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Signed By T. S. S. S. S.

Name of approver T. S. S. S. S.

Date of Approval : 15-02-2024

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Date of Issue: 15-02-2024 09:58:52

Survey and Settlement Department, Government of TamilNadu

240 IV.1



District : Virudhunagar

Taluk : Virudhunagar

Village : Sengundrapuram [3]

Survey No : 88

Area : Hect 00 Ares 62.00

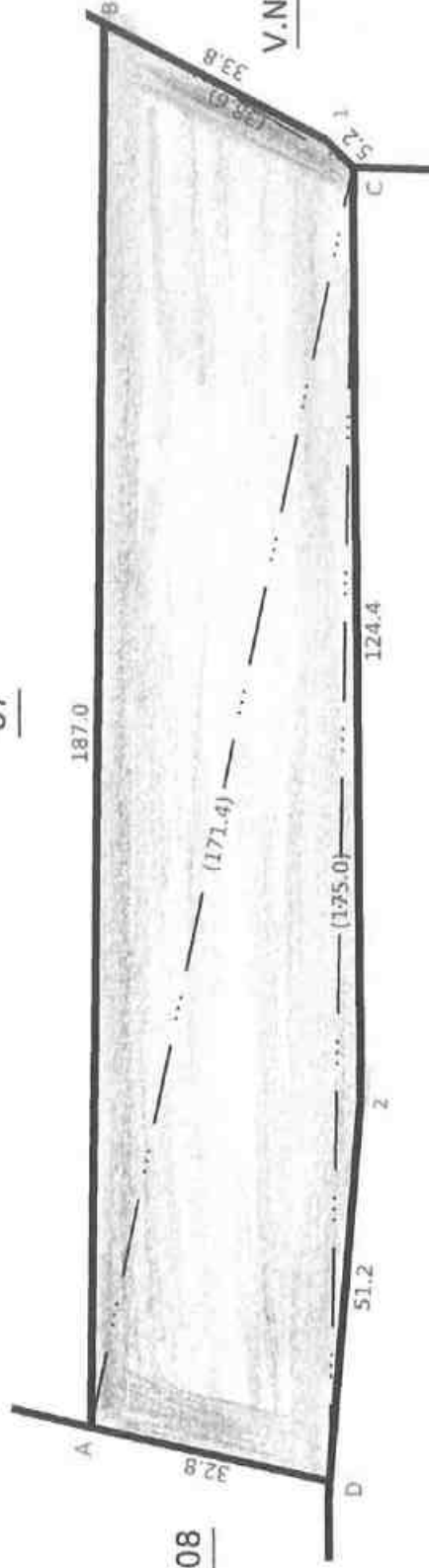
Scale : 1 : 1000



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Signed By *T. S. Sridhar*

Name of approver *T. S. Sridhar*

Date of Approval : 12/09/2024

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Date of Issue: 15-02-2024 10:00:03

Survey and Settlement Department, Government of TamilNadu

240 IV.1

District : Virudhunagar

Taluk : Virudhunagar

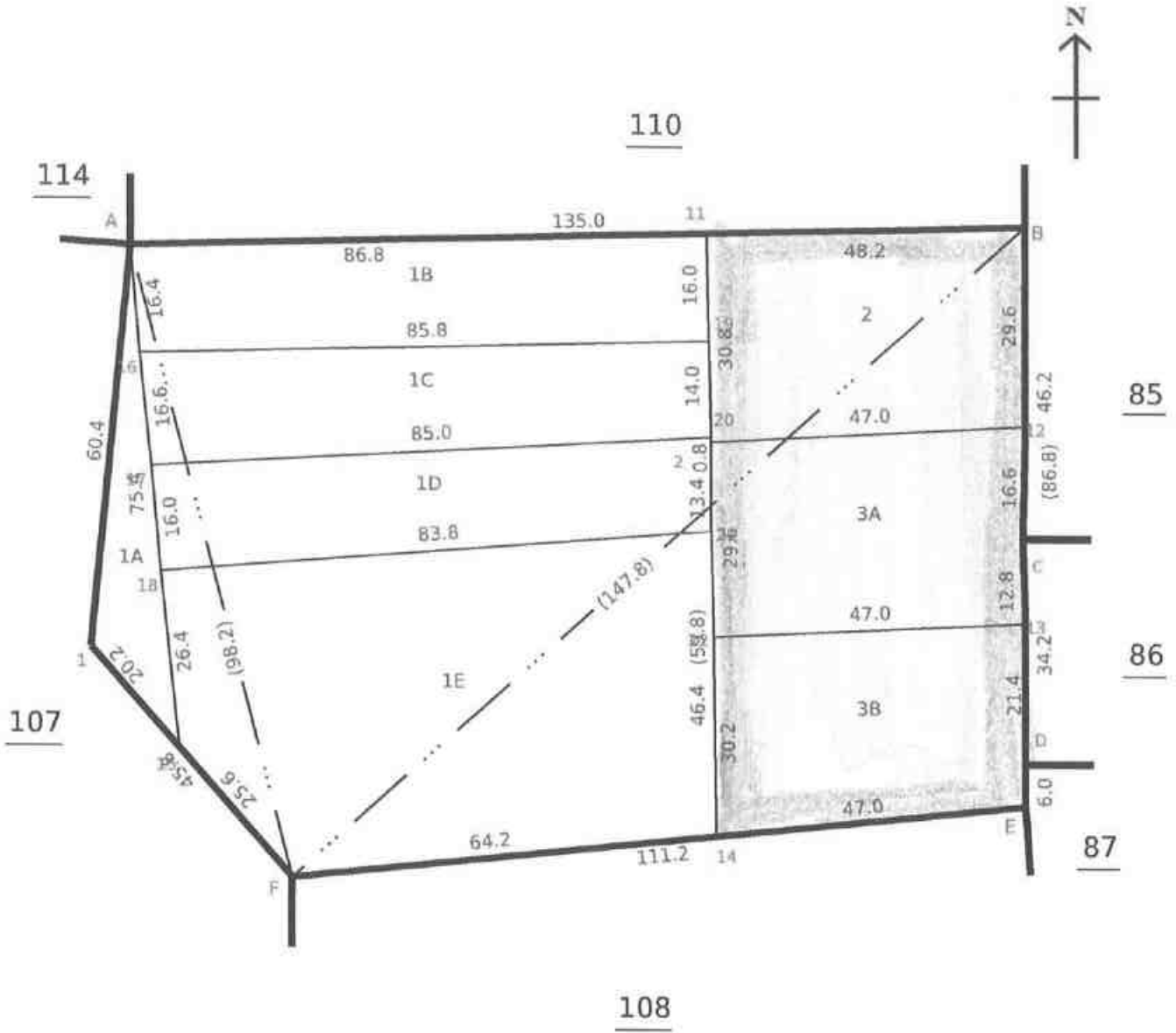
Village : Sengundrapuram [3]



Survey No 109

Area : Hectares 22.50

Scale : 1 : 1000



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Signed By Tahsildar
Name of approver : tahv
Date of Approval : 13-09-2017



Date of Issue: 15-09-2024 15:21:39

District : Virudhunagar

Taluk : Virudhunagar

Village : Sengundrapuram [3]



Survey No: 110

Area : Hectares 48.50

Scale : 1 : 10000



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Date of Issue: 15-09-2024 15:23:47

Signed By Tahsildar

Name of approver : tahv

Date of Approval : 13-09-2017





தமிழ்நாடு அரசு
வருவாய்த் துறை

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



மாவட்டம் : விருதுநகர்

வட்டம் : விருதுநகர்

வருவாய் கிராமம் : செங்குன்றாபுரம்

பட்டா எண் : 1669

உரிமையாளர்கள் பெயர்

1. கோவிந்தராஜ் மகன் Pentagon blue metals காசு பாண்டிரங்கன்

புல எண்	உட்பிரிவு	புன்செய்		நுன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
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118	2A2	0 - 3.14	0.40	--	--	--	--	2023/0105/26/292771- -2023/26/05/0001645D -- 28-02-2023
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76	2	0 - 79.00	2.18	--	--	--	--	2020/0103/26/090278- -- -- 20-07-2020
80	-	0 - 56.00	1.55	--	--	--	--	2020/0103/26/090278- -- -- 20-07-2020
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81	2	0 - 61.50	1.69	--	--	--	--	2020/0103/26/090278- -- -- 20-07-2020
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83	2	0 - 26.00	0.72	--	--	--	--	2020/0103/26/090278- -- -- 20-07-2020
84	1	0 - 53.50	2.23	--	--	--	--	2020/0103/26/090278- -- -- 20-07-2020
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		6 - 60.14	23.50					

குறிப்பு 2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை நாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 26/05/003/01669/20342 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 15-02-2024 அன்று 09:53:11 AM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



தமிழ்நாடு அரசு
வருவாய்த் துறை

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

மாவட்டம் : விருதுநகர்

வட்டம் : விருதுநகர்

வருவாய் கிராமம் : செங்குன்றாபுரம்

பட்டா எண் : 1670

உரிமையாளர்கள் பெயர்

1. கோவிந்தராஜ் மகன் Pentagonblue metals காக பாண்டுரங்கள்

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	
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112	1D2	0 - 19.50	0.54	--	--	--	--	2020/0103/26/090271- ----- 20-07-2020
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உ. எண் 20 செங்குன்றபுரம்.

21

	2	3	4	5	6	7	8	9	10	11	12
							ந. லை.	பென். எர்ஸ்	ந. லை.		
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80	ர	4	...	4-3	3	2	77	0 56.0	1 55	34 ரா. ஆண்டராம் மாள்.	
81-1	ர	4	...	4-3	3	2	77	0 35.0	0 97	34 ரா. ஆண்டராம் மாள்.	
-2	ர	4	...	4-3	3	2	77	0 61.5	1 69	639 க. முருகேசன்.	
								0 96.5	2 66		
82	ர	4	...	...	...	...	...	0 56.5	...	.....	ஒடை.
83-பா	ர	4	...	4-3	3	2	77	0 40.0	1 11	502 ரா. சுப்புலட்சுமி.	
-பா	ர	4	...	4-3	3	2	77	0 26.0	0 72	738 கு. சங்கீரமம் மாள் (1), பா. கருப்பாமி (2).	
								0 66.0	1 83		
84-பா	ர	4	...	4-2	2	4	17	0 53.5	2 23	50 மு. கந்தசாமித் தேவர்.	
-பா	ர	4	...	4-2	2	4	17	0 24.0	1 00	265 வெ. வீரமாதேவர்.	
								0 77.5	3 23		
85	ர	4	...	4-2	2	4	17	0 70.5	2 94	247 வெ. நாச்சியாள் மாள்.	
86-பா	ர	4	...	4-2	2	4	17	0 30.0	1 26	109 பெ. கிருஷ்ணம் மாள்.	
-பா	ர	4	...	4-2	2	4	17	0 32.5	1 36	720 சி. ராஜ்	
								0 62.5	2 62		
87-பா	ர	4	...	4-2	2	4	17	0 25.5	1 06	961	

Go



1	2	3	4	5	6	7	8	9	10	11	12	13	14	
87	2	87-பா	ர	பு	...	4-2	2	4	17	0	40-5	1	69	739 பெ. கிருஷ்ணம் மாள் (1), சே. ராம கிருஷ்ணன் (2).
										0	66-0	2	75	
88	...	88	ர	பு	...	4-2	2	4	17	0	62-0	2	59	51 க. கந்தசாமி நாயக்கர்.
89	...	89	ர	பு	...	4-2	2	4	17	1	02-5	4	28	615 கோ. முத்தையா நாயக்கர்.
90	1	90-1	ர	பு	...	4-2	2	4	17	1	42-5	5	95	740 க. கிருஷ்ண சாமி (1), பாண்டு ரங்கன் (2).
	2A	-2A	ர	பு	...	4-2	2	4	17	0	69-0	2	87	740 க. கிருஷ்ண சாமி (1), பாண்டு ரங்கன் (2).
	2B	-2B	ர	பு	...	4-2	2	4	17	0	26-5	1	12	516 ரா. பாண்டிய ராஜன்.
	2C	-2C	ர	பு	...	4-2	2	4	17	0	29-0	1	22	233 சி. பழனிச்சாமி.
										2	67-0	11	16	
91	...	91	ர	பு	...	4-2	2	4	17	0	48-0	2	01	740 க. கிருஷ்ண சாமி (1), பாண்டு ரங்கன் (2).
92	...	92	ர	பு	...	4-2	2	4	17	0	48-5	2	03	740 க. கிருஷ்ண சாமி (1), பாண்டு ரங்கன் (2).
93	...	93	ர	பு	...	4-2	2	4	17	0	52-0	2	18	9 மா. அண்ணா மலையம்மாள்.
94	1	94-1	ர	பு	...	4-2	2	4	17	0	40-0	1	66	649 மா. முனி யாண்டி.
	2	-2	ர	பு	...	4-2	2	4	17	0	38-0	1	59	878 பெ. குருநாதத் தேவர் (1), ப. சின்ன சங்கையாத் தேவர் (2), ப. குருசாமித் தேவர் (3).
	3	-3	ர	பு	...	4-2	2	4	17	0	35-5	1	49	197 க. சண்முகத் தேவர்.
										1	13-5	4	74	

50

கி. என். 20 செங்குன்றபுரம்.



1	3	4	5	6	7	8	9	10	11	
A	95-1ur	ர	ய	...	4-2	2	4 17	0 22-0	0 92	197 க. சண்முகத் தேவர்.
B	-1ur	ர	ய	...	4-2	2	4 17	0 18-5	0 77	52 க. கந்தசாமித் தேவர்.
	-2	ர	ய	...	4-2	2	4 17	0 63-5	2 65	962 ரா. குக்மிணி யம்மாள்.
								1 04-0	4 34	
	96-ur	ர	ய	...	4-2	2	4 17	0 07-0	4 48	717 ச. ராமச்சந்திர நாயக்கர்.
	-ur	ர	ய	...	4-2	2	4 17	0 30-5	1 27	306 க. ஜீவரத்தினம்.
								1 37-5	5 75	
A	97-1ur	ர	ய	...	4-2	2	4 17	0 35-5	1 48	491 ஸ்ரீ. ரெ. சுப்பு செட்டியார்.
B	-1ur	ர	ய	...	4-2	2	4 17	0 32-0	1 34	290 ஸ்ரீ. ரெ. வேல் சாமிசெட்டியார்.
CA	-2ur	ர	ய	...	4-2	2	4 17	0 39-0	1 63	717 ச. ராமச்சந்திர நாயக்கர்.
CB	-2ur	ர	ய	...	4-2	2	4 17	0 32-0	1 33	306 க. ஜீவரத்தினம்.
								1 38-5	5 78	
	98-ur	ர	ய	...	4-2	2	4 17	0 27-0	1 13	605 ச. மரியப்ப நாயக்கர்.
	-ur	ர	ய	...	4-2	2	4 17	0 28-0	1 17	963 க. வெப்ப நாயக்கர்.
								0 55-0	2 30	
	99-1	ர	ய	...	4-2	2	4 17	0 39-5	3 71	101 பெர். கிருஷ்ண சாமி.
	-2	ர	ய	...	4-2	2	4 17	0 84-0	3 52	287 பெர். வெங்கடேஸ்வரன்.
								1 73-5	7 25	
	100	ர	ய	0 71-5	...	

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1	2	3	4	5	6	7	8	9	10	11	12
107	1C	107-1பா	ர	4	...	4-2	2	4 17	0 01-0	0 06	741
	2A	-2பா	ர	4	...	4-2	2	4 17	0 35-0	1 46	518
	2B	-2பா	ர	4	...	4-2	2	4 17	0 07-0	0 30	518
	3	-3	ர	4	...	4-2	2	4 17	0 48-0	1 99	744
	4	-4	ர	4	...	4-2	2	4 17	0 47-0	1 96	436
									i 89-5	7 91	
108	1	108-பா	ர	4	...	4-2	2	4 17	0 70-5	2 95	490
	2	-பா	ர	4	...	4-2	2	4 17	0 14-0	0 59	490
	3	-பா	ர	4	...	4-2	2	4 17	0 08-0	0 33	490
									0 92-5	3 87	
109	1A	109-1பா	ர	4	...	4-2	2	4 17	0 04-0	0 17	892
	1B	-1பா	ர	4	...	4-2	2	4 17	0 14-0	0 58	422
	1C	-1பா	ர	4	...	4-2	2	4 17	0 13-5	0 57	586
	1D	-1பா	ர	4	...	4-2	2	4 17	0 13-0	0 55	239
	1E	-1பா	ர	4	...	4-2	2	4 17	0 37-0	1 54	498
	2	-2	ர	4	...	4-2	2	4 17	0 14-0	0 57	91
	3A	-3பா	ர	4	...	4-2	2	4 17	0 13-5	0 57	40
	3B	-3பா	ர	4	...	4-2	2	4 17	0 13-5	0 56	382
									1 22-5	5 11	

விவரப் பட்டியலைப் பரர்க்கவும்.

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	2	3	4	5	6	7	8	9	10	11	12
							கு. பை.	பெ. ஏர்ஸ்	கு. பை.		
1A	110-1A	ர	பு	...	4-3	3	2 77	0 28-5	0 78	730	பெ. கோவிந்தராஜ் (1), பெ. கந்தசாமி(2).
1B	-1B	ர	பு	...	4-3	3	2 77	0 19-0	0 53	528	இளவர் மா.பார்த்தசாரதி கார்பாளர் தாயார் ராஜம்மாள்.
2A	-2A	ர	பு	...	4-3	3	2 77	0 29-0	0 80	482	ரா. சுப்பாராம்.
2B	-2B	ர	பு	...	4-3	3	2 77	0 36-5	1 02	345	சு. கி. தனுஷ்கோடி.
2C	-2C	ர	பு	...	4-3	3	2 77	0 35-5	0 98	417	நா. ராஜராம் நாயக்கர்.
								1 48-5	4 11		
1	111-1	ர	பு	...	4-3	3	2 77	0 34-0	0 94	53	கு. கந்தசாமி.
2	-2	ர	பு	...	4-3	3	2 77	0 38-0	1 05	171	பெ. கோவிந்தராஜ்.
								0 72-0	1 99		
1A	112-1A	ர	பு	...	4-3	3	2 77	0 39-0	1 07	345	சு. கி. தனுஷ்கோடி.
1B	-1B	ர	பு	...	4-3	3	2 77	0 39-0	1 07	741	நா. அழகர் சாமி (1), நா. கோபால் சாமி (2).
1C	-1C	ர	பு	...	4-3	3	2 77	0 39-0	1 07	156	பெ. கோபால் சாமி நாயக்கர்.
1D	-1D	ர	பு	...	4-3	3	2 77	0 39-0	1 10	741	நா. அழகர் சாமி (1), நா. கோபால் சாமி (2).
2A1	-2A1	ர	பு	...	4-3	3	2 77	0 20-5	0 57	53	கு. கந்தசாமி.
2A2	-2A2	ர	பு	...	4-3	3	2 77	0 22-5	0 63	518	சி. கு. பாலகிருஷ்ணன்.
2B1	-2B1	ர	பு	...	4-3	3	2 77	0 06-0	0 17	518	சி. கு. பாலகிருஷ்ணன்.
2B2	-2B2	ர	பு	...	4-3	3	2 77	0 26-0	0 71	590	சி. கு. பாலகிருஷ்ணன்.

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	2	3	4	5	6	7	8	9	10	11
5	103-பா	ர	பு	...	4-2	2	4 17	0 09.5	0 40	743 சீ. லட்சுமியம் மான் (1). பொ. லட்சுமியம் மான் (2).
								0 86.0	3 58	
1	104-பா	ர	பு	...	4-2	2	4 17	0 24.5	1 02	345 க. கி. நனுஷ் கோடி.
2	-பா	ர	பு	...	4-2	2	4 17	0 29.0	1 22	592 கி. மாரிச்சாமி நாயக்கர்.
3	-பா	ர	பு	...	4-2	2	4 17	0 36.5	1 52	261 மா. நல்லம்மாள்.
4	-பா	ர	பு	...	4-2	2	4 17	0 38.0	1 58	245 கி. நாராயண சாமி.
								1 28.0	5 34	
1	105-1	ர	பு	...	4-2	2	4 17	0 22.5	0 95	417 நா. ராஜாராம் நாயக்கர்.
2	(2)	ர	பு	...	4-2	2	4 17	0 19.5	0 81	741 நா. அழகர் சாமி (1). கோபால் சாமி (2).
3	-3	ர	பு	...	4-2	2	4 17	0 44.0	1 84	156 பெ. கோபால்சாமி நாயக்கர்.
								0 86.0	3 60	
1	106-பா	ர	பு	...	4-2	2	4 17	0 10.5	0 44	212 பொ. சின்ன லட்சுமி.
2	-பா	ர	பு	...	4-2	2	4 17	0 21.5	0 90	51 க. சுந்தராமி நாயக்கர்.
3	-பா	ர	பு	...	4-2	2	4 17	0 32.0	1 34	110 கி. கிருஷ்ணம் மான்.
4	-பா	ர	பு	...	4-2	2	4 17	0 32.0	1 33	291 நா. வேல்சாமி.
								0 96.0	4 01	
2A	107-பா	ர	பு	...	4-2	2	4 17	0 48.5	2 01	741 நா. அழகர் சாமி (1). கோபால் சாமி (2).
2B	-பா	ர	பு	...	4-2	2	4 17	0 03.0	0 13	741 நா. அழகர் சாமி (1). நா. கோபால் சாமி (2).

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இந்திய அரசாங்கம்
Government of India

பாண்டூரங்கள் கோவிந்தராஜ்
Pandurangan Govindaraj
பதனம் கோவிந்தராஜ் சேஷாத்ரி
Father : Govindaraj Seshathiri

பிறந்த நாள்/DOB: 10/07/1983
பாலினம் / Male

4215 6698 2478

ஆதார் - சாதாரண மனிதனின் அதிகார

இந்திய அடையாள அலுவலகம்
Unique Identification Authority of India

முகவரி: 4888
என். வி. மில் எதிர்ப்புறம், பாலாஜி நகர்
சூலக்கரை, தூலக்கரை, விருதுநகர்
தமிழ் நாடு. 626003

Address: 4/888, V T MILL
OPPOSITE, BALAJI
NAGAR, Soolakkarai,
Soolakkarai, Virudhunagar,
Tamil Nadu, 626003

4215 6698 2478

1947
1879 801 1647

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www
www.uidai.gov.in

आयकर विभाग
INCOME TAX DEPARTMENT

भारत सरकार
GOVT. OF INDIA

G PANDURANGAN
SESHADRI GOVINDARAJ
10/07/1983
Permanent Account Number
AZJPP8849A

भारत सरकार

1947

1879 801 1647

1947

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**CERTIFICATE OF RECOGNITION AS
QUALIFIED PERSON TO PREPARE MINING PLANS
(Under Rule 22 C of Mineral Concession Rules 1960)**

*Shri R. Gururamachandran resident of G-2, Sree Apartments, 4, 29th
Cross, Avvai Nagar, Lawspet, Puducherry – 605 008, son of Shri K. Rengasamy
having given satisfactory evidence of his qualifications and experience is hereby
granted recognition under Rule 22C of the Mineral Concession Rules, 1960 as a
Qualified Person to prepare Mining Plans.*

His registration number is

RQP/MAS/224/2010/A

recognition is valid for a period of ten years ending 24/11/2020.

*Place : Chennai
Date : 25.11.2010*

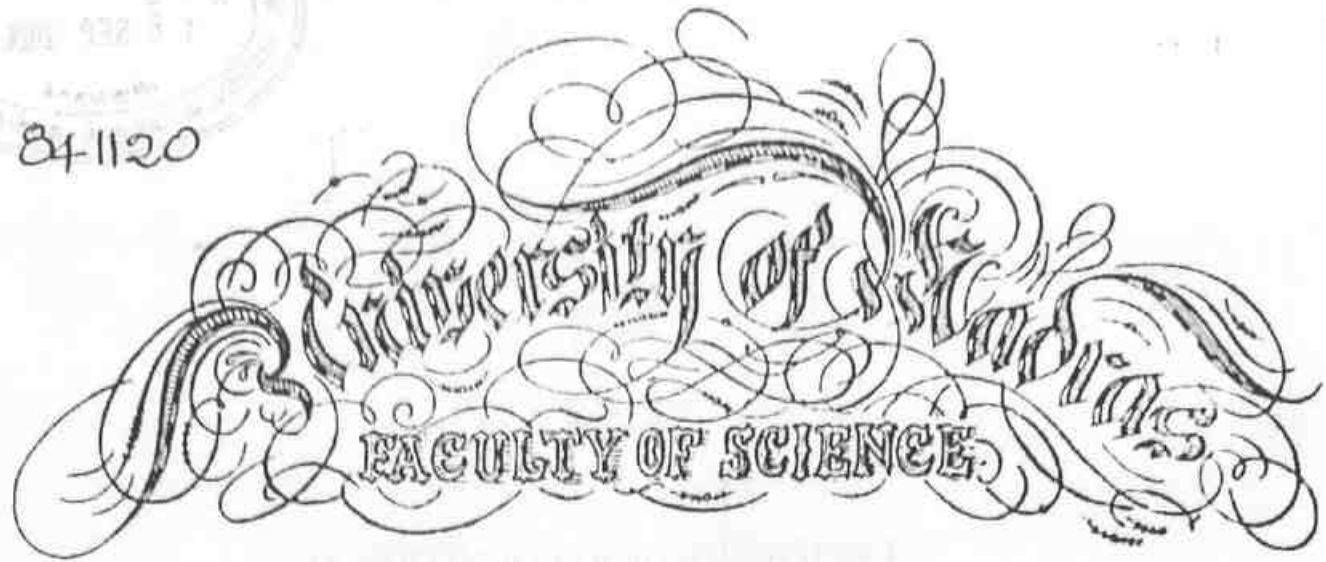
R. Gururamachandran
Regional Controller of Mines
Indian Bureau of Mines
Chennai Region

R. Gururamachandran
R. GURURAMACHANDRAN, M.Sc.,
Qualified Person
(RQP / MAS / 224 / 20)

Gururamachandran



841120



The Senate of the *University of Madras* hereby makes known that *R. Gururamachandran* has been admitted to the Degree of Master of Science, he having been certified by duly appointed Examiners to be qualified to receive the same, and having been by them placed in the *First Class*, at the Examination held in the month of *April 1986* in Branch *VII - A. Applied Geology*

Given under the seal of the University.

[Signature]

R. GURURAMACHANDRAN, M.Sc.,
Qualified Person
(RQP / MAS / 224 / 2010/A)

Senate House,
September 20, 1986

[Signature]
Registrar.

[Signature]
B.E., M.Sc. Ph D (Florida),
M.A.S.C.B., F.I.B. (I)
Vice-Chancellor.

M.M. Detergents Company (P) Ltd

No.1, Race Course Road, Nagalakshmi Theatre Complex, Dindigul
Phone : 0451 - 2422286 Fax 0451 - 2410122



MMD/DGL/2010-11

23rd June 2010.

CERTIFICATE

This is to certify that Mr. R.Gururamachandran M.Sc., working at our Nadumandalam Mines, Natham taluk, Dindigul district as Manager – Geology & Exploration since June 2008. He is also responsible for development of new mines for Lime Stone, Calcite and Dolomite at various districts.

For M.M.Detergent Company (P) Ltd,


(M.SUGUMAR)
AGENT


R. GURURAMACHANDRAN, M.Sc.,
Qualified Person
(RQP / MAS / 224 / 2010/A)





VEMBANUR SILICA SAND MINES

Office : O/ 60, Cheran Street, Paari Nagar, CHENNAI 600083.
Mines at Vembanur village, Cheyyur taluk, Kancheepuram district.

01-05-2006

EXPERIENCE CERTIFICATE

Name and Address : R.GURURAMACHANDRAN M.Sc.,
5, 23rd Cross, Avvai Nagar, Lawspet,
PONDICHERRY 605 008.

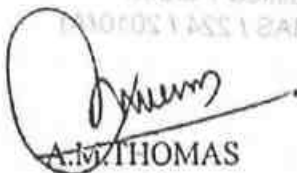
Position : Geologist cum Manger


Date of Joining : 02-12-2002


Date of Leaving : 30-04-2006

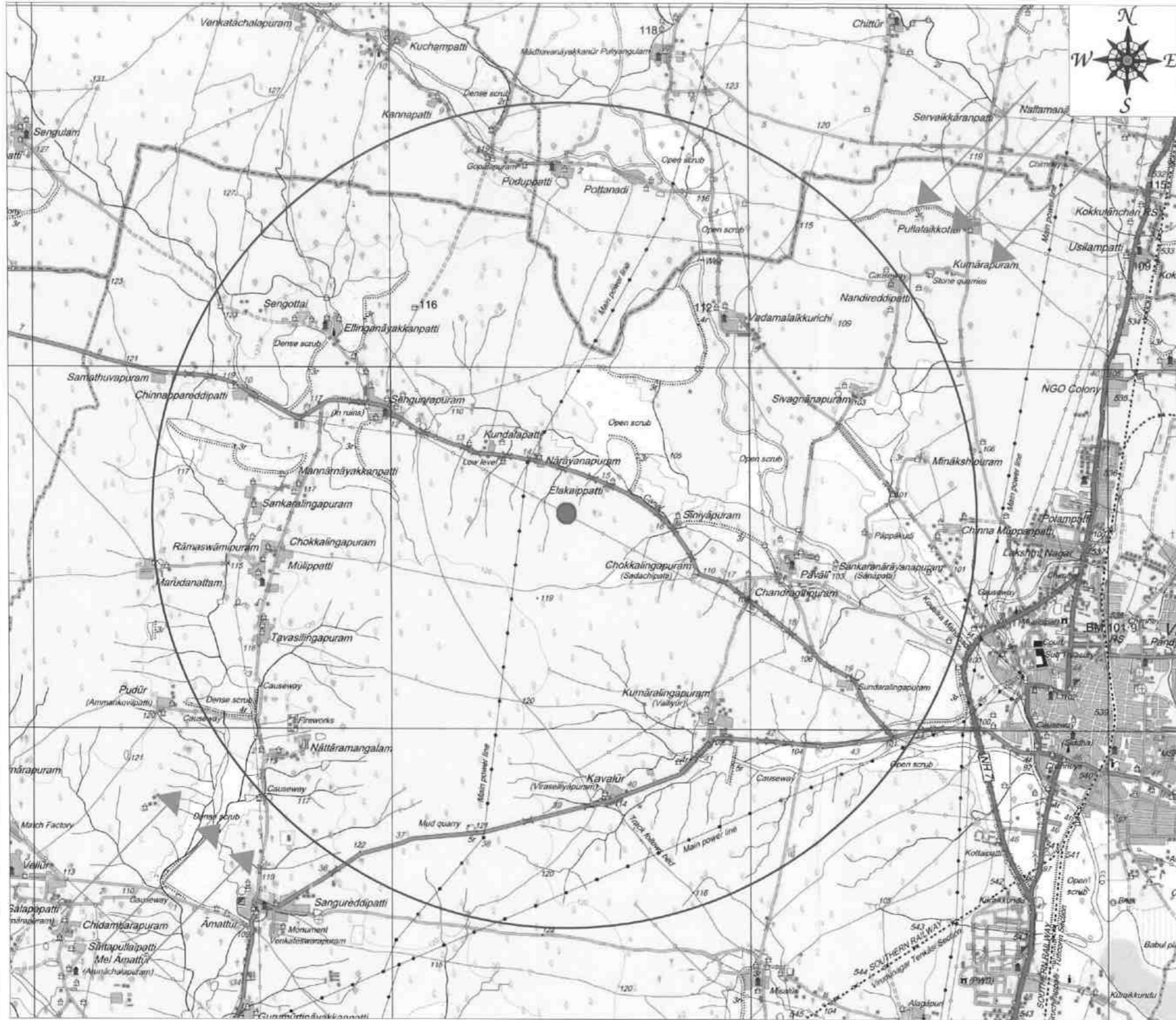
Conduct : Good.

For Vembanur Silica Sand Mines


A.M. THOMAS


R. GURURAMACHANDRAN, M.Sc.,
Qualified Person
(RQP / MAS / 224 / 2000/A)





PLATE



APPLICANT

Thiru.G.Pandurangan,
S/o.S.Govindaraj,
D.No.4/888, Balaji Nagar, Soolakkarai,
Virudhunagar District - 626 003 .

LOCATION OF THE SITE :

EXTENT : 3.25.50 Hect.
S.F Nos : 84/1(p),85(p),86/1&2,
87/1&2,88,109/2,3A&3B,
110/1B,2B(P)&2C(P)
VILLAGE : SENGUNDRAPURAM
TALUK : VIRUDHUNAGAR
DISTRICT : VIRUDHUNAGAR

TOPO SHEET No:- 58G/14

Latitude : 9° 36' 27.3458" N to 9° 36' 36.2543" N

Longitude : 77° 53' 37.2835" E to 77° 53' 45.9033" E

Applied Area

Wind Direction

5 KM Radius

CONVENTIONAL SYMBOLS

Express highway: with toll, with bridge, with distance stone		20
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, Roads		
Wells lined, unlined, Tube-well, Spring, Tanks: perennial, dry		
Embankments: road or rail, tank, Broken ground		
Railways, broad gauge: double, single with station; under constn		RS
Railways, other gauges: double, single with distance stone, do		20

KEY PLAN:-

SCALE 1:50,000

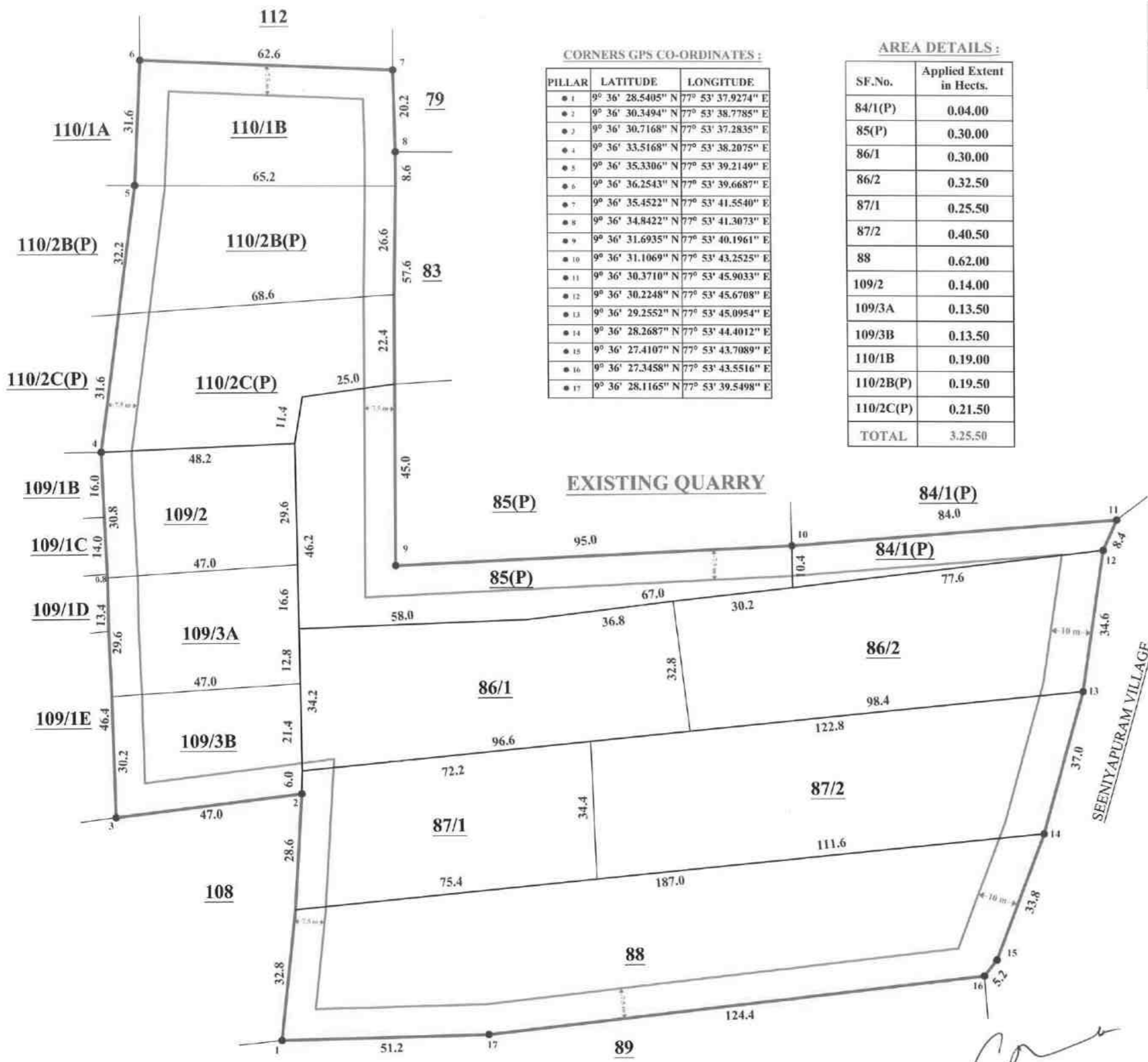
PLANS & SECTIONS ARE PREPARED BASED ON THE LEASE MAP AUTHENTICATED BY THE STATE GOVERNMENT :-

R. Gururamachandran
R. GURURAMACHANDRAN, M.Sc.
Qualified Person
(RQP / MAS / 224 / 2010/A)

Ca



PLATE : III



CORNERS GPS CO-ORDINATES :

PILLAR	LATITUDE	LONGITUDE
1	9° 36' 28.5405" N	77° 53' 37.9274" E
2	9° 36' 30.3494" N	77° 53' 38.7785" E
3	9° 36' 30.7168" N	77° 53' 37.2835" E
4	9° 36' 33.5168" N	77° 53' 38.2075" E
5	9° 36' 35.3306" N	77° 53' 39.2149" E
6	9° 36' 36.2543" N	77° 53' 39.6687" E
7	9° 36' 35.4522" N	77° 53' 41.5540" E
8	9° 36' 34.8422" N	77° 53' 41.3073" E
9	9° 36' 31.6935" N	77° 53' 40.1961" E
10	9° 36' 31.1069" N	77° 53' 43.2525" E
11	9° 36' 30.3710" N	77° 53' 45.9033" E
12	9° 36' 30.2248" N	77° 53' 45.6708" E
13	9° 36' 29.2552" N	77° 53' 45.0954" E
14	9° 36' 28.2687" N	77° 53' 44.4012" E
15	9° 36' 27.4107" N	77° 53' 43.7089" E
16	9° 36' 27.3458" N	77° 53' 43.5516" E
17	9° 36' 28.1165" N	77° 53' 39.5498" E

AREA DETAILS :

SF.No.	Applied Extent in Hects.
84/1(P)	0.04.00
85(P)	0.30.00
86/1	0.30.00
86/2	0.32.50
87/1	0.25.50
87/2	0.40.50
88	0.62.00
109/2	0.14.00
109/3A	0.13.50
109/3B	0.13.50
110/1B	0.19.00
110/2B(P)	0.19.50
110/2C(P)	0.21.50
TOTAL	3.25.50

APPLICANT :

Thiru.G.Pandurangan,
S/o.S.Govindaraj,
D.No.4/888, Balaji Nagar, Soolakkarai,
Virudhunagar District - 626 003 .

LOCATION OF THE SITE :

EXTENT : 3.25.50 Hect.
S.F Nos : 84/1(p),85(p),86/1&2,
87/1&2,88,109/2,3A&3B,
110/1B,2B(P)&2C(P)
VILLAGE : SENGUNDRAPURAM
TALUK : VIRUDHUNAGAR
DISTRICT : VIRUDHUNAGAR

INDEX:-

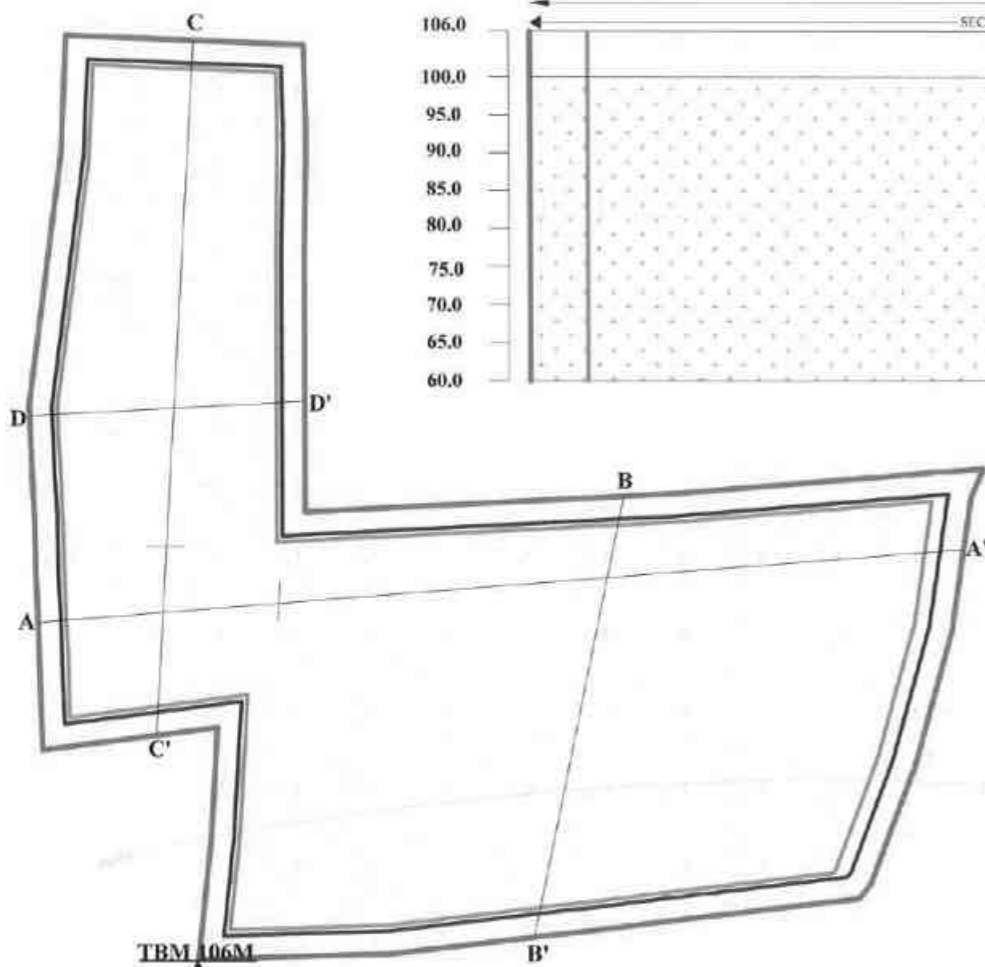
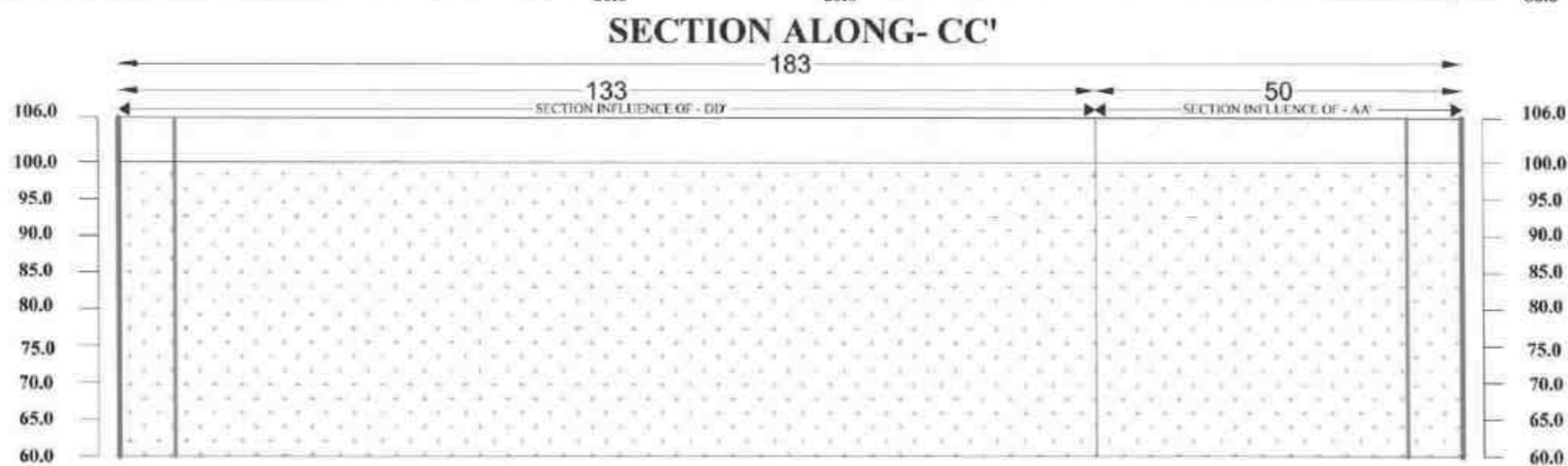
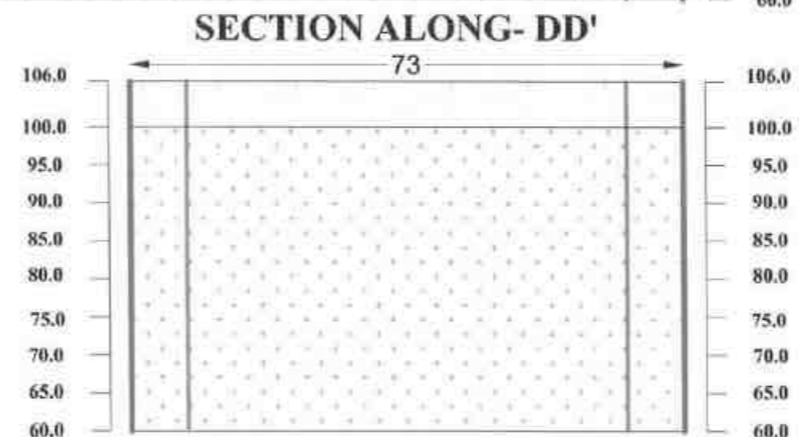
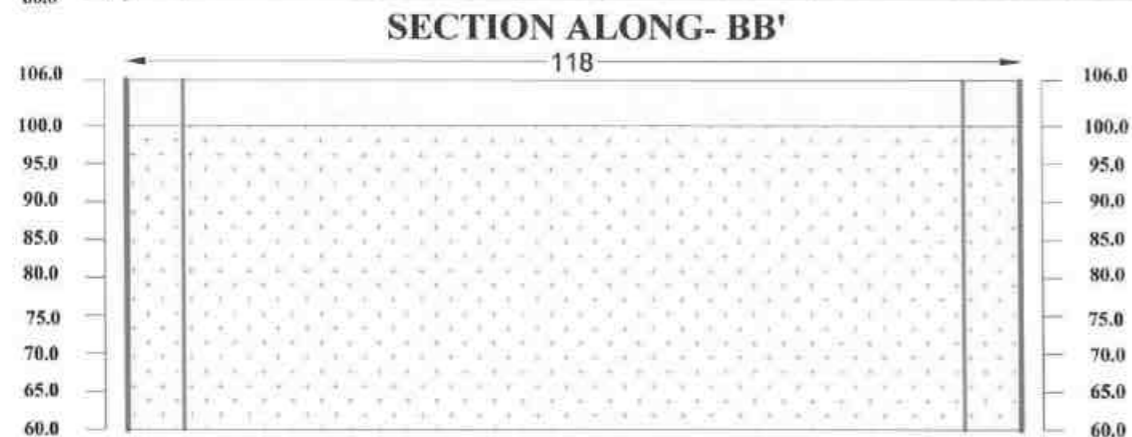
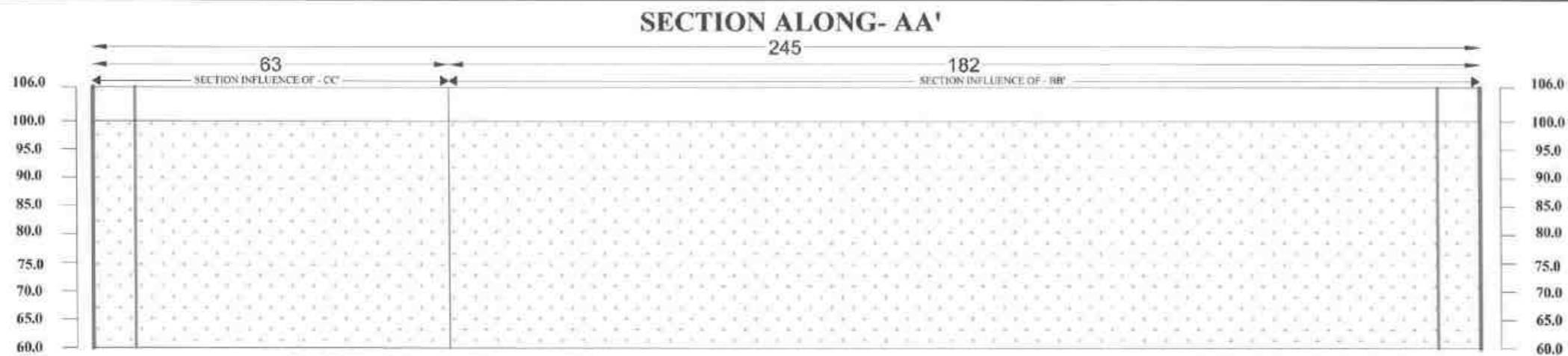
- Applied Area
- Safety Line
- Boundary Pillars

MINING LEASE PLAN:-

SCALE 1:1,000

PLANS & SECTIONS ARE PREPARED BASED ON THE LEASE MAP AUTHENTICATED BY THE STATE GOVERNMENT :-

R. Gururamachandran
R. GURURAMACHANDRAN, M.Sc.
Qualified Person
(RQP / MAS / 224 / 2010/18)



GEOLOGICAL RESERVES

SECTION	Length M	Width M	Depth M	Rough Stone Volume M ³	Gravel Volume M ³
AA' - BB'	182	118	6.0	-	1,28,856
	182	118	40.0	8,59,040	-
AA' - CC'	63	50	6.0	-	18,900
	63	50	40.0	1,26,000	-
CC' - DD'	133	73	6.0	-	58,254
	133	73	40.0	3,88,360	-
TOTAL GEOLOGICAL RESERVES				13,73,400	2,06,010

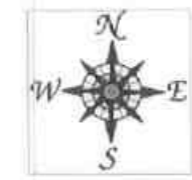


PLATE : IV

APPLICANT :

Thiru.G.Pandurangan,
S/o.S.Govindaraj,
D.No.4/888, Balaji Nagar, Soolakkarai,
Virudhunagar District - 626 003 .

INDEX:-

- Lease Applied Area
- Safety Line
- Earth Bund
- Gravel Deposit
- Rough Stone
- Bench Mark TBM 106M

SURFACE CUM GEOLOGICAL PLAN AND SECTIONS:-

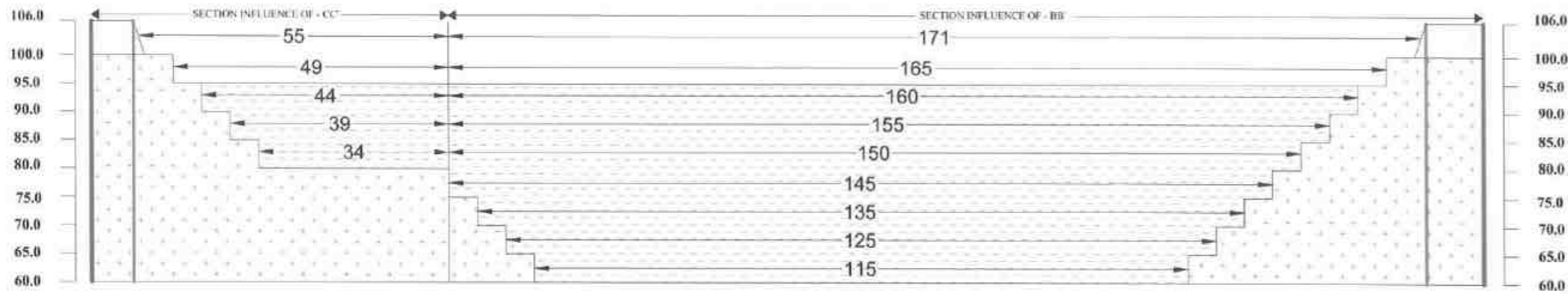
SCALE:- [PLAN - 1:2,000
SECTION - 1:1,000

PLANS & SECTIONS ARE PREPARED BASED ON THE LEASE MAP AUTHENTICATED BY THE STATE GOVERNMENT :-

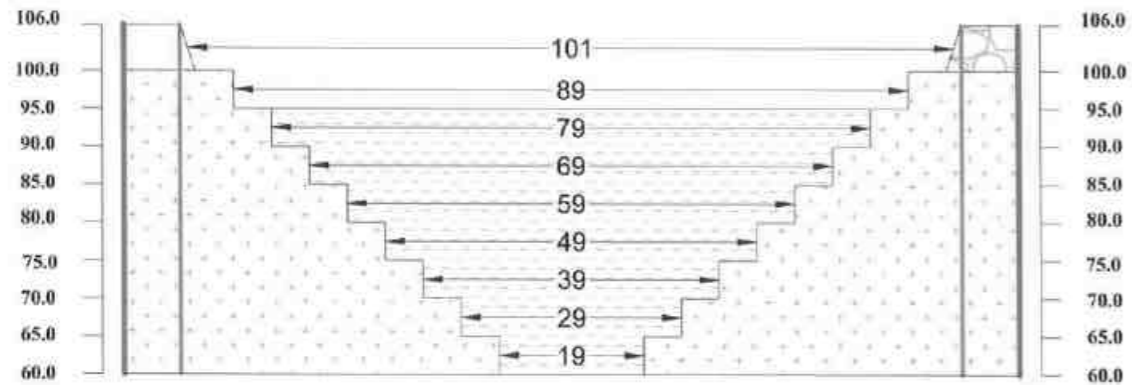
R. Gururamachandran
R. GURURAMACHANDRAN, M.Sc.,
Qualified Person
(RQP / MAS / 224 / 2010/A)

CR

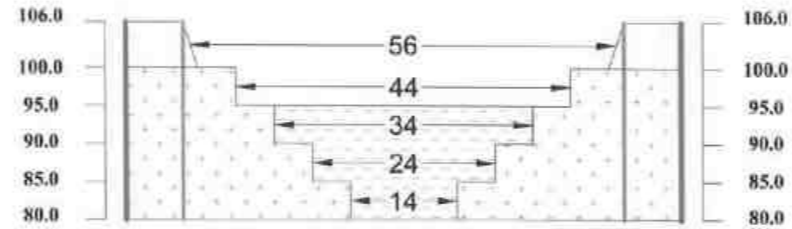
SECTION ALONG- AA'



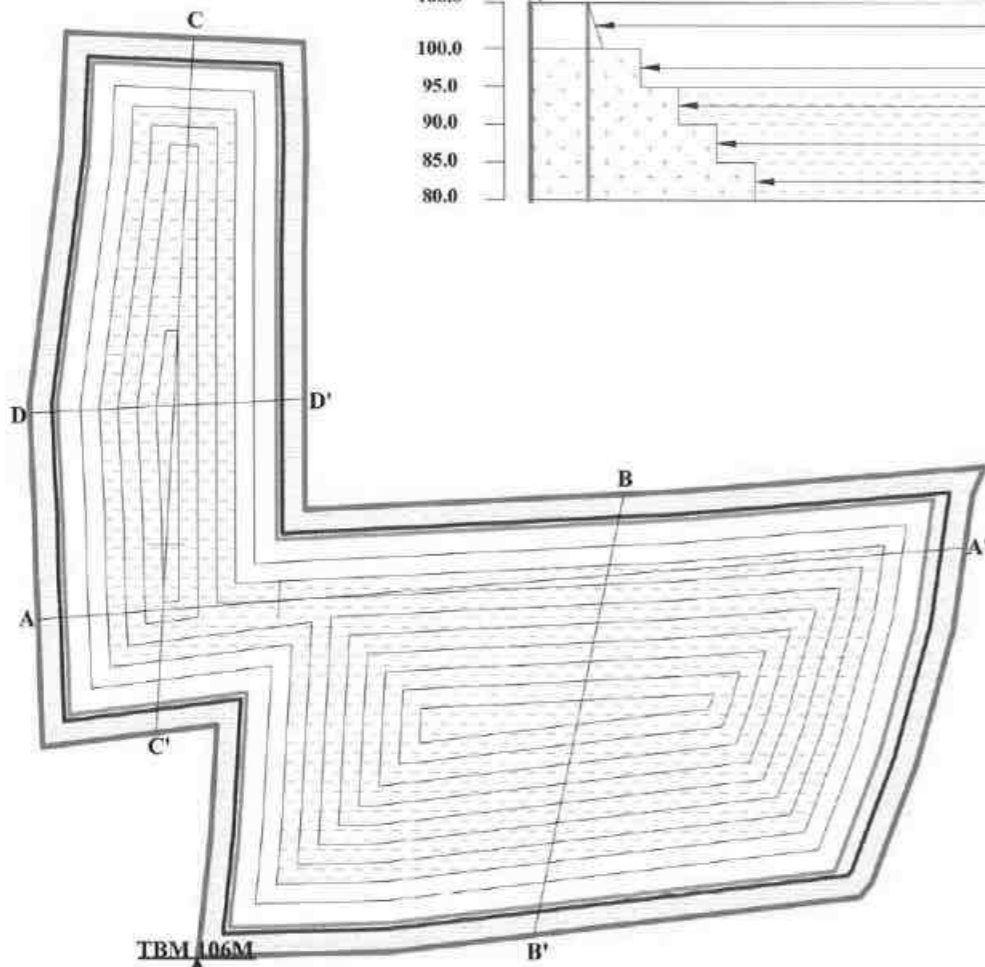
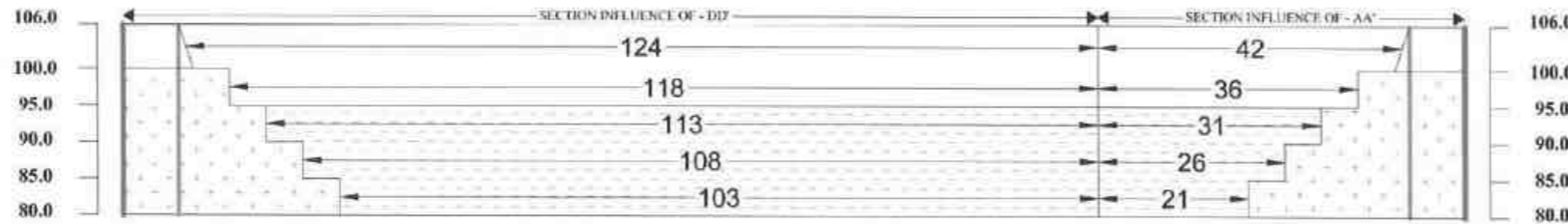
SECTION ALONG- BB'



SECTION ALONG- DD'



SECTION ALONG- CC'



ULTIMATE PIT SIZE

SECTION	Length M	Width M	Depth M
AA' - BB'	171	101	46
AA' - CC'	55	42	26
CC' - DD'	124	56	26

PLATE : VI

APPLICANT :

Thiru.G.Pandurangan,
S/o.S.Govindaraj,
D.No.4/888, Balaji Nagar,Soolakkarai,
Virudhunagar District - 626 003 .

INDEX:-

- Lease Applied Area
- Safety Line
- Earth Bund
- Gravel Deposit
- Rough Stone
- Water Reservoir
- Bench Mark TBM 106M

CONCEPTUAL PLAN AND SECTIONS:-

SCALE: [PLAN - 1:2,000
SECTION - 1:1,000

PLANS & SECTIONS ARE PREPARED BASED ON THE LEASE MAP AUTHENTICATED BY THE STATE GOVERNMENT :-

MINEABLE RESERVES

SECTION	BENCH	Length M	Width M	Depth M	Rough Stone Volume M ³	Gravel Volume M ³
AA' - BB'	I	171	101	6.0	-	1,03,626
	II	165	89	5.0	73,425	-
	III	160	79	5.0	63,200	-
	IV	155	69	5.0	53,475	-
	V	150	59	5.0	44,250	-
	VI	145	49	5.0	35,525	-
	VII	135	39	5.0	26,325	-
	VIII	125	29	5.0	18,125	-
	IX	115	19	5.0	10,925	-
AA' - CC'	I	55	42	6.0	-	13,860
	II	49	36	5.0	8,820	-
	III	44	31	5.0	6,820	-
	IV	39	26	5.0	5,070	-
	V	34	21	5.0	3,570	-
CC' - DD'	I	124	56	6.0	-	41,664
	II	118	44	5.0	25,960	-
	III	113	34	5.0	19,210	-
	IV	108	24	5.0	12,960	-
	V	103	14	5.0	7,210	-
TOTAL MINEABLE RESERVES					4,14,870	1,59,150

R. Gururamachandran
R. GURURAMACHANDRAN, M.Sc.,
Qualified Person
(RQP / MAS / 224 / 2010/A)



APPLICANT :

Thiru.G.Pandurangan,
S/o.S.Govindaraj,
D.No.4/888, Balaji Nagar, Soolakkarai,
Virudhunagar District - 626 003 .

LOCATION OF THE SITE :

EXTENT : 3.25.50 Hect.
S.F Nos : 84/1(p),85(p),86/1&2,
87/1&2,88,109/2,3A&3B,
110/1B,2B(P)&2C(P)
VILLAGE : SENGUNDRAPURAM
TALUK : VIRUDHUNAGAR
DISTRICT : VIRUDHUNAGAR

INDEX:-

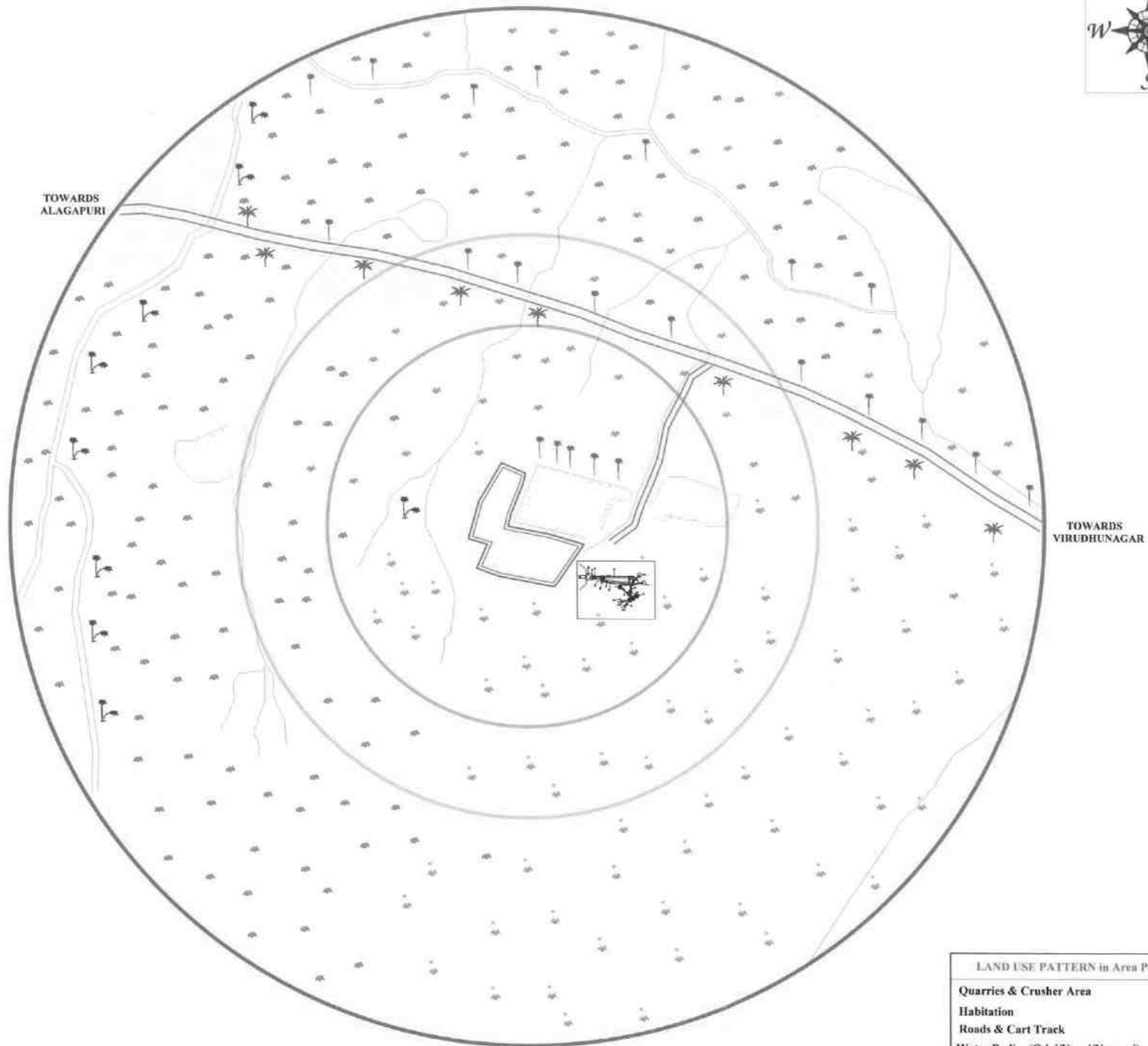
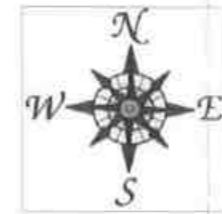
- Applied Area
- Safety Line
- 300M Radius
- 500M Radius
- Wind Direction
- Approach Road

SATELLITE IMAGERY:-

SCALE 1:5,000

PLANS & SECTIONS ARE PREPARED BASED ON THE LEASE MAP AUTHENTICATED BY THE STATE GOVERNMENT :-

R. GURURAMACHANDRAN, M.Sc.,
Qualified Person
(RQP / MAS / 224 / 2010/A)



APPLICANT :
 Thiru.G.Panduranga,
 S/o.S.Govindaraj,
 D.No.4/888, Balaji Nagar, Soolakkarai,
 Virudhunagar District - 626 003 .

LOCATION OF THE SITE :
EXTENT : 3.25.50 Hect.
S.F Nos : 84/1(p),85(p),86/1&2,
 87/1&2,88,109/2,3A&3B,
 110/1B,2B(P)&2C(P)
VILLAGE : SENGUNDRAPURAM
TALUK : VIRUDHUNAGAR
DISTRICT : VIRUDHUNAGAR

INDEX:-

- Applied Area
- Safety Line
- 300M Radius
- 500M Radius
- 1KM Radius
- Habitation
- Seasonal Corps
- Dry Land/Open Scrubs
- Green Belt
- Water Bodies/Kanmoi etc...
- Approach Road
- Crusher Unit
- Quarries

LAND USE PATTERN in Area Percentage(%)	
Quarries & Crusher Area	13%
Habitation	6%
Roads & Cart Track	8%
Water Bodies (Odai/Urani/Kanmoi)	13%
Dry Land & Open Scrubs	21%
Green Belt	6%
Seasonal Crops	33%
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 :-

R. Gururamachandran
R. GURURAMACHANDRAN, M.Sc.,
 Qualified Person
 (RQP / MAS / 224 / 2010/A)

Co



PLATE : VIII


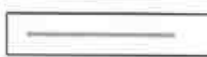






APPLICANT :

Thiru.G.Pandurangan,
S/o.S.Govindaraj,
D.No.4/888, Balaji Nagar, Soolakkarai,
Virudhunagar District - 626 003 .

LOCATION OF THE SITE :

EXTENT : 3.25.50 Hect.
S.F Nos : 84/1(p),85(p),86/1&2,
87/1&2,88,109/2,3A&3B,
110/1B,2B(P)&2C(P)
VILLAGE : SENGUNDRAPURAM
TALUK : VIRUDHUNAGAR
DISTRICT : VIRUDHUNAGAR


INDEX:-

- Applied Area 
- Safety Line 
- 300M Radius 
- 500M Radius 
- 1KM Radius 
- Well 
- Wind Direction 
- Village Boundary 

VILLAGE MAP SHOWING ENVIRONMENTAL FEATURES

SCALE 1:10,000

PLANS & SECTIONS ARE PREPARED BASED ON THE LEASE MAP AUTHENTICATED BY THE STATE GOVERNMENT :-


R. GURURAMACHANDRAN, M.Sc.
Qualified Person
(RQP / MAS / 224 / 2010/A)



AFFORESTATION PROGRAM FOR FIVE YEARS

YEAR	No.OF.TREES	TYPE OF TREES
I-YEAR	165	NEEM/PUNGAI
II-YEAR	165	USIL/TAMARIND
III-YEAR	165	OAK/PUVARASU
IV-YEAR	165	PANAI/SAVUKKU
V-YEAR	165	MANTHARAI/OAK

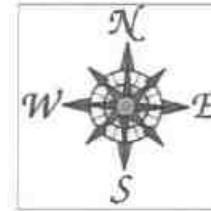


PLATE : VIII

APPLICANT :

Thiru.G.Pandurangan,
S/o.S.Govindaraj,
D.No.4/888, Balaji Nagar,Soolakkarai,
Virudhunagar District - 626 003 .

LOCATION OF THE SITE :

EXTENT : 3.25.50 Hect.
S.F Nos : 84/1(p),85(p),86/1&2,
87/1&2,88,109/2,3A&3B
110/1B,2B(P)&2C(P)
VILLAGE : SENGUNDRAPURAM
TALUK : VIRUDHUNAGAR
DISTRICT : VIRUDHUNAGAR

INDEX:-

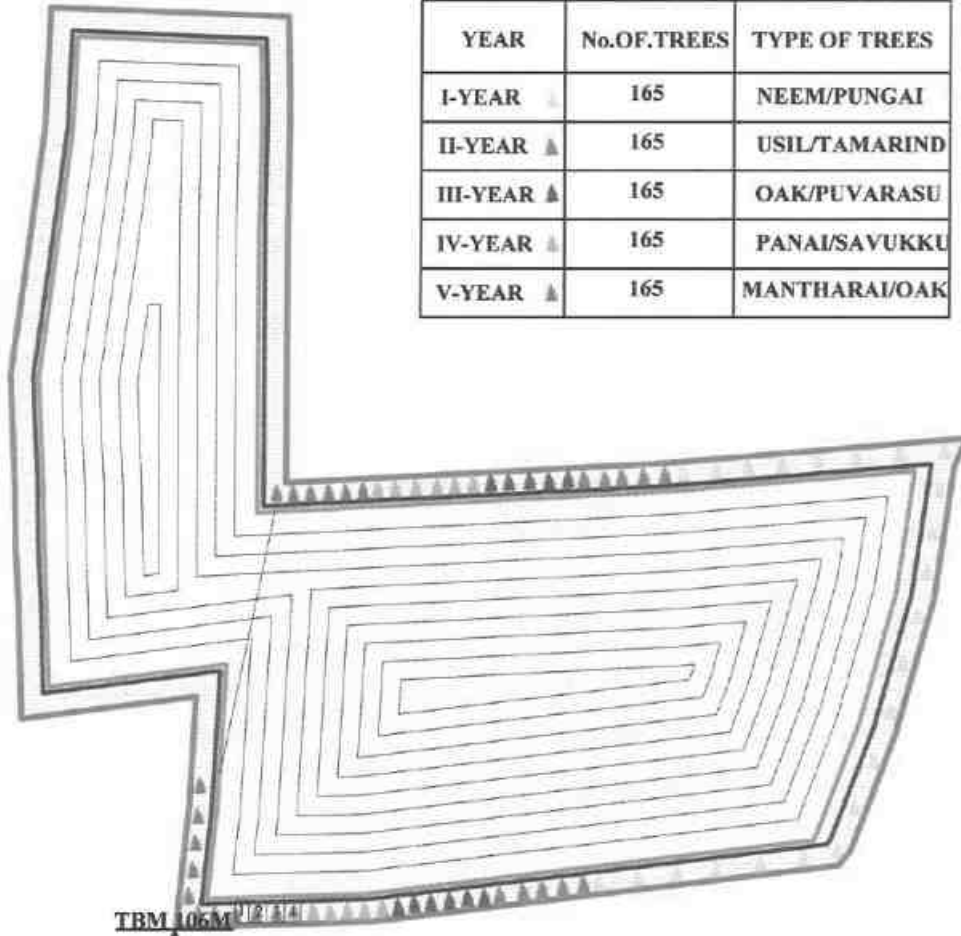
Applied Area	
Safety Line	
Earth Bund	
Layout of Mine Working	
Undisturbed Area	
Trees	
Bench Mark	
Infrastructure	

PROGRESSIVE MINE CLOSURE PLAN:-

SCALE 1:2,000

PLANS & SECTIONS ARE PREPARED BASED ON THE LEASE
MAP AUTHENTICATED BY THE STATE GOVERNMENT -

R. GURURAMACHANDRAN, M.Sc.
Qualified Person
(ROP/MAS/224/2010/A)



ULTIMATE PIT SIZE AT THE END OF FIVE YEARS

SECTION	Length M	Width M	Depth M
AA' - BB'	171	101	46

ULTIMATE PIT SIZE AT THE END OF TEN YEARS

SECTION	Length M	Width M	Depth M
AA' - BB'	171	101	46
AA' - CC'	55	42	26
CC' - DD'	124	56	26

MINE CLOSURE PLAN WITH LAND USE PATTERN

FUTURE MINING AREA	1.70.00 Ha
INFRASTRUCTURE	0.01.00 Ha
STORAGE OF TOP SOIL	0.00.00 Ha
STOCKING & MINERAL DRESSING YARD	0.00.00 Ha
MINE ROAD	0.03.00 Ha
AFFORESTATION & SAFETY	0.62.75 Ha
UNDISTURBED AREA	0.88.75 Ha
TOTAL	3.25.50 Ha

ANNEXURE-VII
VAO CERTIFICATE

TOPOGRAPHICAL VIEW OF THE PROPOSED ROUGH STONE & GRAVEL QUARRY SITE
of Thiru.G.Pandurangan, Sengundrapuram Village, Virudhunagar Taluk & District.




Name of the Applicant : Thiru.G.Pandurangan, S/o.Govindaraj,
Address of applicant : No.888, Balaji Nagar,
Soolakkarai Village & Post-626003,
Virudhunagar District.

LOCATION DETAILS :

Extent : 3.25.50 Hectares
Survey Nos. : 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2,
109/3A, 109/3B, 110/1B, 110/2B(P) & 110/2C(P)
Village : Sengundrapuram
Taluk : Virudhunagar
District : Virudhunagar
State : Tamil Nadu.


Signature with Seal
2024
Village Administrative Officer.
செங்குன்றாபுரம் கிராமம்
நி.க.அ.அ.க.ர் 2024


Signature of the Applicant
26/9/24

ANNEXURE-VIII
BLASTING AGREEMENT



தமிழ்நாடு தமில்நாடு TAMILNADU

EB 238634

Mrs Lavanya . R
Sankarankovil.

(Handwritten signature)

25/09/24
100/

A.M. முகம்மது ஹம்மத்துல்லா
நகர முத்திரைத்தாள் விற்பனையாளர்
56, கழுமலை ரோடு, சங்கரன்கோவில்
● ரிமம் எண் B.1,26480/77

DEED OF AGREEMENT

This Agreement is entered into at Sankarankovil on this 26 Sep 2024 between Thiru G.Pandurangan , S/o Govindaraj, Balaji Nagar, Soolakkarai Village & Virudhunagar Taluk herein after referred to as party of the First Part, and Mrs. LAVANYA.R having office at No. 7,Gomathi Nagar,Sankarankovil, Tenkasi, District herein after referred to as party of the Second part.

(Handwritten signature)

MRS. LAVANYA . R
Sankarankovil

The party of the first part is operating quarry work in the area Sengundrapuram Village, Virudhunagar District over and extent of survey number 84/1(P) (0.04.0), 85(p) (0.30.0), 86/1 (0.30.0), 86/2 (0.32.5), 87/1 (0.25.5), 87/2 (0.40.5), 88 (0.62.0), 109/2 (0.14.0), 109/3A (0.13.5), 109/3B (0.13.5), 110/1B (0.19.0), 110/2B(P) (0.19.5), 110/2C (P) (0.21.5). 3.25.50 hectares in per Tamil Nādu Govt's Consent Order No. KV1/623/2024. Dated: 20-09-2024

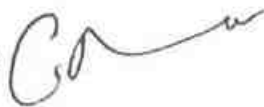
Whereas the party of the First Part wants blasting to be done at quarry to excavate the Blue metal stone. The blasting work is so intensive and large that the part of the first part has decided to entrust the work involved to the party of the second part on contract basis is as follows.

The party of the First part will allot the blasting operations in the above said areas to the party of the Second part who is responsible for blasting rocks and also making his own arrangement for the explosives and exploding equipments required for the work. The entire blasting in the above quarry and the possession of the blasting equipment will be handled by the party of the second part having valid explosives License No. E95317, E63073, E83537 and Shot Firer licenses issued by the Joint Chief Controller of Explosives, South Circle, Chennai and he hereby undertake the responsibility for the work entrusted.

Payments will be made periodically by the party of the first part for the quantity used, explosives consumed and hours and time of the exploding equipments put into use. Calculations will be made and settlement will be arrived every month. The rates for the items of work will as mutually agreed as marginal cost which includes cost of explosives, transportation cost and other charges for blasting work. This agreement is made for all blasting in the said area.

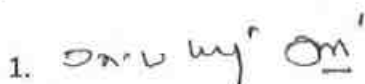

The Agreement is valid from the date of execution and validity of quarrying leases granted by the State Government to the party of the First part. The agreement is terminable earlier by mutual consent with a month's notice. The agreement will expire with the expiry of quarry lease.

First Party:



Second Party:

Witnesses:

1. 
2. 

P. Gimesh Kumar
Sho m Palani Sany
Sankarankovil.



Place: SANKARANKOVIL

Date: 26 09 2024

अनुज्ञप्ति प्ररूप एच. ई.-3 | LICENCE FORM LE-3

(विस्फोटक नियम, 2008 की अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) से (घ) देखिए।)
(See article 3(a) to (d) of Part 1 of Schedule IV of Explosives Rules, 2008)

(ग) उपयोग के लिए एक समय पर वर्ग 1, 2, 3, 4, 5 या वर्ग 7 के विस्फोटक या किसी मैगजीन में वर्ग 6 के विस्फोटक रखने के लिए अनुज्ञप्ति
Licence to possess : (c) for use explosives of class 1, 2, 3, 4, 5, 6 or 7 in a magazine

अनुज्ञप्ति सं. (Licence No.): E/SC/TN/22/660(E95317)

वार्षिक फीस रूप (Annual Fee Rs): 9300/-

1. Licence is hereby granted to

Mrs. LAVANYA.R (अधिभोगी / Occupier : Mrs. LAVANYA.R), D.No.7, Gomathi Nagar, Sankarankoil, Town/Village - Sankarankoil,
District-THIRUNELVELI, State-Tamil Nadu, Pincode - 627756

Space for photograph of the
licensee or occupier with
signature

को अनुज्ञप्ति अनुदत्त की जाती है।

2 अनुज्ञप्तिधारी की प्रास्थिति | Status of licensee : Partnership Firm

3 अनुज्ञप्ति निम्नलिखित प्रयोजनों के लिए विधिमाम्य है।

Licence is valid only for the following purpose.

4 अनुज्ञप्ति विस्फोटकों के निम्नलिखित किस्मों, प्रकार और मात्रा के लिए विधिमाम्य है।

Licence is valid for the following kinds and quantity of explosives : - (क) (a)

possess for use of Nitrate Mixture, Detonating Fuse, Safety Fuse, Electric and/or
Ordinary Detonators, - के उपयोग के लिए

क्र Sl. No.	नाम और विवरण Name and Description	वर्ग और प्रभाग Class & Division	उप-प्रभाग Sub-division	मात्रा किसी एक समय में Quantity at any one time
1.	Nitrate Mixture	2,0	0	4000 Kg.
2.	Detonating Fuse	6,2	0	35000 Mtrs
3.	Safety Fuse	6,1	0	10000 Mtrs
4.	Electric and/or Ordinary Detonators	6,3	0	44000 Nos.

(ख) किसी एक कैलेंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा (अनुच्छेद 3(ख) और (ग) के अधीन अनुज्ञप्ति के लिए)

(b) Quantity of explosives to be purchased in a calendar month [applicable for licence under article 3(b) and (c)] :

10 times
as above.

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञप्ति परिसर की पुष्टि होती है।

The licensed premises shall conform to the following drawing(s).

रेखाचित्र क्र. (Drawing No.) E/SC/TN/22/660(E95317)
दिनांक (Dated) 20/04/2023

6. अनुज्ञप्ति परिसर निम्नलिखित पते पर स्थित है। The licensed premises are situated at following address:

Survey No. 1637/1, ग्राम (Town/Village) : Ayyankollankondur

जिला (District) **VIRUDHUNAGAR** पुलिस थाना (Police Station) : Rajapalayam North
राज्य (State) **Tamil Nadu** पिनकोड (Pincode) **626117**
दूरभाष (Phone) ई मेल (E-Mail) फेक्स (Fax)

7. अनुज्ञप्ति परिसर में निम्नलिखित सुविधाएं अंतर्भूत हैं।

The licensed premises consist of following facilities.

One Explosives Room, a lobby and a Detonator Room

8. अनुज्ञप्ति समय - समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विरचित विस्फोटक नियम, 2004 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपाबंधों के अधीन रहते हुए अनुदत्त की जाती है।

The licence is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2008 framed there under and the conditions, additional conditions and the following Annexures.

1. उपर्युक्त क्रम सं. 5 में यथा कथित रेखाचित्र (स्थान, सन्निर्माण संबंधी और अन्य विवरण दर्शित करते हुए)।

Drawings (showing site, constructional and other details) as stated in serial No. 5 above.

2. अनुज्ञप्ति प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञप्ति की शर्तों और अतिरिक्त शर्तों।

Conditions and Additional Conditions of this licence signed by the licensing authority.

3. दूरी प्ररूप DE-2 | Distance Form DE-2.

9. यह अनुज्ञप्ति तारीख 31 मार्च 2021 तक विधिमाम्य रहेगी। This licence shall remain valid till 31st day of March 2021.

यह अनुज्ञप्ति, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट-VII के अधीन तथा उपवर्णित इस अनुज्ञप्ति की शर्तों का अधिकरण करने या यदि अनुज्ञप्ति परिसर योजना या उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिसंहत की जा सकती है, जहां वह लागू हो।

This licence is liable to be suspended or revoked for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Set VIII, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and Annexure attached hereto.

तारीख | The Date - 06/07/2016

संयुक्त मुख्या विस्फोटक नियंत्रक | Joint Chief Controller of Explosives
South Circle, Chennai

Transfers :

- Change in Licensee Name/Address/Status dated: 16/02/2017
- Change in Licensee Name/Address/Status dated: 20/04/2023

नवीनीकरण के पृष्ठांकन के लिए स्थान
Space for Endorsement of Renewal

नवीकरण की तारीख Date of Renewal	समाप्ति की तारीख Date of Expiry	अनुज्ञापन प्राधिकारी के हस्ताक्षर और स्टाम्प Signature of licensing authority and stamp
30/06/2021	31/03/2026	Sd/- Jt. Chief Controller of Explosives, South Circle, Chennai

कानूनी चेतावनी : विस्फोटकों को गलत ढंग से चलाने या उनका दुरुपयोग विधि के अधीन गंभीर दंडिक अपराध होगा।
Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

Note :- This is system generated document does not require physical signature. Applicant may take printout for their records.

Digitally signed by P SEENIRAJ
Reason: Licence No : E/SC/TN/22/660
Location Chennai [E95317]
Date: 20-04-2023 16:00:48 PM



GOVERNMENT OF INDIA
MINISTRY OF COMMERCE & INDUSTRY
PETROFUM AND EXPLOSIVES SAFETY ORGANISATION (PFESO)
(Formerly Department of Explosives)
A & D - Wing, Block 1-8, 1st Floor, Shastri Bhavan
26 Haddoys Road, Nungambakkam Chennai 600006
Tele: 28281023 Fax: 28284848
Email: jfcecchennai@explosives.gov.in

No.E/SC/TN/25/3159(E157063)

Dated: 13/09/2024

To
M/s. RAM EXPLOSIVES,
No.7, 1st Street, Gannudi Nagar,
Tirunelveli - Sankaravadi
Distt. THIRUNELVELI, State: Tamil Nadu, Pincode-627756

Subject: **Hand Van for the carriage of Explosives - Registration No TN79M2876 Licence No.E/SC/TN/25/3159(E157063) granted in Form LE-7 under Explosives Rules, 2008 -Endorsement regarding -Endorsement of Licence.**

Sr(s).

Reference memo No: E/SC/TN/25/3159(E157063) Dated 13/09/2024 from Joint Chief Controller of Explosives, South Circle, Chennai and inspection of the subject premises by an officer of this organization on 24/09/2024.

The subject licence No. E/SC/TN/25/3159(E157063) valid upto 31st March 2029 duly endorsed is forwarded herewith.

For further renewal of licence, please submit following documents so as to reach The Dy. Chief Controller of Explosives, Sivakasi on or before 31/03/2029.

- Application in Form RE-1 duly filled in and signed.
- Licence fees renewable for one to five years, to be submitted online through e-payment facility available on online application portal under the Explosives Rules, 2008.
- Original licence with approved plan
- In that connection, please also refer to Rule 112 of Explosives Rules, 2008.

Please follow following instructions strictly.

1. The records of explosives transported by the licensed Roadvan shall be maintained in the proforma RE-6 under Part 5 of schedule V of Explosives Rules 2008.
2. Please ensure that persons whose antecedents verified by the local Police shall only be employed with the licensed explosives roadvan/compressor mounted truck as drivers or cleaners. List of such drivers and cleaners alongwith the personal particulars shall be made available to the local police in advance. The re-verification of such staff shall also be made at least once in a year in compliance to Rule 61(1) of Explosives Rules 2008.
3. Please note that during transportation of explosives, the Roadvan shall always be attended to by two armed guards. If the consignment of explosives is likely to pass through sensitive areas notified by Ministry of Home Affairs, it should be escorted by armed Police escort / guard provided by District Police Administration as required in Rule 67(7) of Explosives Rules 2008.

Yours faithfully,

(Dr. D. Jeevarathinam)
Dy. Controller of Explosives
For Joint Chief Controller of Explosives
South Circle, Chennai

Copy Forwarded to:

1. District Magistrate, VIRUDHUNAGAR, Tamil Nadu with reference to his No. No: R.DES(E4)15528/2016 Dated: 20/01/2017. (Forwarded to Dy. Chief Controller of Explosives, Sivakasi for onward transmission through a special messenger)

For Joint Chief Controller of Explosives
South Circle, Chennai

[For more information regarding status, fees and other details, please visit our web site http://explosives.gov.in]

Note :- This is system generated document does not require physical signature. Applicant may take printout for their records.

Digitally signed by DR JEEVRATHINAM D
Reason: Licence No. : E/SC/TN/25/3159
Location: Chennai [E157063]
Date: 2024.09.13 05:38:45 +05:30

अनुज्ञप्ति प्ररूप एलई - 7 | LICENCE FORM LE-7
(विस्फोटक नियम 2008 की अनुसूची 4 के भाग 1 का अनुच्छेद 7 देखें)
(See article no 7 of Part 1 of Schedule IV of Explosives Rules, 2008)

अनुज्ञप्ति : सड़क वैन में विस्फोटकों के परिवहन के लिए
Licence to : transport explosives in a road van

अनुज्ञप्ति संख्या / Licence No. : E/SC/TN/25/3159(E157063)
वार्षिक फीस रूपए / Annual Fee Rs : 2500/-



- अनुज्ञप्ति एतद्वारा जारी की जाती है
Licence is hereby granted to : **M/s. RAM EXPLOSIVES (Occupier : R.Lavanya)**
No.7, 1st Street, Gomathi Nagar,
District-THIRUNELVELI, State-Tamil Nadu, Pincode-627756
- अनुज्ञप्तिधारी की प्रास्थिति / Status of licensee : **Partnership Firm**
- सड़क वैन की विशिष्टियाँ / Particulars of the road van:

पंजीकरण संख्या / Registration No.	TN79M2876
यान का मेक एवं मॉडल / Make and model of vehicle	M & M LTD/BOL.MAXX PUP HD 1 7 VXI
लदान रहित वजन / Unladen weight	1760 Kg(s)
लदान सहित अधिकतम वजन / Maximum laden weight	3460 Kg(s)
परिवहन के लिए अनुज्ञेय विस्फोटकों की अधिकतम मात्रा Maximum quantity of explosives permitted for transport	1700 Kg(s)
इंजिन संख्या / Engine No.	TTP4J24483
चैसिस संख्या / Chassis No.	MA1RA2TTKPGJ42264
अन्य फिटिंग्स का विवरण / Description of Other Fittings	Fire Screen, Spark Arrestor, Battery Cut-off Switch
वाहन के लिए अनुमत विस्फोटकों की मात्रा / Quantity of Explosives permitted to carry	1700 Kg(s)

- अनुज्ञप्त परिसर निम्नलिखित आरेखण (आरेखणों) के अनुरूप होना चाहिए / The licensed premises shall conform to the following drawing(s):
आरेखण संख्या / Drawing No : E/SC/TN/25/3159(E157063) दिनांक / dated : 26/07/2024
- समय समय पर यथा संशोधित विस्फोटक अधिनियम, 1884 और उसके अधीन बनाए गए विस्फोटक नियम, 2008 के उपबन्धों और शर्तों एवं निम्नलिखित अनुलग्नकों के अधीन अनुज्ञप्ति प्रदान की जाती है।
The licence is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2008 framed thereunder and the conditions and the following annexures...
(क) उपर्युक्त क्रम संख्या 4 में यथाकथित सड़क वैन का आरेखण / (a) Drawings of the road van as stated in serial no.4 above.
(ख) अनुज्ञापन प्राधिकारी द्वारा हस्ताक्षरित शर्तें / (b) Conditions signed by the licensing authority.

- यह अनुज्ञप्ति तारीख 31 मार्च 2029 तक विधिमाम्य रहेगी / This licence shall remain valid till 31st day of March 2029

यह अनुज्ञप्ति, अधिनियम या उसके अधीन विरचित नियमों या इस अनुज्ञप्ति की शर्तों के उल्लंघन, अनुसूची 5 के भाग 4 में सन्दर्भित, जहाँ भी लागू हो, या यदि अनुज्ञप्त परिसर आरेखण या उससे संलग्न उपाबन्धों में दर्शाए गए विवरण के अनुरूप नहीं पाए जाने पर निलम्बित या प्रतिसंहत की जा सकती है।

This licence is liable to be suspended or revoked for any violation of the Act or rules framed there under or the conditions of this licence as set forth under Conditions, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and annexure attached hereto.

दिनांक / Date: 26/07/2024

संयुक्त मुख्य विस्फोटक नियंत्रक | Joint Chief Controller of Explosives
दक्षिणांचल, चेन्नै | South Circle, Chennai

अनुज्ञप्ति के नवीनीकरण हेतु पृष्ठांकन / Endorsement for renewal of licence:

नवीनीकरण की तिथि Date of Renewal	वैधता समाप्ति की तिथि Date of Expiry	अनुज्ञापन प्राधिकारी के हस्ताक्षर Signature of licensing authority
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वैधानिक चेतावनी : विस्फोटकों का लापरवाही से प्रयोग या दुरुपयोग, विधि के अधीन गम्भीर दण्डित अपराध होगा।
Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

Note :- This is system generated document does not require physical signature. Applicant may take printout for their records.

Digitally signed by DR. JEEVRATHINAM D
Reason: Licence No. : E/SC/TN/25/3159
Location: Chennai [E157063]
Date: 2024.07.26 04:51:37 +05:30

(धातु उत्पादक) खान परीक्षा बोर्ड
 Board of (Metalliferous)
 Mines Examinations
 प्रलेख सं. 3745
 No. of Document

सी०आई०एम०-1234R
 C.I.M.-1234 R



खान अधिनियम, 1952
 THE MINES ACT, 1952

बिस्फोटकर्ता समर्थता प्रमाण-पत्र
BLASTER'S CERTIFICATE OF COMPETENCY
 (धातु उत्पादक खान विनियमावली, 1961 के अधीन)
(Under Metalliferous Mines Regulations, 1961)
 (केवल विवृत खनितों वाली खानों के लिए)
(Restricted to Metalliferous Mines having open cast workings only)

श्री. सुपुत्र. गांव.
 खाना. जिला. राज्य.
 को खिनकी जन्मतिथि. है अपनी आयु, आरोग्यता, अच्छे आचरण, साक्षरता
 और अनुभव के संबंध में संतोषजनक प्रमाण दे देने और. में तारीख. को हुई परीक्षा पास कर
 देने पर धातु उत्पादक खान विनियमावली, 1961 के अधीन बिस्फोटकर्ता प्रमाण-पत्र दिया जाता है। यह प्रमाण-पत्र केवल
 विवृत खनितों वाली खानों तक सीमित है।

Sbri. S. SELVARAJ
 of Village West Street, P. Reddiapatti Thana. Sankaran Koil, P. Reddiapatti P.O.
 District. TIRUNELVELI State. TAMILNADU-627753
 born on 15th April, 1968 (Sixty Eight) son of Seeninaicker
 having given satisfactory evidence of his age, medical fitness, good conduct, literacy and experience and having passed an
 examination held at Oorgaum Centre, K.G.F on 01.07.1998 is hereby granted
 a BLASTER'S CERTIFICATE under the Metalliferous Mines Regulations, 1961 restricted to having opencast
 workings only.

सचिव,
 परीक्षा बोर्ड
 Secretary,
 Board of Mining Examinations

Chairman,
 Board of Mining Examinations

11-07-2022
 Director of Mines Safety, Chennai Region

तारीख
 Dated. 28/4/1999



बाएँ हाथ के अंगूठे का निशान
 Left hand thumb impression

17-09-2017
 Director of Mines Safety, Chennai Region

12-11-2012
 Director of Mines Safety, Chennai Region



प्रमाणित किया जाता है कि उसकी स्वास्थ्य परीक्षा कर ली गई है और वह बहुरेख, संवोध दृष्टि या अन्य किसी ऐसी
 मानसिक अथवा शारीरिक अशक्तता से मुक्त पाया गया है जो उसके कर्तव्यों को प्रभावी रूप से करने में बाधक हो।

Certified that he was examined and found free from deafness, defective vision or any other infirmity, mental or
 physical, likely to interfere with the efficient discharge of his duties. Valid upto 18.01.2013

- | | |
|---------------------|---------------------|
| 1. On 07-06-2003 को | 2. On 28/4/1999 को |
| 3. On 17-09-2017 को | 4. On 12-11-2012 को |
| 5. On 18-01-2013 को | 6. On 11-07-2022 को |

MGIPCB- S-4 A DGMS/Dhanbad SL-17-1-62-11,700.
 Director of Mines Safety (Exm.)

ANNEXURE-IX
AFFIDAVIT AND CER DETAILS



தமிழ்நாடு தமில்நாடு TAMILNADU

26 SEP 2024

EA 951349

Dr. அருமது இக்பால்
நகர முத்தியைத்தான் சிற்பகையாளர்
சிறுதருகர் - தமிழ்நாடு
உரியம் எண்: 486/30-3-1973

G. Pandurangan
Soolakkarai



AFFIDAVIT to SEIAA, Tamil Nadu

I, G.Pandurangan, S/o.Govindaraj residing at No.888, Balaji Nagar, Soolakkarai village & Post, Virudhunagar-626003, solemnly declare and sincerely affirm that:

I have applied for Prior Environment Clearance to SEIAA, Tamil Nadu for quarry lease for quarrying of **Rough stone and Gravel quarry over an extent of 3.25.50 hectares of pattta Land at S.F.Nos. 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) of Sengundrapuram Village, Virudhunagar Taluk and District, Tamil Nadu State.**

1. I swear to state and confirm that within 10km radius of the quarry site, none of the following is situated
 - a. Protected Areas notified under the Wild life (Protection) Act, 1972.
 - b. Critically polluted areas as notified by the Central Pollution Control Board constituted under Water (Prevention and Control of Pollution) Act, 1974
 - c. Eco-Sensitive areas as notified.



M. GANENDRAN
26/09/2024

G

:2:

2. I will ensure to take up the following Corporate Environment Responsibility (CER) activities as per OM of MoEF & CC dated 01.05.2018

CER Activity		Project Cost (Rs. in Lakh)	CER Cost (Rs in Lakh)
Providing necessary facilities to Panchayat Union Elementary school, Kundalapatti village.		163.40	5.00
Provisions	Amount		
1. LCD Smart Board to the school.	Rs. 2,00,000/-		
2. Wall painting materials	Rs. 50,000/-		
3. Environmental awareness related books for library.	Rs. 1,50,000/-		
4. Greenbelt development in and around the periphery of campus	Rs. 50,000/-		
5. Adequate toilets for the students	Rs. 50,000/-		
Total	Rs. 5,00,000/-		
Total Cost Allocation		163.40	5.00

3. List of quarries within 500m radius from the periphery of the proposal

S.No.	Name of the Lessee	Village & S.F No.	Extent (Ha)	Lease Status
a. Details of Existing Quarries				
1.	Thiru.G.Pandurangan S/o.Govindaraj	Sengundrapuram 79/2A(P), 79/2B(P), 81/1(P), 81/2(P), 83/1, 83/2(P), 84/1(P) & 85(P)	2.51.00	KV1/533/2020 dated 30.11.2022 07.11.2022 to 06.44.2027
2.	Thiru.S.Ramasamy S/o.Seshadri	Sengundrapuram 94/1, 94/2 & 94/3	1.13.50	KV1/1174/2022 dated 06.06.2023 08.06.2023 to 07.06.2028
b. Details of Abandoned Quarries				
1.	Thiru.S.Govindaraj S/o.Seshadri	Seeniyapuram 9/7, 9/9, 11/1, 11/2 & 12/6	2.37.50	KV1/541/2018 dated 15.01.2019 29.01.2019 to 28.01.2024
c. Details of Present Proposed Quarries				
1	Thiru,G.Pandurangan, S/o.Govindaraj	Sengundrapuram 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P)	3.25.50	KV1/623/2024

The total lease area within the 500m radius works out to 6.90.00 ha including this lease area.



: 3 :

4. There will not be any hindrance or disturbance to the people during transportation. No villages are present enrouted during transportation
5. There are no approved habitations within 300m radius from the periphery of the quarry
6. I swear that Greenbelt development will be carried out during the course of quarrying operation and maintained
7. The required insurance will be taken in the name of the labourers working in the quarry site
8. I will not engage any child labour in our quarry will be provided to all the laborers working in my quarry
9. I will not engage any child labour for any kind of quarry works
10. All types of safety / Personal protective equipment will be provided to all the labourers working in the quarry
11. There is no permanent structure located within 300m radius from the periphery of the quarry

I ensure to do all the social and Environment commitment as mentioned in the Mining Plan to the best of my knowledge.



G. Pandurangan
Deponent

Solemnly affirmed and signed
before me at Virudhunagar on
26/09/2024

Mobile: 98432 42711
M. GAJENDRAN, B.Com., B.L.,
ADVOCATE & NOTARY PUBLIC
GOVERNMENT OF INDIA
Enr. No.: MS 1722/09 Reg. No.: 22088 / 2020
18, Chidambaram Street,
VIRUDHUNAGAR - 626 001.

ANNEXURE-X
NABET CERTIFICATE

National Accreditation Board for Education and Training

Certificate of Accreditation

Eco Tech Labs Pvt Ltd., Chennai

48, 2nd main road, Ram Nagar South Extension, Pallikaranai, Chennai-600100, Tamil Nadu

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 / underground mining	1	1 (a) (i)	A
2.	Thermal power plants	4	1 (d)	A
3.	Metallurgical industries-Ferrous only	8	3 (a)	B
4.	Synthetic organic chemicals industry (dyes & dye intermediates; bulk drugs and intermediates excluding drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals and chemical intermediates)	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 SAAC minutes dated March 07, 2024, 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/24/3202 dated Apr. 23, 2024. The accreditation needs to be renewed before the expiry date by Eco Tech Labs Pvt. Ltd., Chennai following due process of assessment.


Issue Date
Apr. 23, 2024

Valid up to
Apr. 10, 2025




Mr. Ajay Kumar Jha
Sr. Director - NABET

Certificate No.
NABET/EIA/22-25/SA 0222


Prof (Dr) Varinder S Kanwar
CEO - NABET