

Application Form (Draft EIA Report)

For

Proposed Rough stone and Gravel Quarry –
1.18.5 Ha

at

S.F.No. 153/2,3,4A,4B,4C & 5 of Veerapatti Village,
Iluppur Taluk, Pudukkottai District, Tamilnadu State

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

Category of the Project: B1 Cluster Mining

Baseline Period: July, August & September 2023

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



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

Proponent details:

Thiru. P. Sabapathi,
S/o. Palaniyandi,
No. 971, Seethappatty,
Mampatty,
Iluppur Taluk,
Pudukkottai
622 102

Date:

From

Thiru. P. Sabapathi,
S/o. Palaniyandi,
No. 971, Seethappatty, Mampatty,
Iluppur Taluk, Pudukkottai - 622 102

To

The District Environmental Engineer

Tamilnadu Pollution Control Board,
SIPCOT Industrial Complex,
Thiruvengaivasal,
Pudukkottai - 622 002

Sir,

Sub: Request to conduct Public Hearing – Environmental Clearance for the “Thiru. P. Sabapathi Rough Stone and Gravel Quarry” over a total extent of 1.18.5 Ha at S.F.Nos. 153/2, 3, 4A, 4B, 4C & 5 Veerapatti Village, Iluppur Taluk, Pudukkottai District, Tamil Nadu – Regarding.

Ref: Letter No. SEIAA-TN/F. No. 9990/SEAC/1(a)ToR-1661/2024 Dated: 07.02.2024

Please find enclosed herewith the application of Draft EIA Report along with necessary enclosures towards seeking environmental clearance for the Thiru. P. Sabapathi Rough Stone and Gravel Quarry” over a total extent of 1.18.5 Ha at S.F.Nos. 153/2, 3, 4A, 4B, 4C & 5 Veerapatti Village, Iluppur Taluk, Pudukkottai District, Tamil Nadu State. In this regard, we had obtained the Terms of Reference from State Environmental Impact Assessment Authority (SEIAA) Tamil Nadu; vide reference mentioned above for conducting EIA studies. We wish to inform that the draft EIA report complying with all the conditions mentioned in the ToR has been prepared and the copies of the same are enclosed with this letter. With reference to the above, we kindly request the TNPCB to make the necessary arrangements for **conducting the public hearing for the Rough Stone and Gravel Quarry**. With the above, we request the TNPCB to accept and process our application for conducting the Public Hearing at the earliest.

Thanking you

Yours Sincerely

Authorized Signatory
Enclosures: Draft EIA report

Thiru. P. Sabapathi,
S/o. Palaniyandi,
No. 971, Seethappatty,
Mampatty, Iluppur Taluk,
Pudukkottai - 622 102.

UNDERTAKING

I, Thiru.P.Sapbapathi, undertaking that the Draft Environmental Impact Assessment (EIA) Report for Rough Stone and Gravel Quarry over an extent of 1.18.5 Ha at S.F.No153/2,3,4A,4B,4C & 5 of Veerapatti Village, Iluppur Taluk, Pudukkottai 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. 9990/ SEAC/1(a)ToR-1661/2024 Dated: 07.02.2024.

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: Pudukkottai

Date:

Yours faithfully

Thiru.P.Sabapathi

Plot No.48A, 2nd Main Road,
Ram Nagar, South Extension,
Pallikarantal, Chennai - 600 100.
GST NO. 33AADCE6103A22H
PAN NO. AADCE6103A



Eco Tech Labs Pvt Ltd

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

UNDERTAKING

I, Dr. A. Dhamodharan, Managing Director confirms that this Draft EIA Report of Rough Stone and Gravel Quarry over an extent of 1.18.5 Ha at S.F.No. 153/2, 3, 4A, 4B, 4C & 5 of Veerapatti Village, Iluppur Taluk, Pudukkottai 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 miss-leading 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

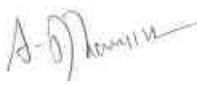
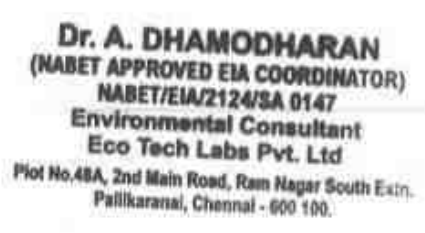
Date:

Place: Chennai

Declaration of Experts contributing to the EIA

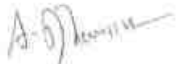
Declaration by experts contributing to the EIA report for Rough Stone and Gravel Quarry (minor mineral) mining project of Thiru.P.Sabapathi Rough Stone and Gravel Quarry over a total extent of 1.18.5 Ha at S.F.No. 153/2,3,4A,4B,4C & 5 of Veerapatti Village, Illuppur Taluk, Pudukkottai District, Tamilnadu State.

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

Project	New Rough Stone Quarry - 1.18.5 Ha
Type & Category	1 (a) Mining of Minerals
Project Proponent	Thiru.P.Sabapathi
Environment Consultant with their Accreditation Status	M/s. Eco Tech Labs Pvt. Ltd., QCI Accredited
NABET Certificate No.	NABET/ EIA/22-25/ SA 0222
EIA Coordinator Name Signature	Dr. A. Dhamodharan (Mining of Minerals)  
Period of Involvement	July to September 2023
Contact Information	M/s. Eco Tech Labs Pvt. Ltd. No. 48, 2nd Main Road, Ram Nagar South Extension Pallikaranai, Chennai - 600 100 Mobile: +91 9789906200 E-mail: dhamo@ecotechlabs.in

Functional Area Experts

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

S. No.	Functional areas	Name of the experts	Involvement (period and task)	Signature and date
1	AP	Mrs. K. Vijayalakshmi	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	1. Selection of baseline Monitoring Locations for Ground water analysis and also identifying nearest surface water to be studied. 2. Interpretation of baseline data collected 3. Identification of impacts based on the baseline study conducted and also to the ground water and nearby surface water due to the proposed project 4. Preparation of suitable and appropriate mitigation plan. <i>Period: March 2022 – Till now</i>	
3	SHW	Dr. A. Dhamodharan	1. Identification of nature of solid waste generated 2. Categorization of the generated waste and estimating the quantity of waste to be generated based on the per capita basis. Identification of impacts of SHW on Environment 3. Suggesting suitable mitigation measures by recommending appropriate disposal method for each category of waste generated 4. Top soil and refuse management <i>Period: March 2022 – Till now</i>	

4	SE	Mr. S. Pandian	1. Primary data collection through the census questionnaire 2. Obtaining Secondary data from authenticated sources and incorporating the same in EIA report. 3. Impact assessment & proposing suitable mitigation plan 4. CSR budget allocation by discussing with the local body and allotting the same for need based activity. Period: March 2022 – Till now *INVOLVES PUBLIC HEARING	
5	EB	Dr. A. Dhamodharan	1. Primary data collection through field survey and sheet observation for ecology and biodiversity 2. Secondary Collection through various authenticated sources 3. Prediction of anticipated impacts and suggesting appropriate mitigation measures. Period: March 2022 – Till now	
6	HG	Dr. T. P. Natesan	1. Study of existing surface drainage arrangements in the core and buffer zone, impact due to mining on these drainage courses and suggestion of mitigative measures 2. Determination of groundwater use pattern, development of rainwater harvesting program. Storm water management through garland drainage system. Period: March 2022 – Till now	
7	GEO	Dr. T. P. Natesan	1. Field survey for assessing regional and local geology, aquifer distribution, Determination of groundwater use pattern, development of rainwater harvesting program. Period: March 2022 – Till now	

8	SC	Dr. A. Dhamodharan	1. Interpretation of baseline report 2. Identification of possible impacts on soil, prediction of soil conservation and suggesting suitable mitigation measures. Period: March 2022 – Till now	
9	AQ	Mrs. K. Vijayalakshmi	1. Collection of Meteorological data for the baseline study period 2. Plotting wind rose plot and thereby selecting the monitoring locations based on the wind pattern 3. Estimation of sources of air emissions and air quality modeling is done 4. Interpretation of the results obtained 5. Identification of the impacts and suggesting suitable mitigation measures. Period: March 2022 – Till now	
10	NV	Mrs. K. Vijayalakshmi	1. Selection of monitoring locations 2. Interpretation of baseline data 3. Prediction of impacts due to noise pollution and suggestion of appropriate mitigation measures Period: May 2022 – Till now	
11	LU	Dr. T. P. Natesan	1. Collection of Remote sensing satellite data to study the land use pattern. 2. Primary field survey and limited field verification for land categorization in the study area 3. Preparation of Land use map using Satellite data for 10km radius around the project site. Period: March 2022 – Till now	
12	RH	Mrs. K. Vijayalakshmi	1. Identification of the risk 2. Interpreting consequence contours 3. Suggesting risk mitigation measures Period: March 2022 – Till now	

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

I, Dr. A. Dhamodharan, hereby confirm that the above-mentioned experts prepared the EIA report of mining project at S.F.No. 153/2,3,4A,4B,4C & 5 of Veerapatti Village, Iluppur Taluk, Pudukkottai 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: NABET/ EIA/22-25/ SA 0222

Project	<i>Rough stone and Gravel Quarry - 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Illuppur Taluk, Pudukkottai District</i>	

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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

<i>Project</i>	<i>Rough stone and Gravel Quarry - 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Sabapathi</i>	
<i>Project Location</i>	<i>Veerapatti Village, Illuppur Taluk, Pudukkottai District</i>	

EXECUTIVE SUMMARY

1. Project Background:

The Proposed project total extent area is 1.18.5 Ha, Patta land in Veerapatti Village of Illuppur Taluk, Pudukkottai District. The category of project is B1, It is a new Rough stone and Gravel quarry in Veerapatti village. The area is situated on Plain terrain sloping towards Western covered with Rough Stone which does not sustain any type of vegetation.

The quarry operation is proposed to carry out with conventional open cast mechanized mining with 5.0 meter vertical bench with a bench width of 5.0 meter. The Quarry operation involves shallow jack hammer drilling, slurry blasting, loading and transportation.

The quarry operation is proposed up to depth for 42m. The Total Geological reserve is about 6,76,000m³ of Rough Stone and 12,530m³ of Gravel. The Mineable Reserves of Rough stone is 1,00,727m³ and 8,820m³ of Gravel. The year wise production/recoverable resources of rough stone for 5 years are 1,00,727m³ and 8,820m³.

The Mining Plan was approved by The Assistant Director, Dept. of Geology & Mining, Pudukkottai vide Rc.No.694/2022 (G&M) dated 08.03.2023. The project area does not fall in Hill Area Conservation Authority region. There is no interstate boundaries, 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 New Rough Stone Quarry over an extent of 1.18.5 Hectares land is located Veerapatti Village of Iluppur Taluk, Pudukkottai District.

Mineral intends to quarry : Rough stone and Gravel.

District : Pudukkottai

Taluk : Illuppur

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Project Location	<i>Veerapatti Village, Illuppur Taluk, Pudukkottai District</i>	

Village : Veerapatti
S. F. Nos. : 153/2, 3, 4A, 4B, 4C & 5
Extent : 1.18.5 Hectares

Table 1: Brief Description of the Project

S. No	Particulars	Details
1	Latitude	10°27'53.79"N to 10°27'59.47"N
2	Longitude	78°40'07.18"E to 78°40'12.02"E
3	Site Elevation above MSL	130.0 m from MSL
4	Topography	Plain terrain
5	Land use of the site	Patta land (Consent registered)
6	Extent of lease area	1.18.5 Ha
7	Nearest highway	SH 71 – Manapparai to Pudukkottai Road – 0.97 Km - NNE NH 36 – Pudukkottai – Tanjore Road – 19.20 km - SE
8	Nearest railway station	Vellanur Railway Station – 13.94 km - W
9	Nearest airport	Tiruchirapalli International Airport – 32.85 km - N
10	Nearest town / city	Town - Iluppur – 6.94 km - NW City - Pudukkottai – 17.07 km - SE District - Pudukkottai – 17.07 km - SE
11	Rivers / Canal	• Nil within 15km radius
12	Lake	• Sokkan kulam – 0.32 Km - S • Varakavandi Kulam – 0.58 Km – S • Kaladi Kulam – 0.68 Km – NE • Vanner Kulam -1.13 Km – S • Palavan Kulam – 1.29 Km – E • Annavasal Periyakulam Lake–2.35 Km– E • Parambar Kanmai – 4.90 Km – SW • Panangudi Periyakulam – 5.54 Km – E • Puthakudi Kanmai – 6.64 Km – SW

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		• Kurani Kulam – 6.74 Km – SW • Koyilankulam – 7.07 Km – SW • Memanapatti Periyakulam – 7.93 Km – S • Keemanur Kulam – 8.88 Km – S
13	Hills / valleys	• Pillaiyar Hill – 0.25 Km - E
14	Archaeologically places	• Jain image, Annavasal – 3.40 Km – E • Amman shrine, Sikkanthaswamy Temple, Cavern on the western side of the Kudumiyamalai Temple hill, Kudumiyamalai – 5.50 Km – S • Rock-cut Jain Temple, Sittanavasal – 6.19 Km – E • Jain image, Alathur – 6.43 Km – NW • Siva Temple, Ariyur – 8.70 Km – SE
15	National parks / Wildlife Sanctuaries	• Vettangudi Birds Sanctuary – 42.75 Km - SW
16	Reserved / Protected Forests	• Perambur RF – 3.90 Km – S • Kudumiyamalai RF – 5.25 Km – SE • Pulvayal Fairly Dense Schrub – 9.92Km - SE
17	Seismicity	Proposed Lease area come under Seismic zone-II (Moderate risk area)
18	Defense Installations	Nil in 15 Km radius

3. Need for the Project

- ❖ The mining activities as proposed are the backbone of all construction and infrastructure projects as the raw material for construction is available only from such mining. The Rough stone and Gravel extracted will be transported to be Stone crusher of district Pudukkottai.
- ❖ The raw Rough stone as well as the crushed material of stone is in high demand in real estate, construction projects as well as in building construction projects.
- ❖ Rough stone is quarried for producing crusher aggregates to the nearby building contractors, road contractors and nearby villagers.

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- ❖ After quarrying the entire reserves mined out, the area will be used as water reservoir to have an artificial recharge to the nearby wells.
- ❖ No damage to the land is caused, no reclamation or back filling is required.

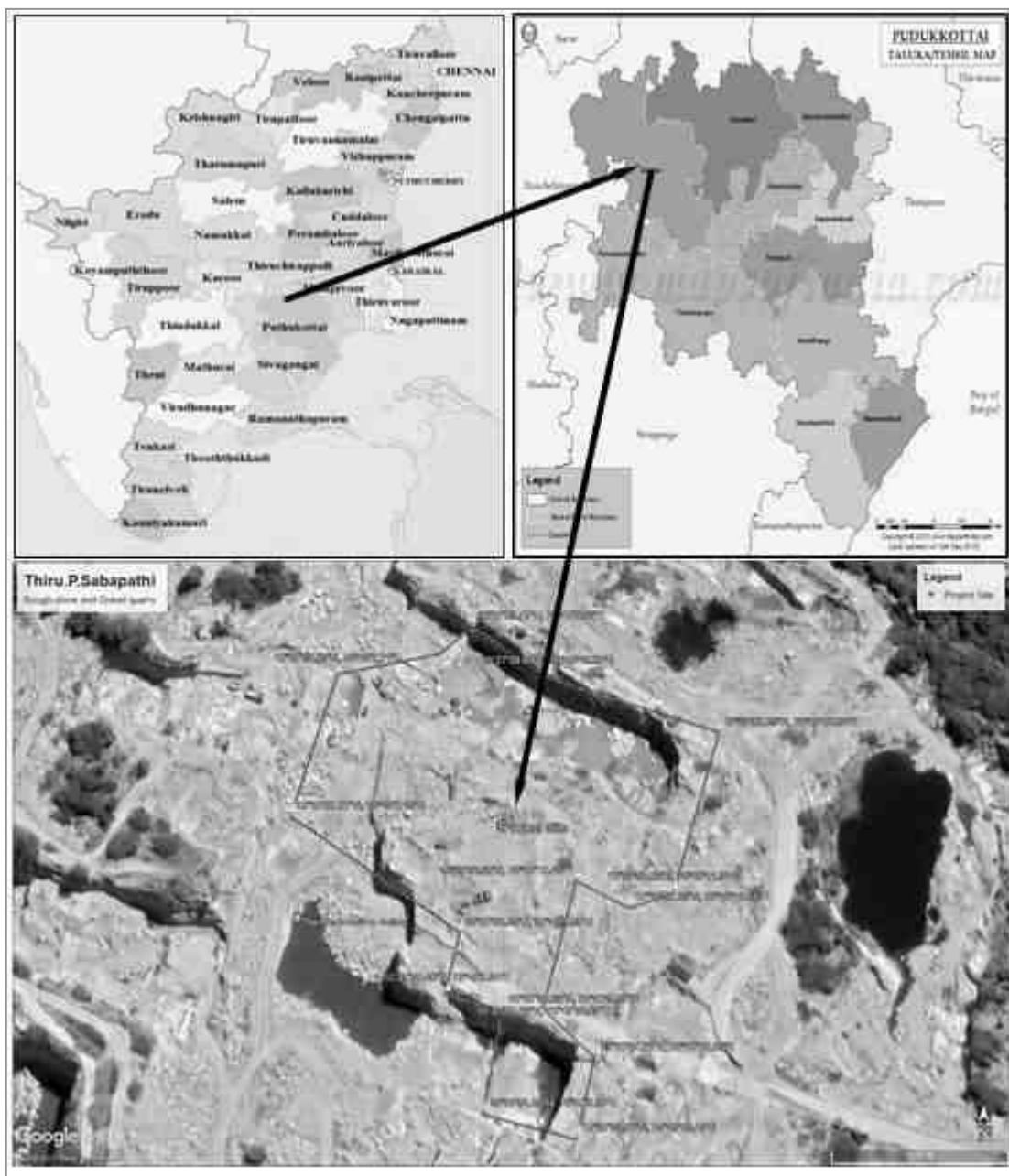


Figure 1: Location Map of the Project Site

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Figure 2: Google Image of the Project Site

4. Charnockite

Charnockite and granitic gneisses are extensively quarried as rough stone which is used as aggregates for construction of building, laying of roads and for preparation of value added products like hollow blocks, pillar stones, M-sand etc. Charnockite occurs as massive bodies, greyish colour, medium to coarse grained, composed quartz, feldspar and orthopyroxene. At places, metamorphic gneissic banding (alternate dark and black colour) in charnockite is noticed. Top portion, it gives gneissic appearance but 1-5m depth below it is typical charnockite of grey colour.

5. Geological Resources

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

The Geological Resources is estimated as 676000m³ of rough stone & 12530m³ Gravel up to a depth of 67.0m (2.0m Gravel & 65.0m Rough stone).

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Table 2. Geological resources & Mineable reserves

GEOLOGICAL RESOURCES						
Section	Length in (m)	Width in (m)	Depth in (m)	Volume m³	Geological Resources of Gravel in m³	Geological Resources of Rough stone in m³
XY-AB	53	24	2	2544	2544	
	53	56	65	192920		192920
XY-CD	45	49	2	4410	4410	
	63	64	65	262080		262080
X1Y1-AB	82	34	2	5576	5576	
	100	34	65	221000		221000
TOTAL					12530	676000

MINEABLE RESERVES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m³	Gravel Formation in m³	Mineable Reserves of Rough stone in m³
XY-AB	130-128	43	17	2	1462	1462	
	128-123	43	17	5	3655		3655
	123-118	43	17	5	3655		3655
	118-113	43	17	5	3655		3655
	113-108	43	17	2	1462		1462
	113-108	43	49	3	6321		6321
	108-103	38	44	5	8360		8360
	103-98	33	39	5	6435		6435
	98-93	28	34	5	4760		4760
	93-88	23	29	5	3335		3335
TOTAL						1462	41638
XY-CD	130-128	55	34	2	3740	3740	
	128-123	55	34	5	9350		9350

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	123-118	38	29	3	3306		3306
	123-118	38	44	2	3344		3344
	118-113	38	39	5	7410		7410
	113-108	39	29	2	2262		2262
	113-108	56	29	3	4872		4872
	108-103	50	19	5	4750		4750
TOTAL						3740	35294
X1Y1- AB	130-128	67	27	2	3618	3618	
	128-123	67	27	5	9045		9045
	123-118	80	22	5	8800		8800
	118-113	70	17	5	5950		5950
TOTAL						3618	23795
GRAND TOTAL						8820	100727

Table 3. Year wise Production Plan

YEARWISE DEVELOPMENT & PRODUCTION RESERVES								
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m³	Gravel Formation in m³	Recoverable Reserves of Rough stone in m³
I	XY-AB	130-128	43	17	2	1462	1462	
		128-123	43	17	5	3655		3655
		123-118	43	17	5	3655		3655
	XY-CD	130-128	55	34	2	3740	3740	
		128-123	55	34	5	9350		9350
		123-118	38	29	3	3306		3306
		123-118	38	44	2	3344		3344
TOTAL							5202	23310
II	X1Y1-AB	130-128	67	27	2	3618	3618	
		128-123	67	27	5	9045		9045

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		123-118	80	22	5	8800		8800
	XY-AB	118-113	43	17	5	3655		3655
TOTAL							3618	21500
III	XY-AB	113-108	43	17	2	1462		1462
		113-108	43	49	3	6321		6321
	XY-CD	118-113	38	39	5	7410		7410
		113-108	39	29	2	2262		2262
		113-108	56	29	3	4872		4872
TOTAL								22327
IV	XY-AB	108-103	38	44	5	8360		8360
		103-98	33	39	5	6435		6435
	XY-CD	108-103	50	19	5	4750		4750
TOTAL								19545
V	XY-AB	98-93	28	34	5	4760		4760
		93-88	23	29	5	3335		3335
	X1Y1-AB	118-113	70	17	5	5950		5950
TOTAL								14045
GRAND TOTAL							8820	100727

6. Mining

Opencast mining

The quarry operation is proposed to be carried out with conventional open cast mechanized mining with 5.0-meter vertical bench with a bench width of 5.0 meter. The Quarry operation involves shallow jack hammer drilling, blasting, loading and transportation.

Process Description

- The reserves and resource are arrived based upon the Geological investigation.
- Removal of Topsoil by Excavators and directly Loaded into Tippers.
- Removal of Rough Stone by Excavators by Drilling and Blasting.
- Shallow Drilling With Jackhammer of 32mm Dia.

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- Minimum Blasting With Class 2 Explosives.
- Loading of Rough Stone By Excavators Into Tippers.

7. Water Requirement

Total water requirement for the mining project is 2.5 KLD. Domestic water will be sourced from nearby Veerapatti Village and other water will be source from nearby road tankers supply.

Table 4. Water Balance

Purpose	Quantity	Source
Drinking Water	1.5 KLD	Packaged Drinking water vendors available in Veerapatti village which is about 1.35 km E from the project site.
Green belt	0.5 KLD	Other domestic activities through road tankers supply
Dust suppression	0.5 KLD	From road tankers supply
Total	2. 5 KLD	

8. Manpower

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

Table 5. Man Power

1.	Skilled	Operators- Excavator & Jackhammer	2 Nos
2.	Semi – skilled	Drivers	2 Nos
3.	Unskilled	Musdoor/Labours, Cleaners & Watch man	28 Nos
4.	Management & Supervisory staff	Second Class Mines Manager, Mines Foreman, Mines Mate, Blaster	4 Nos
Total			36 Nos

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

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9. Solid Waste Management

Table 6 Solid Waste Management

S. No	Type	Quantity	Disposal Method
1	Organic	6.48 kg/day	Municipal bin including food waste
2	Inorganic	9.72 kg/day	TNPCB authorized recyclers

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

Table 7 500m Radius Cluster Mine

1) Existing other quarries:

S. No.	Name of the Owner	Village & Taluk	S.F.Nos.	Extent in Hect.	Lease Period
1.	Thiru.K.Manickam, S/o.Krishnan, Agarappatti, Vayalogam Post, Illuppur Taluk, Pudukkottai District	Veerapatti & Illuppur	153/7A1B1	0.73.5	28.02.2022 to 27.02.2027

2) Proposed Area

S. No.	Name of the Owner	Village & Taluk	S.F. No	Extent in Ha
1.	Thiru.Dineshwaran, S/o.Devadass, No.54/B, Periyasengapatti, Annavasal, Illuppur Taluk, Pudukkottai (D)	Veerapatti Illuppur	145/3A and 145/4A	0.87.5
2	Thiru.Selvaraj, S/o. Chokkalingam,	Veerapatti Illuppur	159/5B2, 160, 161/1, 159/3A, 159/3B, 159/3C,	2.17.0

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	No.34/D, Sengapatti, Annavasal, Iluppur Taluk, Pudukkottai District		159/4A, 159/4B, 159/5A and 159/5B1	
3	Thiru.M.Karuppaiya, S/o.Maduraiveeran, No.252, West Street, Mannavelampatti, Mangudi, Iluppur Taluk, Pudukkottai District.	Veerapatti Illuppur	153/11, 153/9A2 and 153/7A1B2A	1.62.5
4	Thiru.P.Sabapathi, S/o. Palaniyandi, Seethapatty, Kilikudi Post, Iluppur Taluk, Pudukkottai District.	Veerapatti Illuppur	153/2 & etc.,	1.18.5
	Total			5.85.5

3) Lease Expired

S. No.	Name of the Owner	Village & Taluk	S.F Nos.	Extent in Hect.	Lease Period
1.	Thiru.C.Shanmugam, S/o.Chidambaram, Sivankoil Theru, Iluppur Post & Taluk, Pudukkottai Dt	Veerapatti Illuppur	532/3J	0.60.5	19.01.2017 to 18.01.2022
2	Thiru.A.Alagupandiyen, S/o.Alaguperumal, Poikkaadipatti, Iluppur Post & Taluk.	Veerapatti Illuppur	148/3A	0.33.0	30.12.2016 to 29.12.2021
3	Thiru.A.Alagupandiyen, S/o.Alaguperumal, Poikkaadipatti, Veerapatti, Iluppur	Veerapatti Illuppur	145/3A, 145/4A	0.87.5	01.03.2016 to 28.02.2021

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4	Thiru.C.Chelladurai, S/o.Chinnaiah, Veerapatti village & post, Illuppur Taluk, Pudukkottai District	Veerapatti Illuppur	145/1	0.88.0	30.07.2016 to 29.07.2021
5	Thiru.U.Ganasamoorthy, S/o. Umayan sekey, Punginipatti, Irundhirapatti	Veerapatti Illuppur	153/1 & etc.,	0.41.0	23.06.2016 to 22.06.2021
6	Thiru.P.Sabapathi S/o.Palaniyandi, Seethapathy, Kilikudi Post, Iluppur Taluk, Pudukkottai District	Veerapatti Illuppur	153/2 & etc.,	1.18.5	23.08.2017 to 22.08.2022
7	Thiru.D.Ramu servai, S/o.Duraisamy servai, Mannavelanpatti, Illuppur Taluk, Pudukkottai District	Veerapatti Illuppur	153/6B	0.46.0	29.09.2017 to 28.09.2022
Total				4.74.5	

The Total extent of the Existing / Lease expired / Proposed quarries is 6.59.0 Ha.

10. Land Requirement

The total extent area of the project is 1.18.5 Ha, Patta land in Veerapatti Village of Illuppur Taluk, Pudukkottai District.

Table 8 Land Use Breakup

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S. No.	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)
1.	Quarrying Pit	0.31.8	0.60.7
2.	Infrastructure	0.01.0	0.03.0
3.	Roads	0.01.0	0.02.0
4.	Green Belt	0.02.0	0.35.8
5.	Unutilized	0.82.7	0.17.0
	Total	1.18.5 Ha	1.18.5 Ha

11. Human Settlement

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

Table 9 Habitation

S.No	Direction	Village	Distance in kms	Population
1	NE	Kaladipatty	1.00 Km	231
2	NW	Therkukulam	0.33 Km	165
3	SE	Mukknampatti	0.83 Km	1414
4	SW	Wawnadi	1.22 Km	195

12. Power Requirement

The Rough Stone Quarry project does not require huge water and electricity for the project.

16 Litres diesel per hour for excavator for mining and loading for Rough stone and **10 Liters** per hour for Gravel needed.

13. Scope of the Baseline Study

This chapter contains information on existing environmental scenario on the following parameters.

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1. Micro – Meteorology
2. Water Environment
3. Air Environment
4. Noise Environment
5. Soil / Land Environment
6. Biological Environment
7. Socio-economic Environment

13.1 Micro – Meteorology

Meteorology plays a vital role in affecting the dispersion of pollutants, once discharged into the atmosphere. Since meteorological factors show wide fluctuations with time, meaningful interpretation can be drawn only from long-term reliable data.

- i) Average Minimum Temperature : 18 to 23 °C
- ii) Average Maximum Temperature : 30 to 40 °C
- iii) Average Annual Rainfall of the area: 821 mm

13.2 Air Environment

Ambient air monitoring was carried out on monthly basis in the surrounding areas of the Mine Lease area to assess the ambient air quality at the source. To know the ambient air quality at a larger distance i.e., in the study area of 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 (67-41 µg/m³), PM_{2.5} (33-16 µg/m³), SO₂(20-5 µg/m³), NO₂ (32-9µg/m³), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from July to September 2023.

13.3 Noise Environment

Ambient noise levels were measured at 7 locations around the proposed project site. The maximum Day noise and Night noise were found to be 58 dB(A) and 47 dB(A) respectively in Ariyur Sri

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Meenakshi Sundareswarar Temple, Ariyur. The minimum Day Noise and Night noise were 39 dB(A) and 32 dB(A) respectively which was observed in Project site.

13.4 Water Environment

- The average pH ranges from 6.37 – 7.76.
- TDS value varied from 262 mg/l to 1819 mg/l
- Hardness varied from 133 to 601 mg/l
- Chloride varied from 51.8 to 469 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 6.83 to 8.64 with organic matter 0.08 to 0.24 %. The concentration of Nitrogen, Phosphorus & Potassium has been found to be in good amount in the soil samples.

13.6 Biological Environment

The proposed Mining lease area is mostly dry barren ground with small shrubs and bushes. No specific endangered flora & fauna exist within the mining lease area.

14. Rehabilitation/ Resettlement

- The overall land of the mine is Patta land. There 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.

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2. The 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, Pungam, Naval etc. will be planted along the lease boundary and avenues as well as over non-active dumps at a rate of 120 trees per annum with interval 5m.
4. The rate of survival expected to be 80% in this area

Table.10 Plantation/ Afforestation Program

Name of species proposed	Survival	No of species
Neem, Pungam, Poovarasu, Naval, Mantharai, Arasa Maram, Magizham, Vilvam, vaagai, Marudha maram, Thandri, Poovarasu, Thethankottai maram, Manjadi, Usil, Aathi, Panai, Uzha, Illuppai, Eachai, Vanni Maram	80%	600
Total		600

16. Anticipated Environmental Impacts

16.1 Air Environment and Mitigation Measures

1. Water sprinkling will be done on the roads & unpaved roads.
2. Proper mitigation measures like water sprinkling will be adopted to control dust emissions.
3. Plantation will be carried out on approach roads, solid waste site & nearby mine premises.
4. To control the emissions regular preventive maintenance of equipment 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 this equipment 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

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- 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 35,95,600/-** for deployment of machinery and creation of infrastructural facilities like approach road, mine office / Workers Shed, First Aid Room etc., including electrifications and water supply.

Table .11 Project Cost details

S. No.	Description	Cost
1	Fixed Asset Cost	15,95,600/-
2	Operational Cost	20,00,000/-
	Total	35,95,600/-

Environmental Mnagement Cost :- **61,57,825/-** (Sixty One Lakhs Fifty Seven Thousands Eight Hundred and Twenty Five Rupees Only).

20. Corporate Environmental Responsibility

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

Table 12 CER Cost

Project	<i>Rough stone and Gravel Quarry - 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Illuppur Taluk, Pudukkottai District</i>	

S.No.	CER Activity	CER value (Rs)
1.	Panchayat Union Middle School, Kaaladipatti Village Veerapatti Post – Provision of • Almirah for arranging books, • Smart TV for smart class • Table & Chair, and Basic amenities such as • Environmental awareness books (Tamil) in Library for students, Green Belt development, Hygienic Toilet and maintenance of toilet upto lease period.	5,00,000
Total		5,00,000

21. Benefits of the Project

- There is a positive impact on socioeconomics of people living in the villages. Mining operations in the subject area has positive impact by providing direct and indirect jobs opportunities.
- The project is environmentally compatible, financially viable and would be in the interest of 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 nearby vicinity.

<i>Project</i>	<i>Rough stone and Gravel Quarry - 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Sabapathi</i>	
<i>Project Location</i>	<i>Veerapatti Village, Illuppur Taluk, Pudukkottai 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

Minerals of Economic importance found in Pudukkottai District are mainly Multicolor Granite, Rough Stone, Red soil, Gravel, Savudu, Pebbles with traces of occurrence of Quartz and Feldspar. Mining activities based on these minerals are very less. However, numerous Rough Stone quarries are under operation for production of construction materials in the areas of Kunnandavarkoil, Thirumayam, Kulathur in the district.

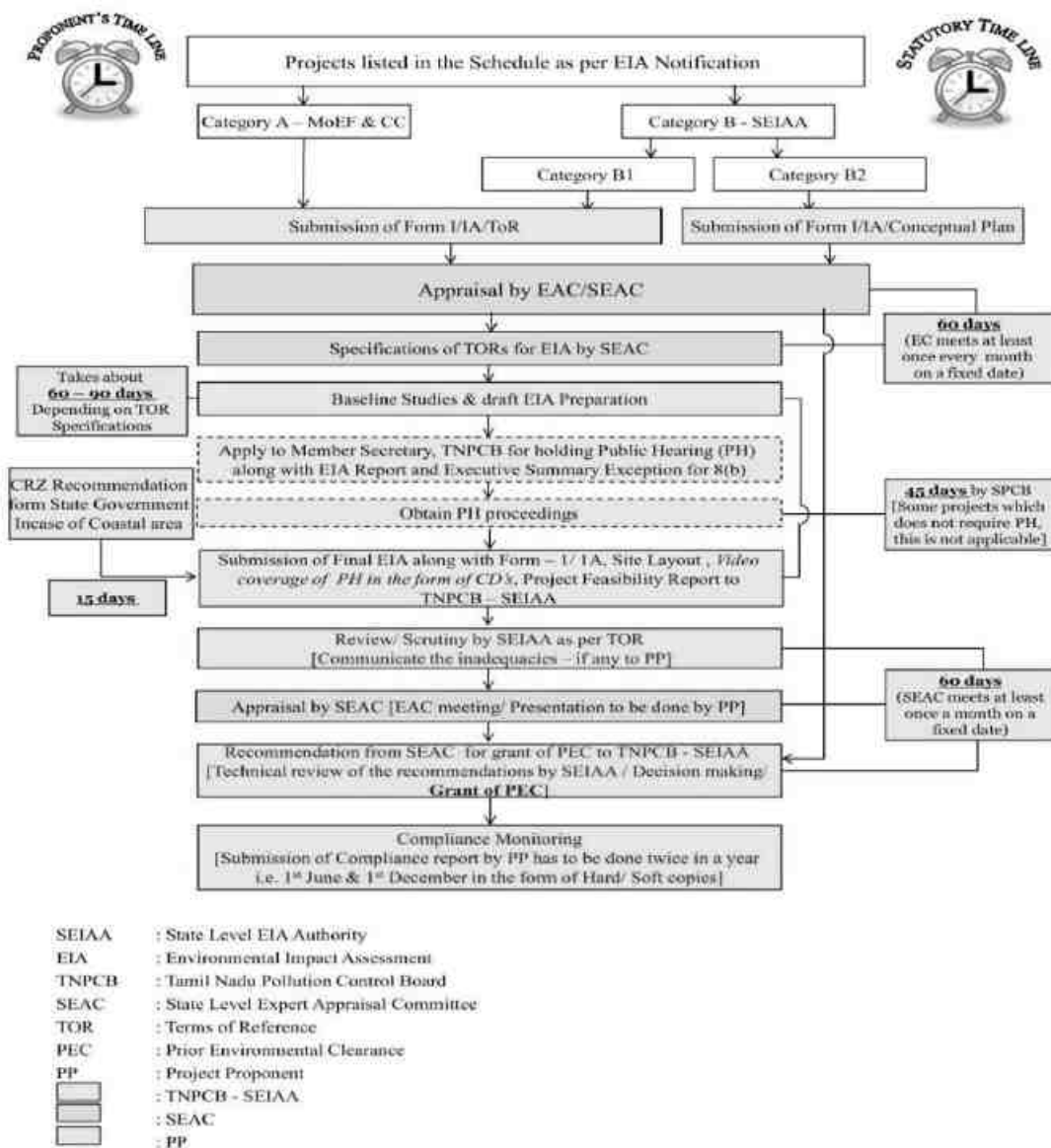
Gneiss rocks are found in the western part of Pudukkottai District. Charnockites and granites rocks are mostly found in the central part including the blocks of Kunnadavarkoil, Thirumayam and the southern parts of Pudukkottai Block. The various types of Gneiss rocks are found in the western part of the study area, consisting of the blocks of Viralimalai, Annavasal and Ponamaravathy. Quartzite deposits are found in small quantities in some parts of Annavasal and Thirumayam Blocks. In the Blocks of Kulathur, Thirumayam and parts of Pudukkottai crystalline rocks are found.

Project	Rough stone and Gravel Quarry - 1.18.5 Ha by Thiru.P.Sabapathi	Draft EIA Report
Project Proponent	Thiru.P.Sabapathi	
Project Location	Veerapatti Village, Illuppur Taluk, Pudukkottai District	

1.3 ENVIRONMENTAL CLEARANCE

As per EIA Notification, 2006 and its subsequent amendments (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.



Project	<i>Rough stone and Gravel Quarry - 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Illuppur Taluk, Pudukkottai 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. 9990/SEAC/1(a)ToR-1661/2024 Dated: 07.02.2024. 43 additional ToR points were recommended by SEAC TN in addition to the Standard ToR Points. The replies for the same were addressed in this report.

1.5 POST ENVIRONMENTAL CLEARANCE MONITORING

1.1.2 *Methodology adopted*

Post project monitoring will be carried out as per conditions stipulated in 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 the 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 the project, need for the project, project location, layout, project activities during construction and operational phases, capacity of the project, project operation i.e., land

Project	<i>Rough stone and Gravel Quarry - 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Illuppur Taluk, Pudukkottai District</i>	

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 includes studies carried out, modelling 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.

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, the cost involved to implement the EMP, both during the construction and

Project	<i>Rough stone and Gravel Quarry - 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Illuppur Taluk, Pudukkottai District</i>	

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 size pages at the maximum. It should provide the overall justification for 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.P.Sabapathi
Status of the Proponent : Private & Individual
Proponent's Name & Address : S/o. Palaniyandi,
No. 971, Seethappatty,
Mampatty, Iluppur Taluk,
Pudukkottai - 622 102.

1.8 BRIEF DESCRIPTION OF THE PROJECT

1.1.3 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) Govt 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 mechanized open cast method on allotted mine lease area at Veerapatti Village, Illuppur Taluk of Pudukkottai District, Tamil Nadu. It is a Plain terrain. The total allotted mine lease for the proposed project is 1.18.5 Ha with their maximum production capacity i.e., 100727m³ of Rough stone and 8820m³ of Gravel for Five years only.

Project	Rough stone and Gravel Quarry - 1.18.5 Ha by Thiru.P.Sabapathi	Draft EIA Report
Project Proponent	Thiru.P.Sabapathi	
Project Location	Veerapatti Village, Illuppur Taluk, Pudukkottai District	

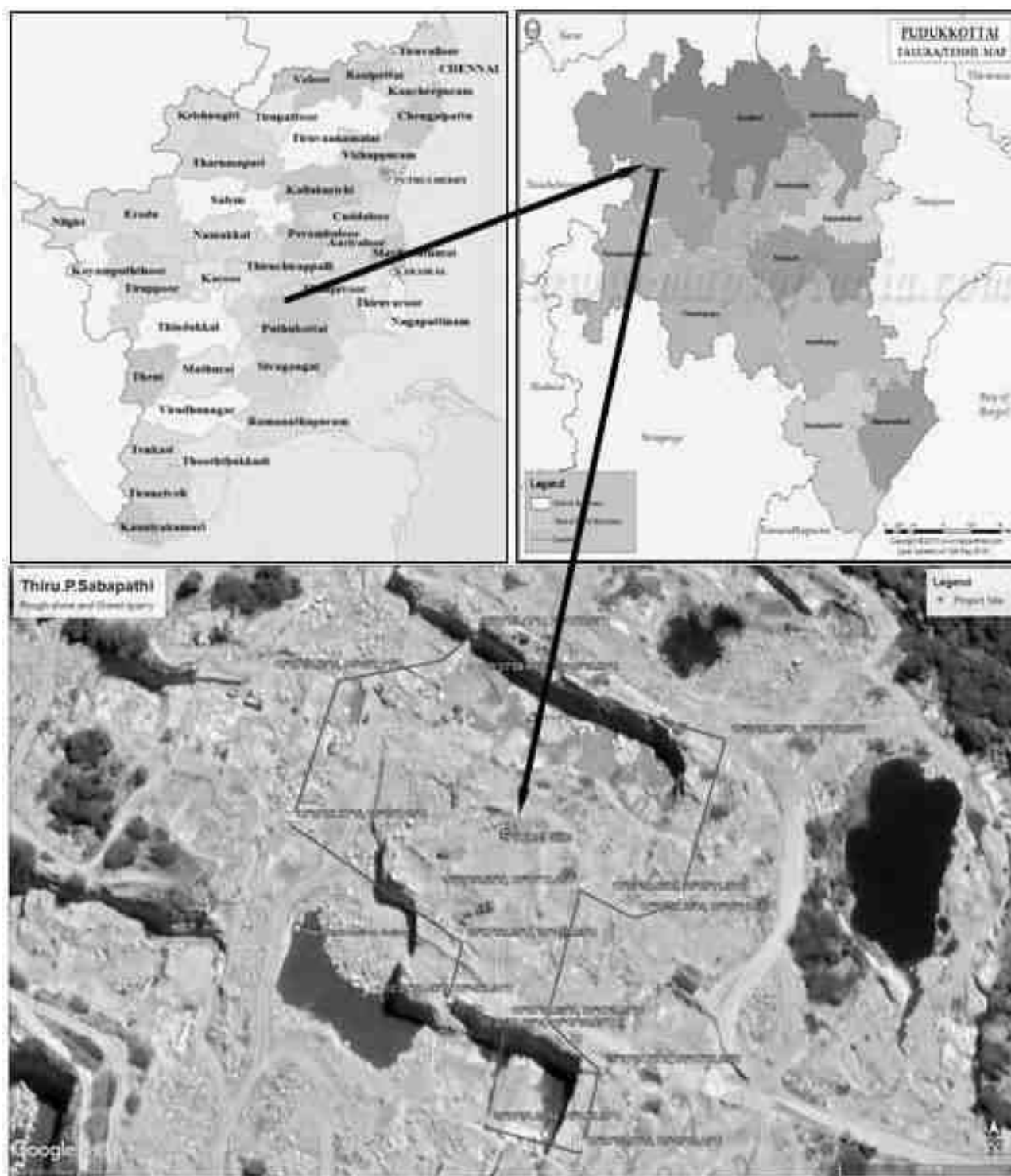


Figure 1.1: Location Map of the Project site

<i>Project</i>	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Sabapathi</i>	
<i>Project Location</i>	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

2 Project Description

This chapter furnishes detailed description 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.

1.9 GENERAL

Proposed proposal pertains to rough stone and gravel mining project by open cast mechanized method on allotted mine lease area at Veerapatti Village, Iluppur Taluk of Pudukkottai District, Tamil Nadu. It is a Plain terrain. We have obtained fresh mining plan from 2023 to 2028 from Department of Geology and Mining, Pudukkottai District for 1.18.5 Ha land area in the S.F.Nos. 153/2, 3, 4A, 4B, 4C & 5 for a proposed mining depth of 44m above ground level and five years production of 100727m³ of Rough stone and 8820m³ 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) Govt 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 draft 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 Pudukkottai District. The proceedings of the same will be incorporated in the Final EIA Report.

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

Table 2-1: Quarry within 500m Radius

1) Existing other quarries:

Project	Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi	Draft EIA Report
Project Proponent	Thiru.P.Sabapathi	
Project Location	Veerapatti Village, Iluppur Taluk, Pudukkottai District	

S. No.	Name of the Owner	Village & Taluk	S.F.Nos.	Extent in Hect.	Lease Period
1.	Thiru.K.Manickam, S/o.Krishnan, Agarappatti, Vayalogam Post, Iluppur Taluk, Pudukkottai District	Veerapatti & Iluppur	153/7A1B1	0.73.5	28.02.2022 to 27.02.2027

2) Proposed Area

S. No.	Name of the Owner	Village & Taluk	S.F. No	Extent in Ha
1.	Thiru.Dineshwaran, S/o.Devadass, No.54/B, Periyasengapatti, Annavasal, Iluppur Taluk, Pudukkottai (D)	Veerapatti Iluppur	145/3A and 145/4A	0.87.5
2	Thiru.Selvaraj, S/o. Chokkalingam, No.34/D, Sengapatti, Annavasal, Iluppur Taluk, Pudukkottai District	Veerapatti Iluppur	159/5B2, 160, 161/1, 159/3A, 159/3B, 159/3C, 159/4A, 159/4B, 159/5A and 159/5B1	2.17.0
3	Thiru.M.Karuppaiya, S/o.Maduraiveeran, No.252, West Street, Mannavelampatti, Mangudi, Iluppur Taluk, Pudukkottai District.	Veerapatti Iluppur	153/11, 153/9A2 and 153/7A1B2A	1.62.5
4	Thiru.P.Sabapathi, S/o. Palaniyandi, Seethapatty, Kilikudi Post, Iluppur Taluk, Pudukkottai District.	Veerapatti Iluppur	153/2 & etc.,	1.18.5
	Total			5.85.5

3) Lease Expired

Project	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

S. No.	Name of the Owner	Village & Taluk	S.F Nos.	Extent in Hect.	Lease Period
1.	Thiru.C.Shanmugam, S/o.Chidambaram, Sivankoil Theru, Iluppur Post & Taluk, Pudukkottai Dt	Veerapatti Illuppur	532/3J	0.60.5	19.01.2017 to 18.01.2022
2	Thiru.A.Alagupandian, S/o.Alaguperumal, Poikkaadipatti, Iluppur Post & Taluk.	Veerapatti Illuppur	148/3A	0.33.0	30.12.2016 to 29.12.2021
3	Thiru.A.Alagupandian, S/o.Alaguperumal, Poikkaadipatti, Veerapatti, Iluppur	Veerapatti Illuppur	145/3A, 145/4A	0.87.5	01.03.2016 to 28.02.2021
4	Thiru.C.Chelladurai, S/o.Chinnaiah, Veerapatti village & post, Illuppur Taluk, Pudukkottai District	Veerapatti Illuppur	145/1	0.88.0	30.07.2016 to 29.07.2021
5	Thiru.U.Ganasamoorthy, S/o. Umayan sekey, Punginipatti, Irundhirapatti	Veerapatti Illuppur	153/1 & etc.,	0.41.0	23.06.2016 to 22.06.2021
6	Thiru.P.Sabapathi S/o.Palaniyandi, Seethapathy, Kilikudi Post, Iluppur Taluk, Pudukkottai District	Veerapatti Illuppur	153/2 & etc.,	1.18.5	23.08.2017 to 22.08.2022

<i>Project</i>	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Sabapathi</i>	
<i>Project Location</i>	<i>Veerapatti Village, Illuppur Taluk, Pudukkottai District</i>	

7	Thiru.D.Ramu servai, S/o.Duraisamy servai, Mannavelanpatti, Illuppur Taluk, Pudukkottai District	Veerapatti Illuppur	153/6B	0.46.0	29.09.2017 to 28.09.2022
Total				4.74.5	

The Total extent of the Existing / Lease expired / Proposed quarries is 6.59.0 Ha.

2.1.1 *Need for the project:*

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

Since Pudukkottai, a city known for its small-scale industries and also the soil in the area near project site is not very fertile making it unsuitable for carrying out agricultural activities. The topography near the project area is dry lands showing only less chance for crop growth and development of vegetation. Rocks and minerals of economic importance found to occur in Pudukkottai District are Multicolor Granite, Rough Stone, Red soil, Gravel, Savudu, Pebbles with traces of occurrence of Quartz and Feldspar. 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.

Project	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

1.10BRIEF DESCRIPTION OF THE PROJECT

Table 2-2 Salient Features of the Project

S. No.	Description	Details
1	Project Name	Existing Rough Stone and Gravel Quarry-1.18.5 ha
2	Proponent	Thiru.P.Sabapathi
3	Mining Lease Area Extent	1.18.5 Ha
4	Location	S.F.Nos. 153/2, 3, 4A, 4B, 4C & 5 Veerapatti Village, Iluppur Taluk, Pudukkottai District.
5	Latitude	10°27'53.79"N to 10°27'59.47"N
6	Longitude	78°40'07.18"E to 78°40'12.02"E
7	Topography	Plain terrain
8	Site Elevation above MSL	130.0 m from MSL
9	Topo sheet No.	58 J/11
10	Minerals of Mine	Rough Stone and Gravel Quarry
11	Proposed production of Mine	100727m ³ of Rough stone and 8820m ³ of Gravel
12	Ultimate depth of Mining	42m below ground level
13	Method of Mining	Open cast - mechanized mining
14	Water demand	2.5 KLD
15	Source of water	Water will be supplied through tankers supply
16	Manpower	36 Nos.
17	Mining Lease	Precise Area Communication Letter received from Assistant Director, Dept. Geology and Mining; Pudukkottai vide letter Rc.No.694/2022 (G&M) dated 14.02.2023.
18	Mining Plan Approval	Mining Plan was approved by the Assistant Director, Dept. of Geology & Mining, Pudukkottai vide letter Rc.No.694/2022 (G&M) dated 08.03.2023

Project	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

19	Production details	Geological reserves: 676000m ³ of rough stone and 12530m ³ of Gravel. Proposed year wise recoverable reserves: 100727m ³ of rough stone and 8820m ³ of Gravel
20	Boundary Fencing	7.5 m barrier all along the boundary Fencing will be provided.
21	Disposal of overburden	The over burden in the form of Gravel is 8,820m ³ of used for filling and leveling of low lying areas of road projects and other infrastructure development work in and around the district.
22	Ground water	The ground Water Level is noticed at the depth of 70m to 75m BGL by monitoring nearby bore holes, during the climatic conditions, the fluctuations of water level is 70m in Rainy seasons and 75m in Summer seasons of this quarry area. The quarry operation is proposed up to a depth of 42.0m (Max) (2.0m Gravel & 40.0m Rough stone). Hence the quarrying operation may not affect the ground water in any manner. It shall be ensured that quarrying shall not be carried out below ground water table under any circumstances. If ground water table occurs/intervenes within the permitted depth, then also the quarrying shall be stopped.
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 Veerapatti village which is 1.35 Km NW of the area

Project	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Iruppur Taluk, Pudukkottai District</i>	

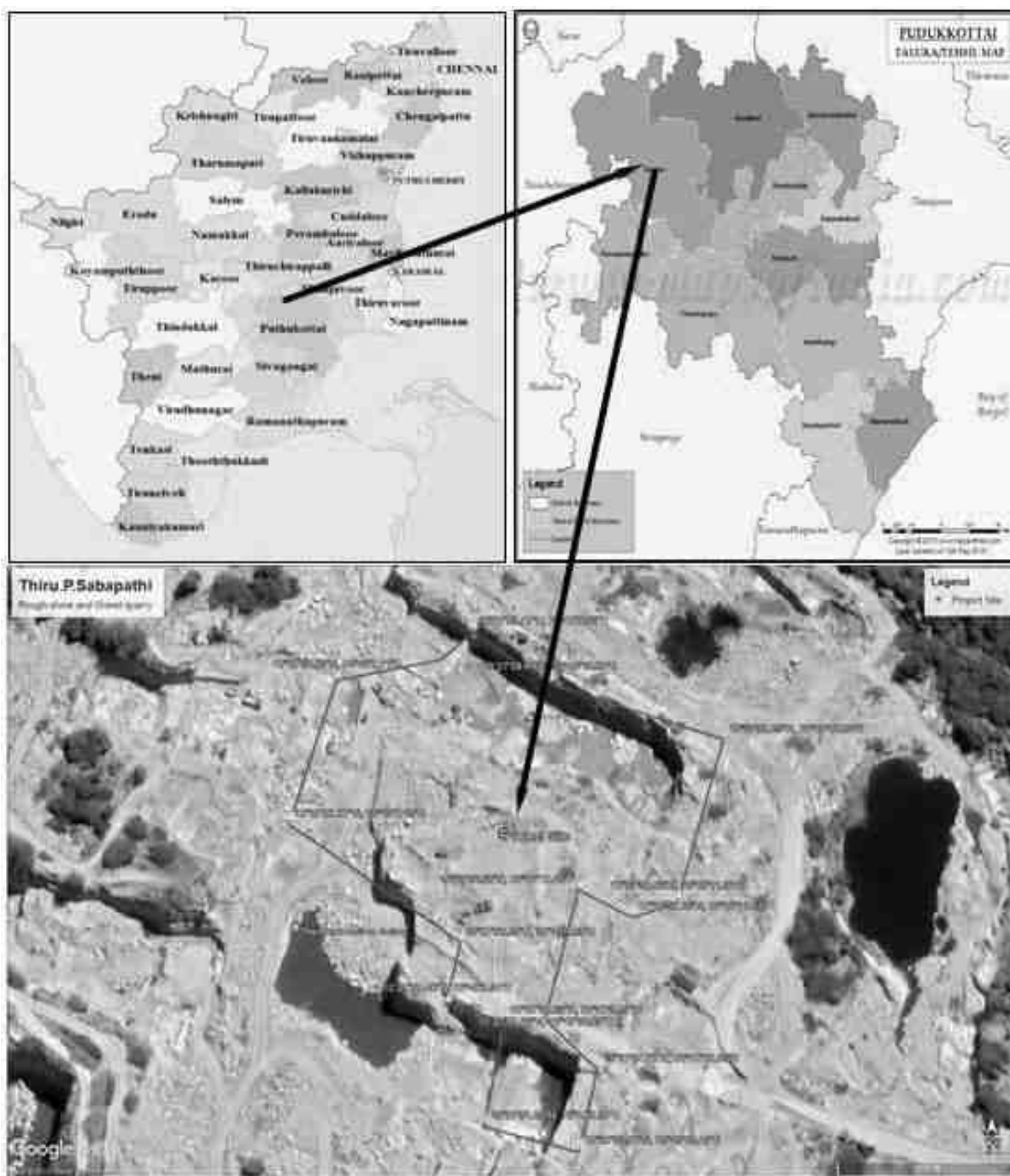


Figure 2.1: Location Map of the Project Site

Project	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	



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

2.1.2 Site Connectivity:

The site is connected to SH 71 – Manapparai – Pudukkottai Road – 0.97 km, NNE.



Figure 2.3: Site Connectivity

Project	Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi	Draft EIA Report
Project Proponent	Thiru.P.Sabapathi	
Project Location	Veerapatti Village, Iluppur Taluk, Pudukkottai District	

1.11 LOCATION DETAILS:

Table 2-3: Location Details

S. No	Particulars	Details
1.	Latitude	10°27'53.79"N to 10°27'59.47"N
2.	Longitude	78°40'07.18"E to 78°40'12.02"E
3.	Site Elevation above MSL	130.0m from MSL
4.	Topography	Plain terrain
5.	Land use of the site	Patta land (Consent registered)
6.	Extent of lease area	1.18.5 Ha

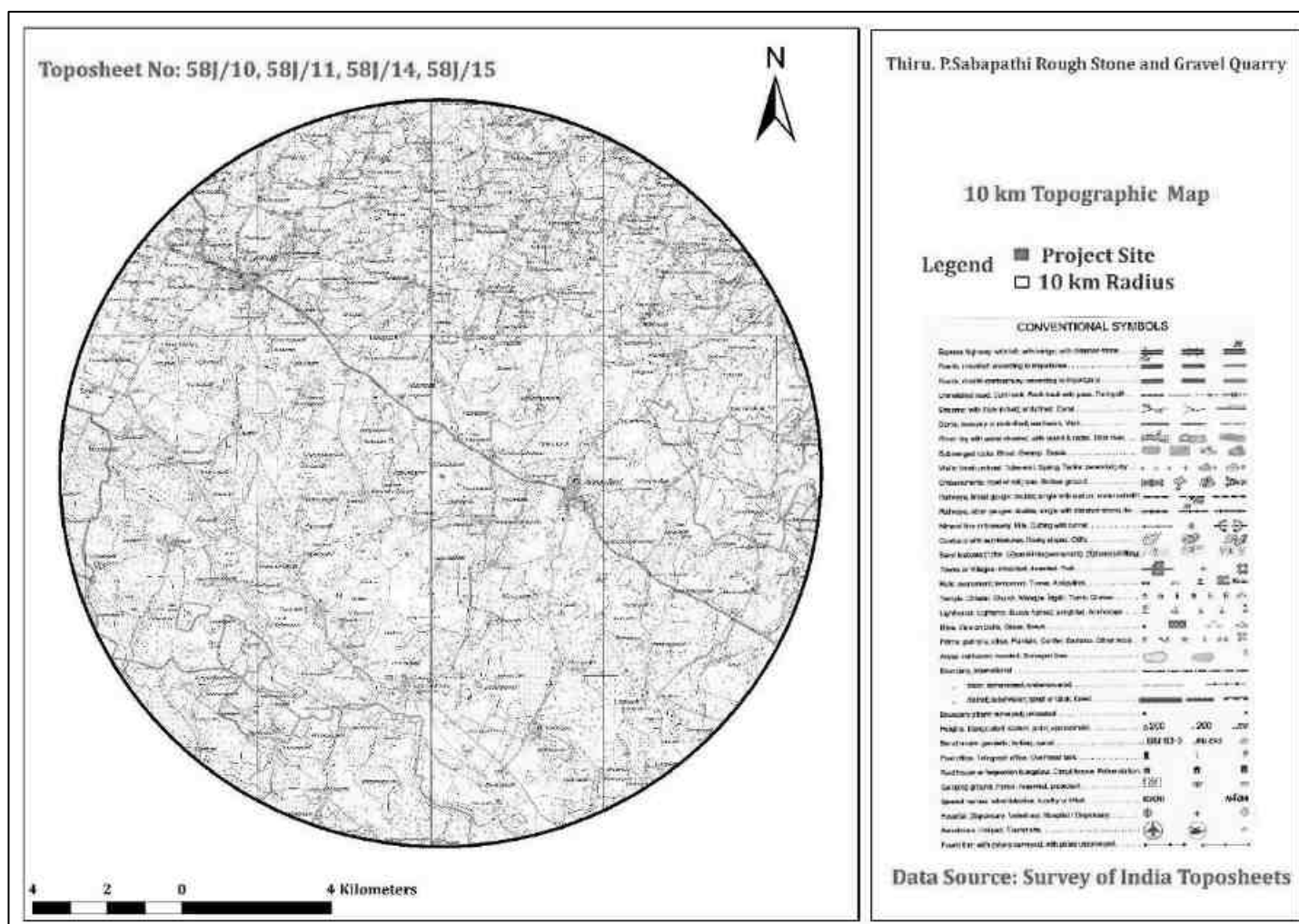


Figure 2.4: Topo Map of Project Site

<i>Project</i>	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Sabapathi</i>	
<i>Project Location</i>	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

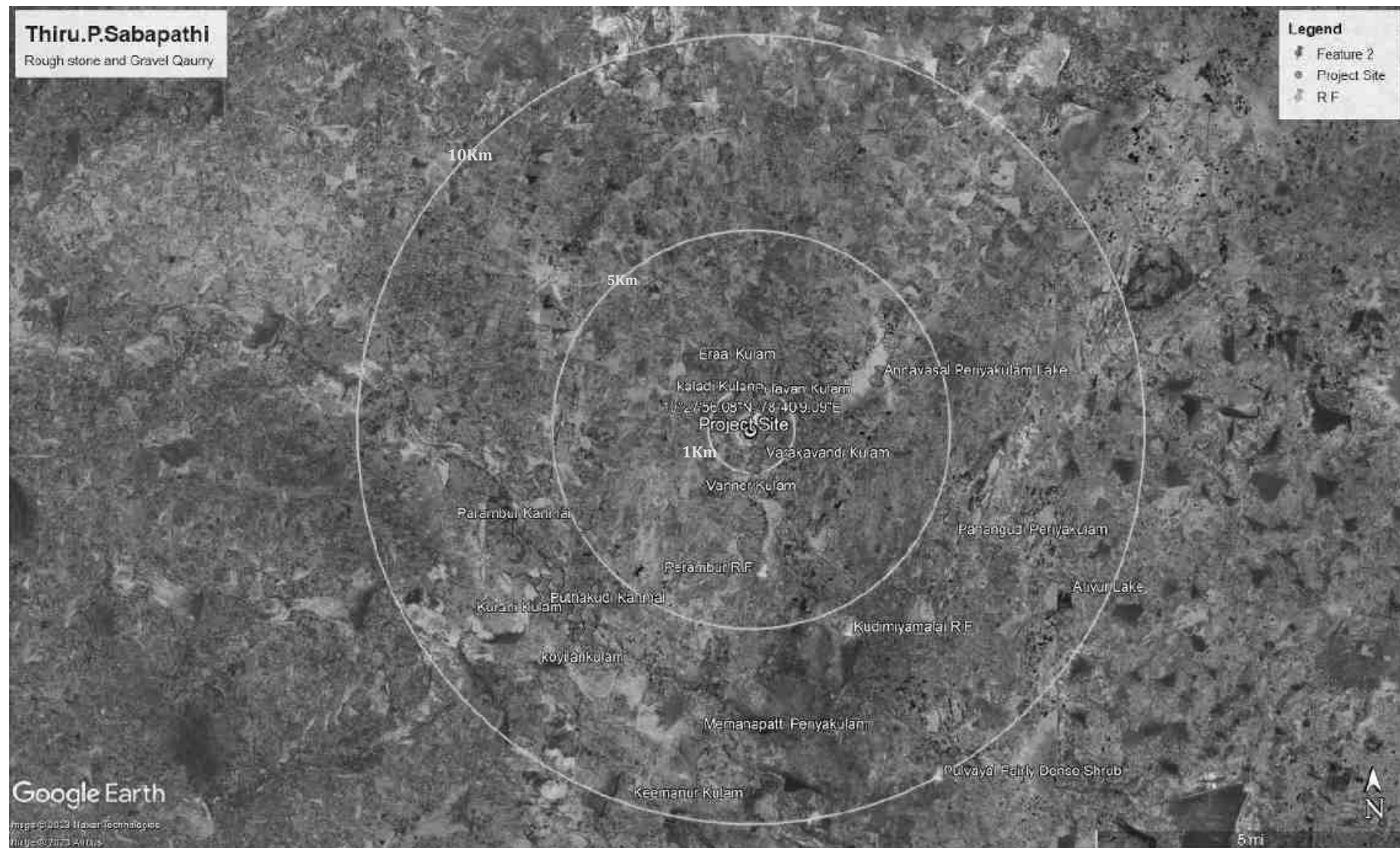


Figure 2.5: Environmental Sensitivity within 10km radius

Project	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

2.1.3 Site Photographs

The site photographs of the project site are as follows.



Figure 2.6: Site Photographs

2.1.4 Land Use Breakup of the Mine Lease Area

The Mine Lease area is Plain terrain.

The land use pattern of the mine lease area is as follows.

Table 2-4: Land use pattern

S.No	Land Use	Present Area (Ha)	Area in use during the quarrying period (Ha)
1	Quarrying Pit	0.31.8	0.60.7
2	Infrastructure	0.01.0	0.03.0
3	Roads	0.01.0	0.02.0
4	Green Belt	0.02.0	0.35.8
5	Unutilized	0.82.7	0.17.0
	Total	1.18.5	1.18.5

Project	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

2.1.5 Human Settlement

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

Table 2-5: Habitation

S.No	Direction	Village	Distance in kms	Population
1	NE	Kaladipatty	1.00 Km	231
2	NW	Therkukulam	0.33 Km	165
3	SE	Mukknamalpatti	0.83 Km	1414
4	SW	Wawnadi	1.22 Km	195

2.12 LEASEHOLD AREA

The New Rough Stone Quarry mine of 1.18.5 Ha is Patta land (Consent registered). The lease area falls in S.F No: 153/2, 3, 4A, 4B, 4C & 5 of Veerapatti Village, Iluppur Taluk, Pudukkottai 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.

2.13 GEOLOGY

Geologically the entire study area can be divided into hard rock and sedimentary rock regions. The hard rocks are found on the western side and sedimentary formation towards the eastern direction. About 45 per cent of the study area is under hard massive formation of the Archean age and the rest 55 per cent comprises of the sedimentary formation ranging from Pre-Cambrian to Quaternary period.

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Project Proponent	Thiru.P.Sabapathi	
Project Location	Veerapatti Village, Iluppur Taluk, Pudukkottai District	

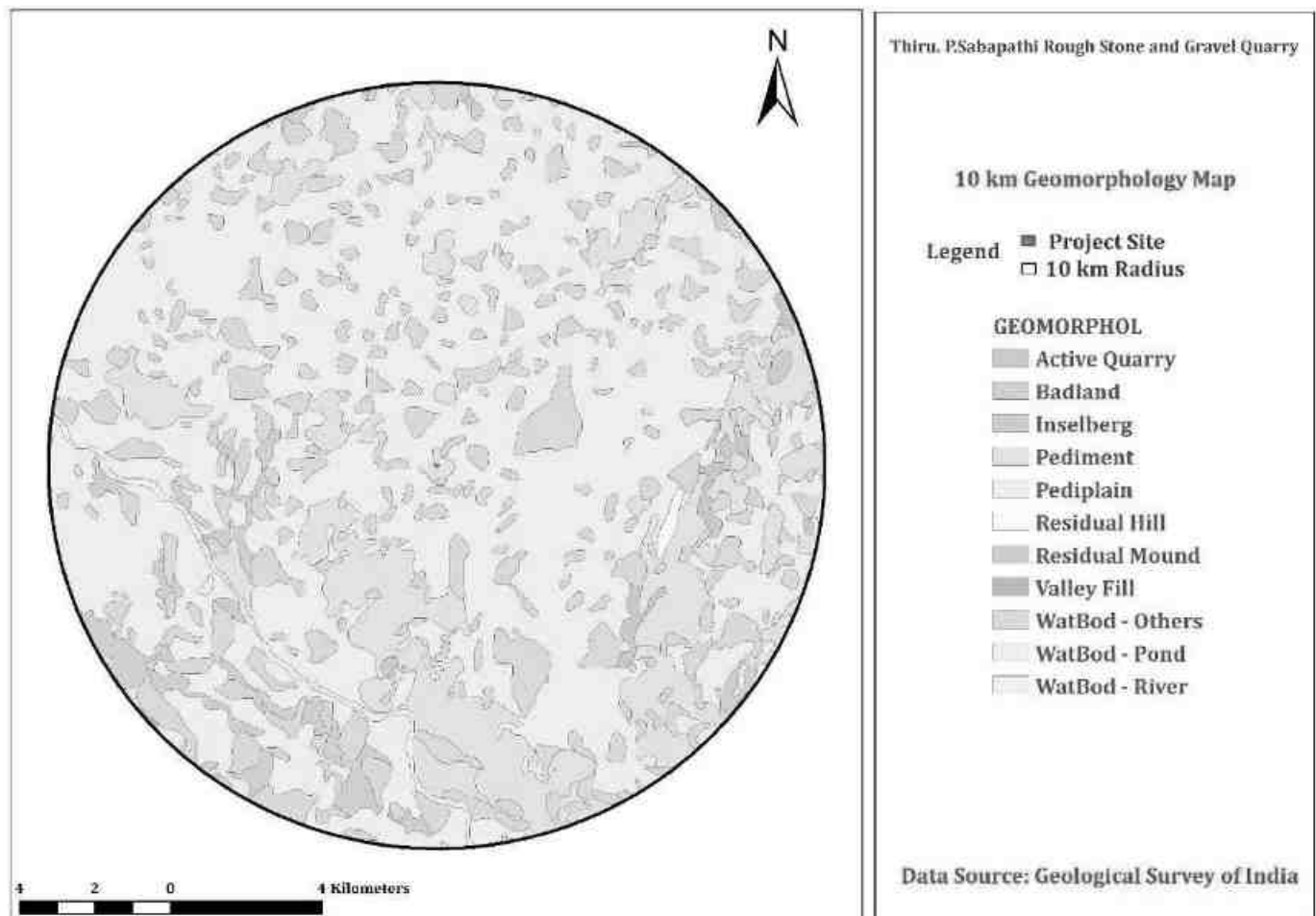


Figure 2.7: Geomorphology

Project	Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi	Draft EIA Report
Project Proponent	Thiru.P.Sabapathi	
Project Location	Veerapatti Village, Iluppur Taluk, Pudukkottai District	

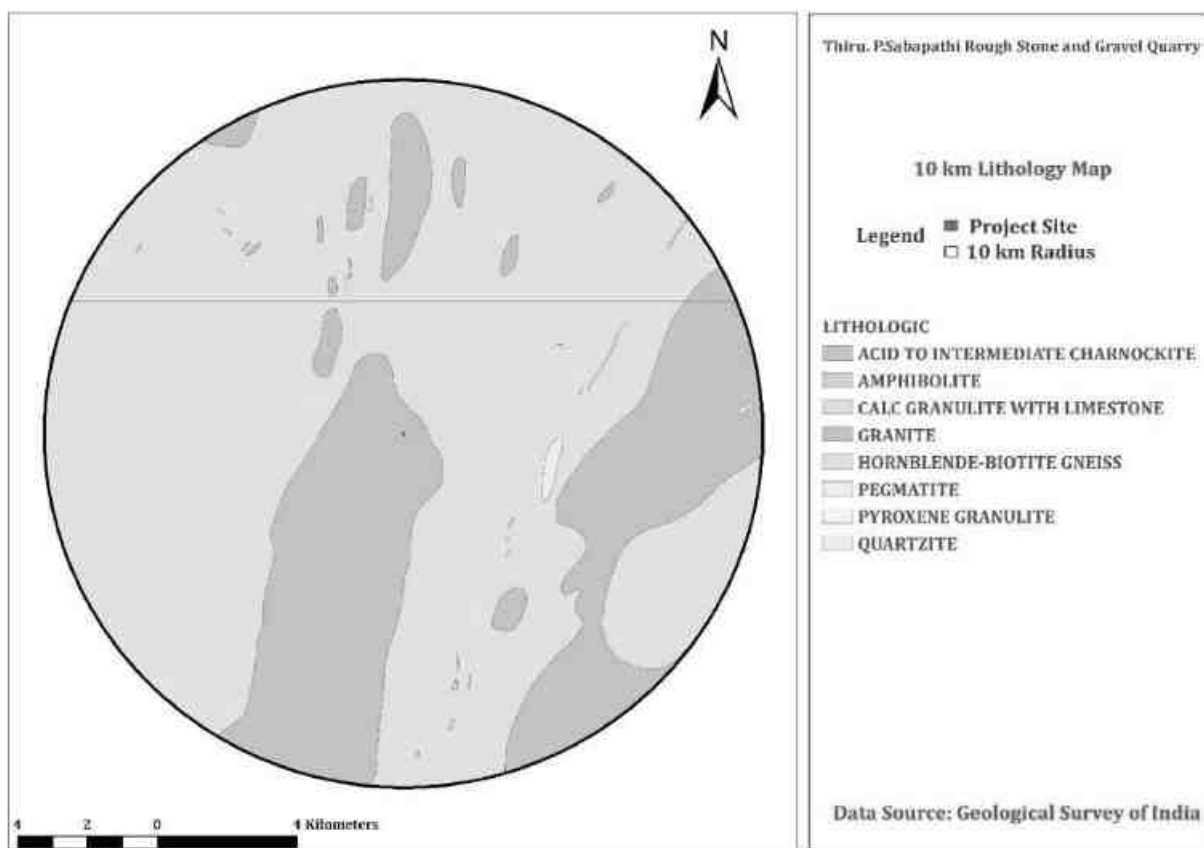


Figure 2.8 Lithology

2.14 QUALITY OF RESERVES:

The mining lease area is of 1.18.5 Ha, with production capacity of 1,00,727m³ of Rough Stone and 8,820m³ of Gravel, Due to significant role in the domestic as well as infrastructural market, making the mining of Stone 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	6,76,000 m ³ of Rough stone
3	Recoverable Reserves	1,00,727 m ³ of Rough stone
4	Proposed Production	1,00,727 m ³ of Rough stone
5	Elevation Range of the Mine Site	130 m MSL

<i>Project</i>	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Sabapathi</i>	
<i>Project Location</i>	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

2.14.1 Estimation of Reserves

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. The Topographical, Geological plan and sections demarcated the commercial marketable Rough stone (Charnockite) deposit has been prepared in 1:1000 scale and the estimated balance Geological Reserves as 6,76,000 m³ of Rough stone and 12,530m³ of Gravel.

2.14.2 Geological Resources

Rough Stone:

The Geological Resources is estimated as 6,76,000m³ of Rough stone & 12,530m³ Gravel up to a depth of 67.0m (2.0m Gravel & 65.0m Rough stone).

Table 2-7: Geological Reserves

GEOLOGICAL RESOURCES						
Section	Length in (m)	Width in (m)	Depth in (m)	Volume m³	Geological Resources of Gravel in m³	Geological Resources of Rough stone in m³
XY-AB	53	24	2	2544	2544	
	53	56	65	192920		192920
XY-CD	45	49	2	4410	4410	
	63	64	65	262080		262080
X1Y1- AB	82	34	2	5576	5576	
	100	34	65	221000		221000
TOTAL					12530	676000

2.14.3 Mineable Reserves

The available mineable reserves are calculated for the proposed lease period of 5 years based on the total mineable reserves calculated by deducting 10 m safety distances to the boundary.

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<i>Project Proponent</i>	<i>Thiru.P.Sabapathi</i>	
<i>Project Location</i>	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

Table 2-8: Mineable Reserves

MINEABLE RESERVES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m³	Gravel Formation in m³	Mineable Reserves of Rough stone in m³
XY-AB	130-128	43	17	2	1462	1462	
	128-123	43	17	5	3655		3655
	123-118	43	17	5	3655		3655
	118-113	43	17	5	3655		3655
	113-108	43	17	2	1462		1462
	113-108	43	49	3	6321		6321
	108-103	38	44	5	8360		8360
	103-98	33	39	5	6435		6435
	98-93	28	34	5	4760		4760
	93-88	23	29	5	3335		3335
TOTAL						1462	41638
XY-CD	130-128	55	34	2	3740	3740	
	128-123	55	34	5	9350		9350
	123-118	38	29	3	3306		3306
	123-118	38	44	2	3344		3344
	118-113	38	39	5	7410		7410
	113-108	39	29	2	2262		2262
	113-108	56	29	3	4872		4872
	108-103	50	19	5	4750		4750
TOTAL						3740	35294
X1Y1- AB	130-128	67	27	2	3618	3618	
	128-123	67	27	5	9045		9045
	123-118	80	22	5	8800		8800
	118-113	70	17	5	5950		5950
TOTAL						3618	23795
GRAND TOTAL						8820	100727

<i>Project</i>	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Sabapathi</i>	
<i>Project Location</i>	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

2.14.4 Year wise Production Plan

Rough stone and Gravel production details as follows:

The proposed rate of production of Rough stone and Gravel are respectively 1,00,727m³ and 8,820m³ for Five Years. The average proposed rate of production of Rough stone is about 20,145m³ per year at the rate of 100% recovery upto the permissible depth.

Total Depth – **42m** (2m Gravel & 40m Rough stone).

Table 2-9: Year wise Production Plan

YEARWISE DEVELOPMENT & PRODUCTION RESERVES								
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Gravel Formation in m ³	Recoverable Reserves of Rough stone in m ³
I	XY-AB	130-128	43	17	2	1462	1462	
		128-123	43	17	5	3655		3655
		123-118	43	17	5	3655		3655
	XY-CD	130-128	55	34	2	3740	3740	
		128-123	55	34	5	9350		9350
		123-118	38	29	3	3306		3306
		123-118	38	44	2	3344		3344
	TOTAL						5202	23310
II	X1Y1-AB	130-128	67	27	2	3618	3618	
		128-123	67	27	5	9045		9045
		123-118	80	22	5	8800		8800
	XY-AB	118-113	43	17	5	3655		3655
	TOTAL						3618	21500
III	XY-AB	113-108	43	17	2	1462		1462
		113-108	43	49	3	6321		6321
	XY-CD	118-113	38	39	5	7410		7410
		113-108	39	29	2	2262		2262
		113-108	56	29	3	4872		4872

<i>Project</i>	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Sabapathi</i>	
<i>Project Location</i>	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

TOTAL								22327
IV	XY-AB	108-103	38	44	5	8360		8360
		103-98	33	39	5	6435		6435
	XY-CD	108-103	50	19	5	4750		4750
TOTAL								19545
V	XY-AB	98-93	28	34	5	4760		4760
		93-88	23	29	5	3335		3335
	X1Y1-AB	118-113	70	17	5	5950		5950
TOTAL								14045
GRAND TOTAL							8820	100727

Project	Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi	Draft EIA Report
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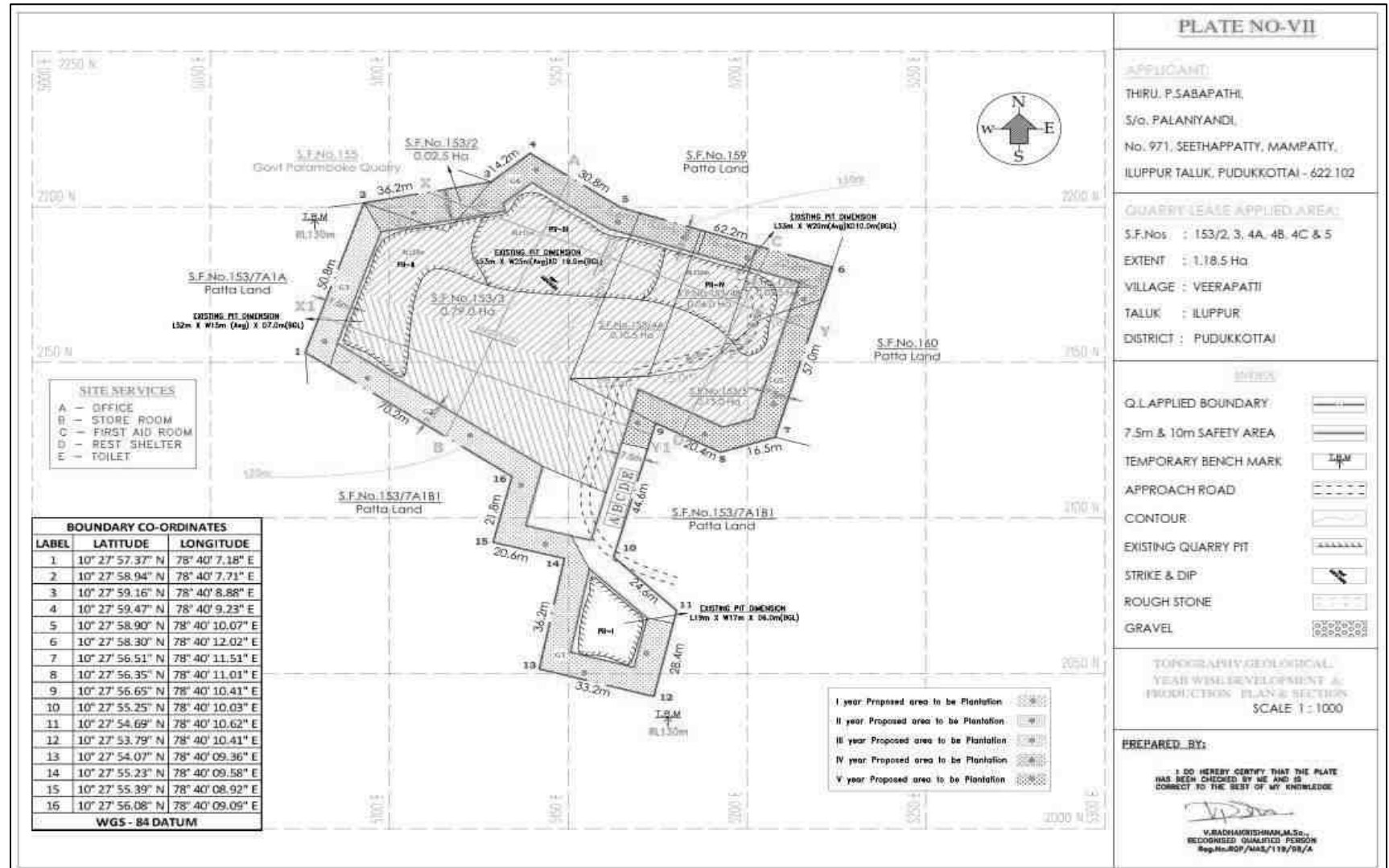


Figure 2.9 Year wise Production Plan

<i>Project</i>	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Sabapathi</i>	
<i>Project Location</i>	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

2.15 TYPE OF MINING

The proposed project is an open cast mechanized mining with one 5.0 m bench for Topsoil, Gravel Weathered rock followed by 5.0m vertical bench with a bench width not less than the bench height. However, as far as the quarrying of Rough Stone is concerned, observance of the provisions of 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 the Regulation 106(2) (b) of MMR-1961, under Mines Act- 1952.

2.15.1 *Method of Working:*

The rough stone is proposed to quarry at 5m bench height & width with conventional Open cast mechanized method. The quarry operation involves Shallow jack hammer drilling, Slurry Blasting, Loading & transportation of Rough Stone to the nearby crusher units/road formation works. The production of Rough Stone in this quarry involves the following method which is typical for Rough Stone quarrying in contrast to other major mineral mining.

Splitting of rock mass of considerable volume from the parent rocks by jackhammer drilling and blasting by manually braking and loading the Rough Stone from pit head to the needy crushing units/civil works for the needy sectors.

2.15.2 *Overburden*

The over burden in the form of Gravel is 8,820m³ of used for filling and leveling of low-lying areas of road projects and other infrastructure development work in and around the district.

2.15.3 *Machineries to be used*

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

Table 2-10: List of Machineries used

Project	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

Type	Dia of hole	Size / Capacity	Make	Motive power
Jack Hammer	32 mm	1.2m to 6m	Atlas Copco	Diesel
Compressor	-	400psi	Atlas Copco	Diesel Drive
Tipper	-	10/20 Tons	Tata Tipper	Diesel Drive
Excavator	-	0.90m ³	Tata Hitachi - 210	Diesel Drive

2.15.4 *Blasting:*

2.15.4.1Blasting Pattern:

The quarrying operation will be carried out by Mechanized Opencast method in conjunction with conventional method of mining using jack hammer drilling and blasting for shattering effect and loosen the rough stone.

2.15.4.2Drilling & Blasting:

Drilling and Blasting Parameters are as follows

Table 2-11: Drilling and Blasting Parameters

1	Diameter of the hole	32-36 mm
2	Spacing	1.2m
3	Depth of each hole	1 to 1.5 m
4	Burden for hole	1.0m
5	Inclination of hole	80° from the horizontal.
6	Use of delay detonators	25 milliseconds
7	Detonating fuse	Detonating cord
8	Blasting Design	Staggered “ V ” Pattern

2.15.4.3 Types of Explosives to be used:

A small diameter of 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.

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<i>Project Proponent</i>	<i>Thiru.P.Sabapathi</i>	
<i>Project Location</i>	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

2.15.4.4 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.

Table 2-12: Blasting Details

Parameters	Details
Diameter of holes	30-32 mm
Spacing	60 cms
Powder factor	6 to 7 tons/kg of explosives
Pattern of hole	Zig Zag
Charge/hole	140 gms of 25 mm dia cartridge
Blasted at daytime	5.00 to 6.00 pm

2.15.4.5 Storage & Safety measures taken during blasting:

The project proponent “Thiru.P.Sabapathi” 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*.

2.16 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.

Project	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

Table 2-13: Man Power Requirements

1.	Skilled	Operators- Excavator & Jackhammer	2 Nos
2.	Semi – skilled	Drivers	2 Nos
3.	Unskilled	Musdoor/Labours, Cleaners & Watch man	28 Nos
4.	Management & Supervisory staff	Second Class Mines Manager, Mines Foreman, Mines Mate, Blaster	4 Nos
Total			36 Nos

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

2.16.1 Water Requirement

Total water requirement for the mining project is 2.5 KLD. Domestic water will be sourced from nearby Veerapatti village and other water will be source from nearby road tankers supply.

Table 2-14: Water Requirment

Purpose	Quantity	Sources
Drinking Water	1.5KLD	Packaged Drinking water vendors available in Veerapatti village which is about 1.35 km E from the
Green belt	0.5KLD	Other domestic activities through road tankers supply
Dust suppression	0.5KLD	From road tankers supply
Total	2.5 KLD	

2.17 PROJECT IMPLEMENTATION SCHEDULE

The implementation schedule of the proposed Mine Lease of Thiru.P.Sabapathi (1.18.5 ha) is as follows.

Project	Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi	Draft EIA Report
Project Proponent	Thiru.P.Sabapathi	
Project Location	Veerapatti Village, Iluppur Taluk, Pudukkottai District	

Table 2-15: Mining Schedule

MINING SCHEDULE					
Activity	Dec-24	Dec-25	Dec-26	Dec-27	Dec-28
Site Clearance					
Excavation - Top Soil Removal/Overburden					
I Year Production – 23310 Cum - Rough Stone, 5202 Cum Gravel.					
II Year Production – 21500 Cum - Rough Stone, 3618 Cum of Gravel					
III Year Production – 22327 Cum - Rough Stone					
IV Year Production - 19545 Cum - Rough Stone					
V Year Production – 14045 Cum - Rough Stone					

2.18 SOLID WASTE MANAGEMENT

Table 2-15: Solid Waste Management

S. No	Type	Quantity	Disposal Method
1	Organic	6.48 kg/day	Municipal bin including food waste
2	Inorganic	9.72 kg/day	TNPCB authorized recyclers

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

2.19 MINE DRAINAGE

The ground Water Level is noticed at the depth of 70m to 75m below Ground Level by monitoring nearby bore hole, during the climatic conditions, the fluctuations of water level is 70m in Rainy seasons and 75m in Summer seasons of this quarry area. The quarry operation is proposed upto a depth of 42.0m (Max) (2.0m Gravel & 40.0m Rough stone). Hence the quarrying operation may not affect the ground water in any manner. It shall be ensured that quarrying shall not be carried out below ground water table under any circumstances. If ground water table occurs/intervenes within the permitted depth, then also the quarrying shall be stopped.

2.20 POWER REQUIREMENT

Project	Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi	Draft EIA Report
Project Proponent	Thiru.P.Sabapathi	
Project Location	Veerapatti Village, Iluppur Taluk, Pudukkottai District	

This rough stone and gravel quarry project does not require huge water and electricity for the project.

16 Litres diesel per hour for excavator for mining and loading for Rough Stone and **10 Litres** diesel per hour for gravel needed.

2.21 PROJECT COST

S.NO	Description of cost	Cost of lakhs
A	Fixed Asset cost:	
	Land cost	Rs.9,45,600/-
	Labours shed	Rs.3,00,000/-
	Refilling/Fencing cost	Rs.2,00,000/-
	Sanitary facilities	Rs.1,50,000/-
	Total Fixed Assest cost	Rs.15,95,600/-
B	Operational cost:	
	Machinery cost	Rs.20,00,000/-
	Total Operational Cost	Rs.20,00,000/-
Total Project cost (A+B)		Rs.35,95,600/-
C	EMP Estimation:	
	Air Quality sampling, Water quality sampling, Noise/Vibration test, Drinking water facility for the labours, Safety kits, Water sprinkling, Afforestation cost, Gradation & drainage, Wet drilling procedure, Tarpaulin, Speed governors, Wheel wash, Blasting shelter, Blasting material, Garland drain, Fixed display board, Parking shed, CCTV camera, Mines manager/Foreman salary and Greenbelt developmet inside & outside of the lease area.	Rs. 61,57,825/-
	Total EMP Cost	Rs. 61,57,825/-

Project	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

2.22 GREENBELT

1. The development of greenbelt in the peripheral buffer zone of the mine area.
2. The Green belt has been recommended as one of the major components of the Environmental Management plan, which will improve ecology, environment and the quality of the surrounding area.
3. Local trees like Neem, Pungam, Naval etc will be planted along the lease boundary and avenues as well as over non-active dumps at a rate of 100 trees per annum with intervals of 5m.
4. The rate of survival expected to be 80% in this area

Table. 2-17 Plantation/ Afforestation Program

Name of species proposed	Survival	No of species
Neem, Pungam, Poovarasu, Naval, Mantharai, Arasa Maram, Magizham, Vilvam, vaagai, Marudha maram, Thandri, Poovarasu, Quaker buttons, Thethankottai maram, Manjadi, Usil, Aathi, Panai, Uzha, Illuppai, Eachai, Vanni Maram	80%	600
Total		600

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Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

3 Description of the Environment

3.1 GENERAL:

The method of mining for extracting rough stone and gravel quarry 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. 9990/SEAC/ 1(a)ToR-1661/2024 Dated: 07.02.2024. The baseline monitoring is carried out in July to September 2023 and the analysis is briefed in the EIA report. The proponent has engaged M/s. Ecotech labs Pvt. Ltd for carrying out the existing baseline study.

Project	Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi	Draft EIA Report
Project Proponent	Thiru.P.Sabapathi	
Project Location	Veerapatti Village, Iluppur Taluk, Pudukkottai District	

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 July to September 2023.

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	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) pH, Temperature, Turbidity, Magnesium Hardness, Total Alkalinity, Chloride, Sulphate, Fluoride, Nitrate, Sodium,	7 locations	Once in 7 locations

Project	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

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

3.1.5 Secondary data Collection

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

- Flora & Faunal Study
- Land use study.

Project	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

- 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: 153/2,3,4A,4B,4C & 5 of Veerapatti Village of Iluppur Taluk, Pudukkottai District, Tamil Nadu State	Field Study
2.	Latitude & Longitude	10°27'53.79"N to 10°27'59.47"N 78°40'07.18"E to 78°40'12.02"E	Topo Sheet
3.	Topo Sheet No.	58 J/11	Survey of India Toposheet
4.	Mine Lease Area	1.18.5 Ha	--
Demography in the study area (as per Census 2011)			
5.	Total Population	2415	Census Survey of India
6.	Total Number of Households	574	
7.	Maximum Temperature (°C)	34	IMD
8.	Minimum Temperature (°C)	24	
9.	Ecological Sensitive Areas - Wetlands, watercourses or other waterbodies, coastal zone, biospheres, mountains, forests	• Sokkan kulam – 0.32 Km - S • Varakavandi Kulam – 0.58 Km – S • Kaladi Kulam – 0.68 Km – NE • Vanner Kulam -1.13 Km – S • Palavan Kulam – 1.29 Km – E • Annavasal Periyakulam Lake–2.35 Km– E • Parambar Kanmai – 4.90 Km – SW • Panangudi Periyakulam – 5.54 Km – E	Google Earth/Field Study

Project	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
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Project Location	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

		• Puthakudi Kanmai – 6.64 Km – SW • Kurani Kulam – 6.74 Km – SW • Koyilankulam – 7.07 Km – SW • Memanapatti Periyakulam – 7.93 Km – S • Keemanur Kulam – 8.88 Km – S																									
10.	Densely Populated area	Veerapatti - 1.35 Km - NNW																									
11.	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	<table><tr><th>S. No</th><th>Places</th><th>Dist. From Project Site</th></tr><tr><td colspan="3">Schools & Colleges</td></tr><tr><td>1</td><td>Government Higher Secondary School, Parambur</td><td>3.87 Km - SW</td></tr><tr><td>2</td><td>Panchayat Union Middle School, Kaladipatty</td><td>0.99 Km - NE</td></tr><tr><td>3</td><td>Mother Terasa college of Eng & Tech, Iluppur</td><td>4.37 Km - NW</td></tr><tr><td colspan="3">Hospitals</td></tr><tr><td>1</td><td>Government Hospital, Mukkanamalaipatti</td><td>1.90 Km - SE</td></tr><tr><td>2</td><td>Primary Health Centre, Iluppur</td><td>6.92 Km - NW</td></tr></table>	S. No	Places	Dist. From Project Site	Schools & Colleges			1	Government Higher Secondary School, Parambur	3.87 Km - SW	2	Panchayat Union Middle School, Kaladipatty	0.99 Km - NE	3	Mother Terasa college of Eng & Tech, Iluppur	4.37 Km - NW	Hospitals			1	Government Hospital, Mukkanamalaipatti	1.90 Km - SE	2	Primary Health Centre, Iluppur	6.92 Km - NW	Google Earth/ Field Study
S. No	Places	Dist. From Project Site																									
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Hospitals																											
1	Government Hospital, Mukkanamalaipatti	1.90 Km - SE																									
2	Primary Health Centre, Iluppur	6.92 Km - NW																									

3.1.7 Site Connectivity:

The site is connected to SH 71 – Manapparai – Pudukkottai Road – 0.97 km, NNE.

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Figure 3.1: Site Connectivity

3.2 LAND USE ANALYSIS

3.2.1 *Land Use Classification*

Land Use / Land Cover - Land Use refers to man's activity and the various uses, which are carried on land. Land Cover refers to natural vegetation, water bodies, rock/soil, artificial cover and others, resulting due to land transformation. The present Land Use/Land Classification map is developed with the 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

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grasslands and forests, which not only hold water for longer periods on the surface, but at the same time allow it to percolate down.

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

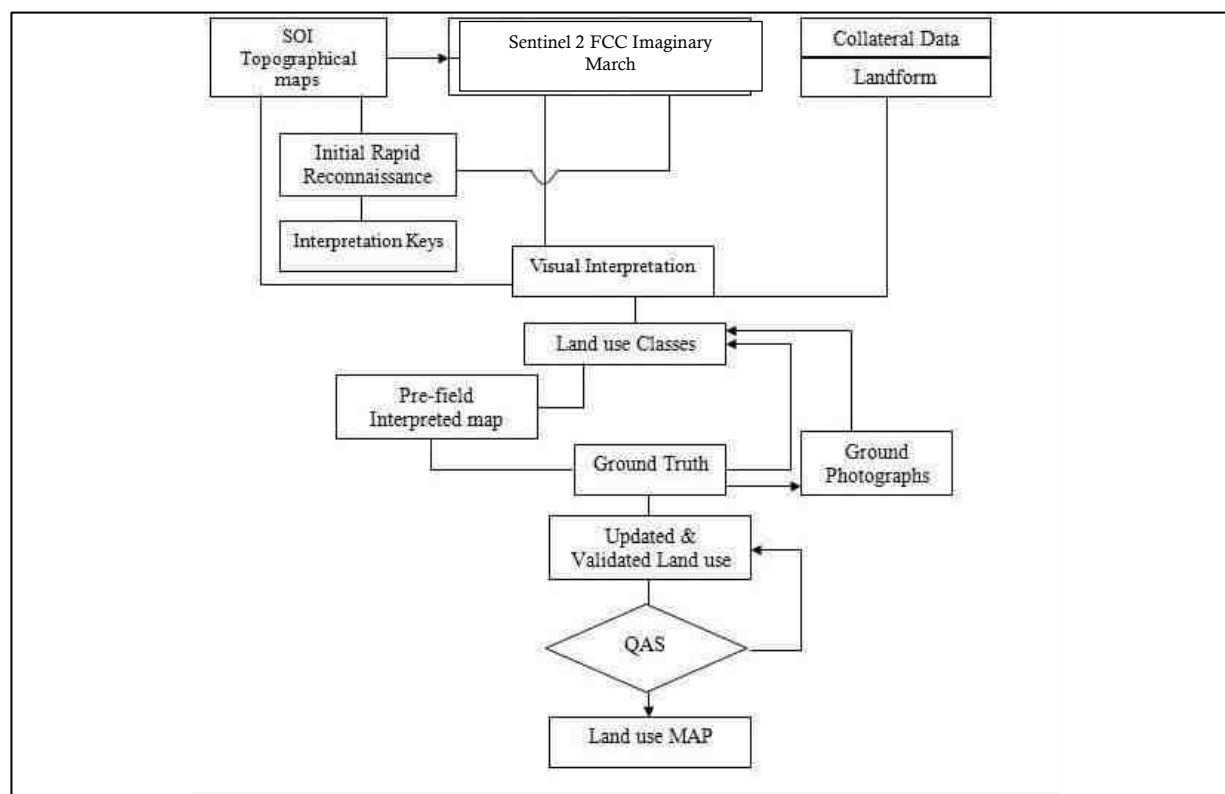


Figure 3.2 Flow Chart showing Methodology of Land use mapping

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3.2.3 *Satellite Data*

Sentinal 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 Sentinal 2 data was used for Land use / Land cover mapping of 10 km radius for proposed site. The description of the land use categories for 10 km radius and the statistics are given for 10 km radius.

3.2.5 *Interpretation Technique*

Standard on screen visual interpretation procedure was followed. The various Land use / Land cover classes interpreted along with the SOI topographical maps during the initial rapid reconnaissance of the study area. The physiognomic expressions conceived by image elements of color, tone, texture, size, shape, pattern, shadow, location and associated features are used to interpret the FCC imagery. Image interpretation keys were developed for each of the LU/LC classes in terms of image elements.

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

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

The LULC Classification has been done at three levels where level -I being the broad classification about the land covers that is Built-up land, agriculture land, waste land, wetlands, and water bodies. These are followed by level –II where built-up land is divided into towns/cities as well villages. The

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Agriculture land is divided into different classes such as cropland, Fallow, Plantation, while wastelands are broadly divided into, Land with scrub and without Scrub and Mining and Industrial wasteland. The wetlands are classified into inland wetlands, coastal wetlands and islands. The water bodies are classified further into River/stream, Canal, Tanks and bay. In the present study level II classification has been undertaken. The SOI Topo map is presented in Annexure and Satellite imagery of 10 km radius from the project site is presented Annexure

3.2.6 Field Verification

Field verification involved collection, verification and record of the different surface features that create specific spectral signatures / image expressions on FCC. In the study area, doubtful areas identified in course of interpretation of imagery is systematically listed and transferred on to the corresponding SOI topographical maps for ground verification. In addition to these, traverse routes were planned with reference to SOI topographical maps to verify interpreted LU/LC classes in such a manner that all the different classes are covered by at least 5 sampling areas, evenly distributed in the area. Ground truth details involving LU/LC classes and other ancillary information about crop growth stage, exposed soils, landform, nature and type of land degradation are recorded and the different land use classes are taken the Land use map is presented in Annexure.

3.2.7 Description of the Land Use / land cover classes

3.2.7.1 Water

Areas where water was predominantly present throughout the year; may not cover areas with sporadic or ephemeral water; 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).

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3.2.7.3 Grass

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

3.2.7.4 Flooded vegetation

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

3.2.7.5 Crops

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

3.2.7.6 Scrub/Shrub

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

3.2.7.7 Built Area

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

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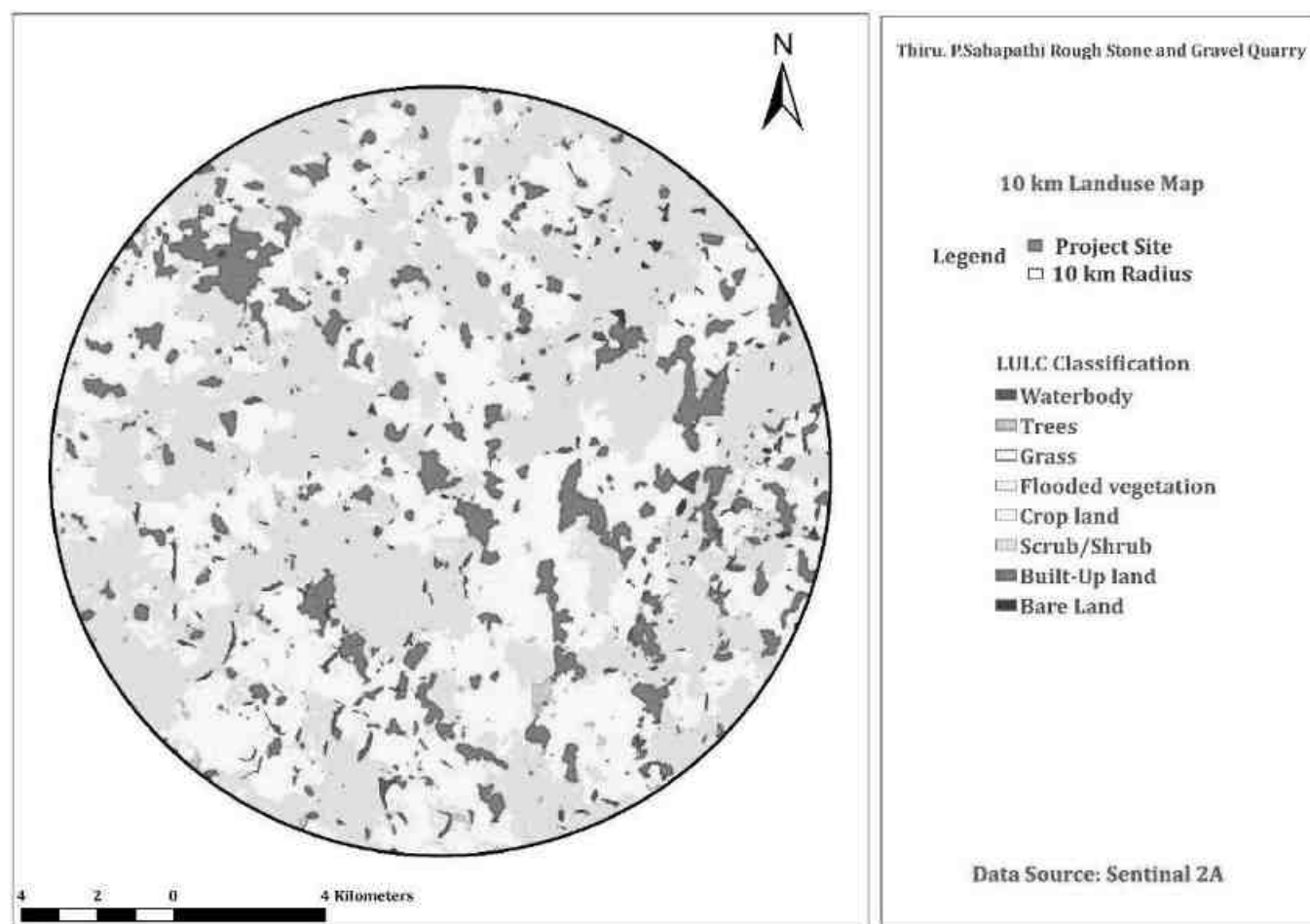


Figure 3.3 Land use classes around 10 km radius from the project site

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

Table 3-3 Land use pattern

S. No	Categories	Area in Sq.m
1	Water	5.32
2	Trees	2.36
3	Grass	0.01
4	Flooded Vegetation	0.37
5	Crops	132.72
6	Scrub/Shrub	141.02
7	Built Area	32.89
8	Barren Land	0.87

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3.3 WATER ENVIRONMENT

3.3.1 *Contour & Drainage*

The project site is 130.0m AMSL. The drainage pattern within 10 km of the project site is dendritic.

3.3.2 *Geomorphology*

The geomorphic evolution of the area is mainly controlled by denudational, structural and fluvial processes. The evolution of various landforms has been governed mainly by the varying resistance of geological formations to these processes. Various landforms are occurring in the area, such as erosional plains, residual hills, pediments, buried pediments and deltaic plains. The shallow pediments possess poor to moderate yields with thin soil cover. The buried pediments and deltaic plain possess good ground water potential.

Soils

Black soil is formed in the western part of the district. Red ferruginous lateritic soils are formed on the high grounds, south of Annavasal, west of Illupur, north of Malaipatti around Kulakurichchi near Gandarvakottai, east of Arantangi around Arimalam and Alangudi. Alluvial soils consisting of blackish and brownish sandy and silty soils are observed along the course of the Vellar, Agniyar and Ambuliyar rivers, whereas the beach sands are noticed along the coast of the district.

The geomorphologic study is done within 10 km from the project site. The major formations are

- Denudational Origin- Pediment Pediplain Complex: The groundwater condition in pediments generally varies depending upon the type of underlying folded structures, fracture systems and degree of weathering. Groundwater prospecting in pediments is considered normal to poor.

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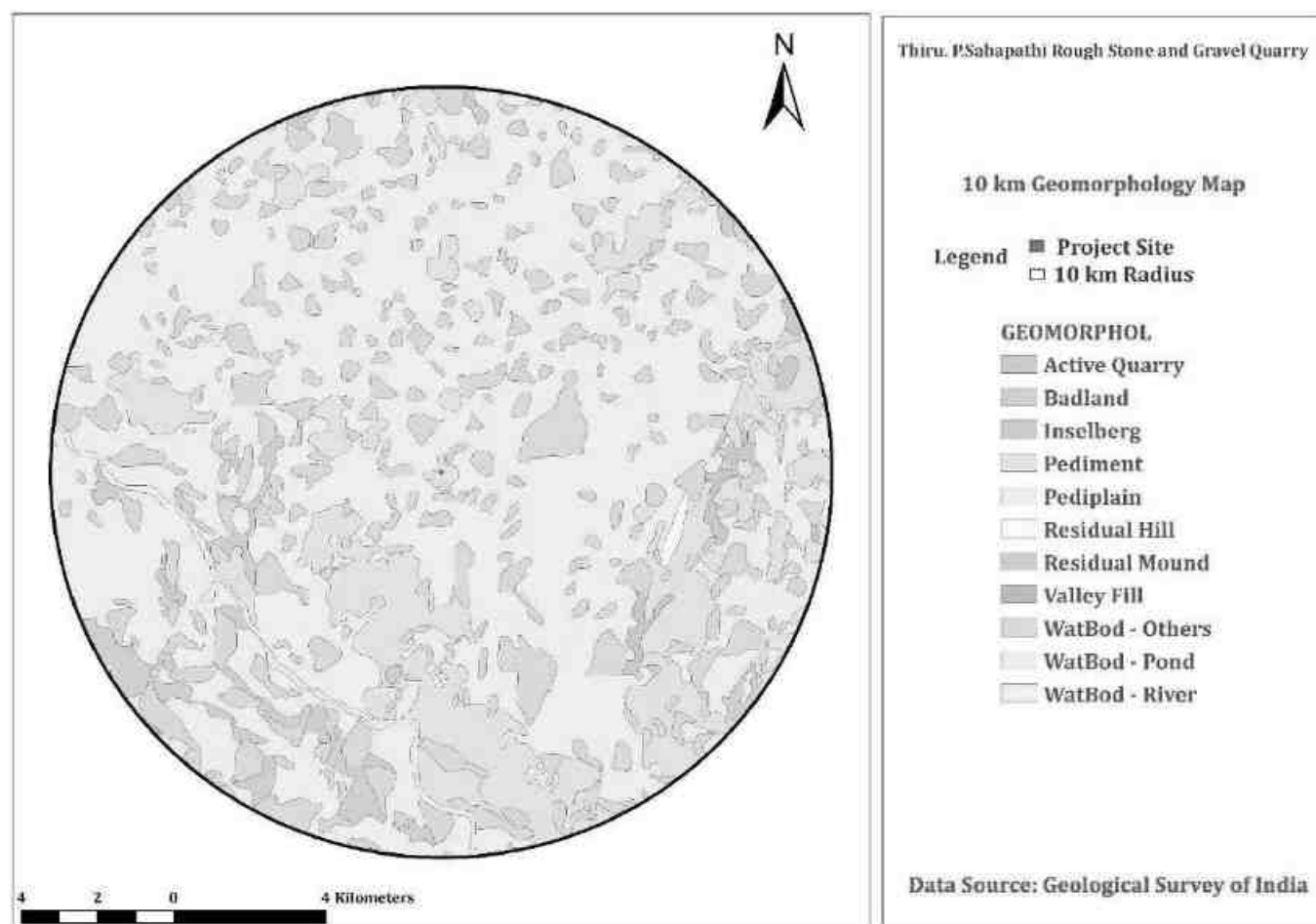


Figure 3.4 Geomorphology within 10km from the project site

3.3.3 Geology:

The geological formation of Pudukkottai District comprises of the hard rocks formed in the Archean age to the sedimentary deposits of the Quaternary period. Geologically the entire study area can be divided into hard rock and sedimentary rock regions. The hard rocks are found on the western side and sedimentary formation towards the eastern direction of the study area. About 45 per cent comprises of the sedimentary formation ranging from Pre-Cambrian to Quaternary period.

The various types of hard rocks found here are Charnockites, Hornblende Gneiss, Biotite Gneiss, Granite and Quartzite's. Various types of Gneiss rocks are found in the western part of Pudukkottai District. Charnockites and granites rocks are mostly found in the central part including the blocks of Kunnandavarkoil, Thirumayam and the southern parts of Pudukkottai Block. The various types of

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Gneiss rocks are found in the western part of the study area, consisting the blocks of Viarlimalai, Annavasal and Ponamaravathy. Quartzite deposits are found in small quantity in some parts of Annavasal and Thirumayam Blocks. In the Blocks of Kulathur, Thirumayam and parts of Pudukkottai crystalline rocks are found.

The sedimentary deposits found in this region consist of shaly sandstone, sand, clay and gravels. The sedimentary deposits formed during the Tertiary period consist of laterite, arenaceous and argillaceous sandstone clay. These deposits are found in the Blocks of Arantangi, Gandarvakottai, Alangudi and Thiruvarankulam. Crecateious deposits consisting of clay, limestone, sand stone and clayey sand stone are found in some parts of Gandarvakottai, Thirumayam and Pudukkottai. Unconsolidated coastal alluvial deposits consisting of sand gravel and silt are found along the river bed. Silt and clay deposits of Quaternary period are found in the blocs of Avudaiyarkoil and Manalmelkudi. Sand deposits with beach ridges and dunes are identified near the coastal boundary of Pudukkottai District.

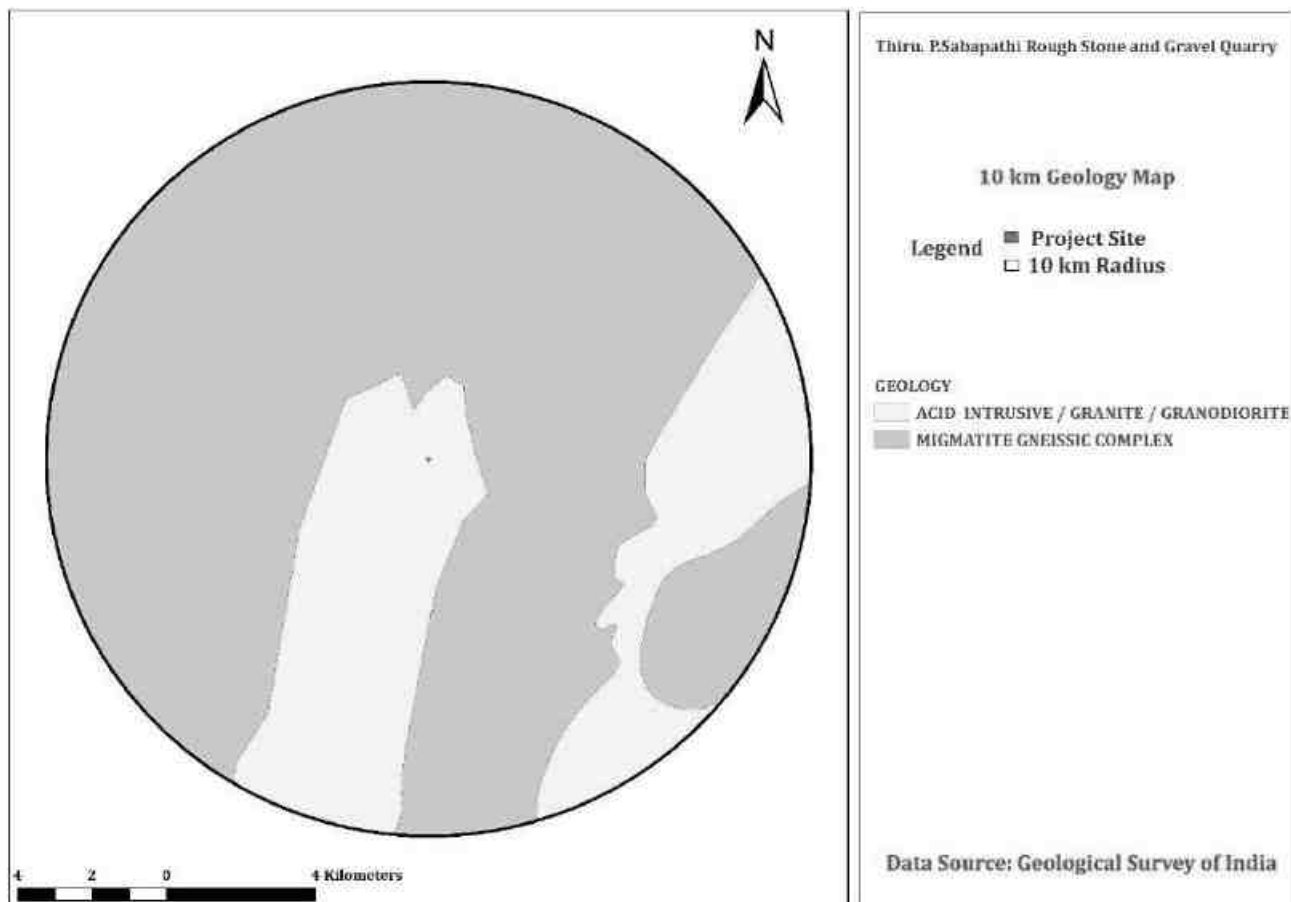


Figure 3.5 Geology within 10km from the project site

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3.3.4 Hydrogeology

Geologically Pudukkottai district is covered by hard rocks and sedimentary regions.

Hard Rock Regions

Around 45% of this district is underlain by hard massive formations of Archaean age. Granitic gneiss, hornblende biotite gneiss, charnockites, pegmatites and quartzites are the various types of rocks encountered in the hard rock region. Kulathur, major part of Thirumayam and parts of Pudukkottai taluk are occupied by crystalline rocks.

Sedimentary Regions

The area occupied by sedimentary formations belonging to 1. Cretaceous 2.Tertiary and 3. Recent ages fall on the eastern half of the district. The total extent occupied by sedimentary formations amounts to 55% of the total geographical area of the district. Tertiary deposits of Pudukkottai district consists of laterite, arenaceous and argillaceous sand stone and clay.

Cretaceous deposits consists of clay, limestone, sand stone and clayey sand stone. The coastal alluvial deposits consists of unconsolidated sands, gravels and clay. Aranthangi, major parts of Gandarvakottai, Alangudi, Avudaiyarkoil and half of Manamelkudi and Pudukkottaitaluk are occupied by tertiary deposits. Minor parts of Gandarvakottai, Thirumayam and half of Pudukkottai taluks are occupied by cretaceous deposits. Half of Manamelkudi and minor parts of Avudaiyarkoil taluks are occupied by Quarternary deposits.

Drilling of bore holes:

The occurrence and movement of groundwater in hard rock formations are restricted to the porous zones of weathered formations and the open systems of fractures, fissures and joints. Generally, in hard rock regions, occurrence of weathered thickness is discontinuous both in space and depth. Hence recharge of groundwater in hard rock formations is influenced by the intensity and depth of weathering. The subsurface lithological condition and the aquifer characters can be ascertained by drilling exploratory boreholes and conducting pump tests.

The State Ground and Surface Water Resources Data Centre, during the course of investigation has drilled more than 92 boreholes spread over the entire district to find out the nature and behaviour of

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the subsurface material and their water holding and water yielding capability. The weathering zone in the district varies from 7 to 22 metres below ground level.

Aquifer Parameters:

Hard rock

The thickness of aquifer in Pudukkottai district varies between 12 m to 45 m below G.L. The intensity and degree of weathering and fracture development in the crystalline formations play a vital role in the development of intergranular porosity. Whenever gneissic formations occur deep and very high intensity of weathering is observed. While in charnockite area weathering is moderate. The aquifer parameter in hard rock region of the district is observed to be as follows:

Parameters	Range
Well yield in LPM	1-2 lpm
Transmissivity (T) m ² /day	5-25 m ² /day
Permeability (K) m/day	3-16 m/day

Sedimentary formations:

Cretaceous formations

The cretaceous formations are the oldest among the sedimentary formations occurring in the district, cropping out along a narrow belt of 6-8 kms width adjoining the archaean complex. These formations are found in the eastern parts of Thirumayam taluk and nearly in the half of pudukottai, alangudi and Gandarvakottai. Taluks, consists mainly of coarse grained sand, clay, clayey sand stone associated with kankar and gravel. The aquifer parameter values of the cretaceous formations are given below.

Parameters	Range
Well yield in LPM	3-4lpm
Transmissivity (T) m ² /day	9-47 m ² /day
Permeability (K) m/day	0.5-2.80 m/day

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Tertiary formations

The tertiary formations encountered in this district are of Miocene and Pliocene ages and are found in the entire Aranthangi and Avudaiyarkovil taluks and also along the eastern parts of the Pudukkottai and Alangudi taluks consisting mainly of sandstones, claybound sands, sandy clay, shales, etc., The aquifer parameters values of tertiary formations are given below:

Parameters	Range
Well yield in LPM	5-10lpm
Transmissivity (T) m ² /day	89-157 m ² /day
Permeability (K) m/day	1.5-3 m/day

Drilling

The drilling types are different according to the formation of the terrain. In general, DTH rigs are used in Hard rock formations for drilling a bore well at a depth ranges from 30m to 200m, according to the extension of joints, fractures, lineaments, etc in an area. In Sedimentary formations, rotary rigs with different rotors used according to the Tube well's diameter. The Bentonite clay is used in rotary rigs to avoid the collapse of the Tube well. The sedimentary tube wells are drilled up to a depth of 30m to 300m depending on the area, yield, etc. In alluvial formations, the hand rotary used for drilling tube wells ranges from 10m to 15m. In river beds, infiltration tube wells used for extraction of groundwater.

In Hard rock, the well designing is simple. The upper top soil and highly weathered zone is cased with PVC pipe and the remaining weathered, Fissured, Jointed portion is left as it is. In Pudukkottai District, the weathered zone ranges from 1.0m to 12.0m. In Granitic gneiss area, the highly weathered portion will be more up to 15m but in charnockite area, the weathered zone will extend up to 8.0m to 10.m only. In Sedimentary area, the well construction depends on the occurrence of sand thickness in the referred area. The logger is also used in the construction to identify the area of good quality of water.

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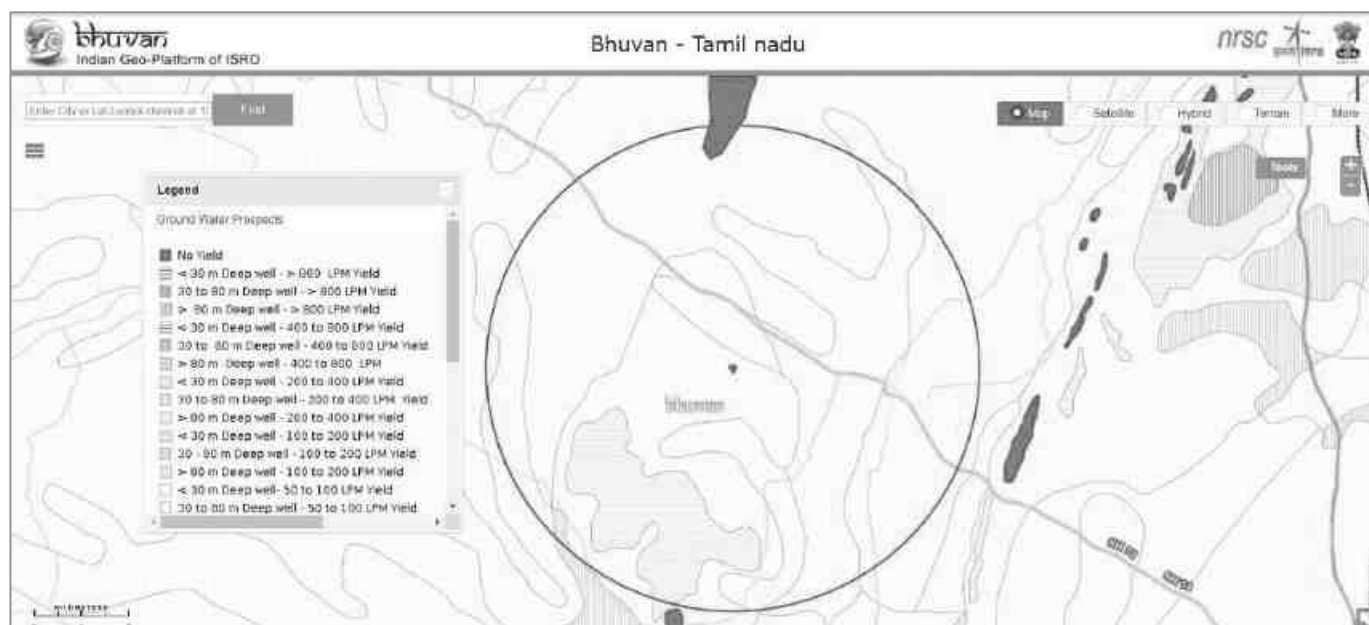


Figure 3.6 Ground water prospects within 5 km radius of the project site

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	July to September 2023
Design Criteria	Based on the Environmental settings in the study area
Monitoring Locations	Project Site – GW 1 Kanchirampatti Shakthi Vinayagar Temple – GW 2 Infant Jesus Matriculation School, Annavasal - GW 3 Marappatti Temple, Illuppur - GW 4 P.u.m.s School, Kulavaippatty – GW5 ARR Marriage Hall, Illuppur – GW6 Ariyur Sri Meenakshi Sundareswarar Temple, Ariyur – GW7
Methodology	Water Samples were collected in 5 Liter fresh cans as per IS 3025 Part I and transported to the laboratory in Iceboxes
Frequency of Monitoring	Once in a season

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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 Edn.2012-3500 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
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

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Table 3-6 Ground water sampling results

S. No	Parameters	Units	GW1	GW 2	GW 3	GW 4	GW 5	GW 6	GW 7
1	pH (at 25°C)	-	6.37	7.32	7.65	7.71	7.76	7.69	7.08
2	Electrical Conductivity	µS/cm	1287	1820	1560	440	690	2763	1162
3	Colour	Hazen Unit	3	3	2	3	2	2	2
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	738	1131	892	262	472	1819	685
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	310	601	440	133	281	465	512
8	Calcium Hardness as CaCO ₃	mg/L	182	262	232	60.1	155	188	202
9	Magnesium Hardness as CaCO ₃	mg/L	128	339	208	72.7	126	277	310
10	Calcium as Ca	mg/L	73.1	105	93	24.1	62.2	75.2	80.9
11	Magnesium as Mg	mg/L	31.1	82.5	50.6	17.7	30.7	67.4	75.4
12	Chloride as Cl	mg/L	205	372	291	51.8	146	469	115
13	Sulphate as SO ₄	mg/L	95.5	74.2	24.4	32.3	25.8	468	6.548
14	Total Alkalinity as CaCO ₃	mg/L	175	155	180	135	82.8	365	444
15	Iron as Fe	mg/L	BQL (LOQ:0.1)	BQL (LOQ:0.1)	BQL (LOQ:0.1)	BQL (LOQ:0.1)	BQL (LOQ:0.1)	BQL (LOQ:0.1)	BQL (LOQ:0.1)
16	Silica as SiO ₂	mg/L	24.6	35.9	34.4	8.62	12.3	52.3	27.2
17	Fluoride as F	mg/L	0.32	1.18	7.78	0.48	0.23	0.88	1.13
18	Potassium as K	mg/L	47.5	42.4	17.9	9.22	23.2	50.5	20.4
19	Sodium as Na	mg/L	12.2	44.8	18.5	4.48	18.9	89.8	7.63

Project	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

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 Colour): 3 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).

Odour & Taste:

The water is odourless. The taste of the water is slightly salty which is due to the presence of hardness in water, which is attributed to the presence of calcium and magnesium in the water. As per the standards, the odour and taste should be agreeable.

pH:

Value observed in the Project Site: 6.37

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: 738 mg /L.

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

<i>Project</i>	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Sabapathi</i>	
<i>Project Location</i>	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

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

3.3.6.2 Chemical parameters of water:

The chemical parameters of the drinking water include,

Calcium:

Value observed in the Project Site: 73.1 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 the 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: 31.1 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 the 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: 205 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: 175 mg/L.

Project	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

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

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

Hardness:

Value observed in the Project Site: 310 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 Varakavandi Kulam. The results are summarized below.

Table 3-7 Surface Water Sample Results

S. No	Parameters	Units	Varakavandi Kulam
1	pH (at 25°C)	-	31
2	Electrical Conductivity	µS/cm	7.95
3	Colour	Hazen Unit	291
4	Turbidity	NTU	70
5	Total Dissolved Solids	mg/L	51.2
6	Total Suspended Solids	mg/L	192
7	Total Hardness as CaCO ₃	mg/L	119
8	Calcium Hardness as CaCO ₃	mg/L	77.5
9	Magnesium Hardness as CaCO ₃	mg/L	16.3
10	Calcium as Ca	mg/L	61.2
11	Magnesium as Mg	mg/L	6.54
12	Chloride as Cl	mg/L	14.9
13	Sulphate as SO ₄	mg/L	11.7

<i>Project</i>	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Sabapathi</i>	
<i>Project Location</i>	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

14	Total Alkalinity as CaCO ₃	mg/L	62.2
15	Iron as Fe	mg/L	44.4
16	Silica as SiO ₂	mg/L	3.82
17	Fluoride as F	mg/L	5.68
18	Nitrate as NO ₃	mg/L	1.16
19	Potassium as K	mg/L	55.6
20	Sodium as Na	mg/L	0.69
21	Total Kjeldahl Nitrogen as N	mg/L	4.82
22	Biochemical oxygen Demand @ 27c	mg/L	7.35
23	Chemical Oxygen Demand	mg/L	5.1
24	Dissolved Oxygen	mg/L	26.7

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 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.

3.3.8 *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>Project</i>	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Sabapathi</i>	
<i>Project Location</i>	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

i) Climate

High temperature throughout the year. Generally, a dry and hot climate prevails in the District. The district receives the rainfall under the influence of northeast monsoon. The heaviest rainfall in the district used to be received in the month of October was 233.8 mm (Average).

ii) Temperature

The average daily temperature ranges from a maximum of 33.7 °C to a minimum of 24 °C

iii) Rainfall:

The normal annual rainfall recorded at various rain gauge stations in the area ranged from 833.40 mm (Viralimalai) to 1033.8 mm (Perungalur) with an average of 910.8 mm for the district. There is a gradual increase in precipitation from east to southwest over the district. The rainfall is highest in the south-eastern part of the district, which includes the coastal blocks of Manamelgudi and Avudayarkoil. It gradually decreases towards the northeast, where the average annual rainfall is found to be the lowest in Malaiyur.

PUDUKKOTTAI DISTRICT -NORMAL AND ACTUAL RAINFALL

Unit in mm.

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2016	0	0	0	0	77.7	32.1	50.1	80.7	70.9	80.1	22.1	57.3
2017	53.9	1.3	34.6	0	19.8	54.8	41.7	217.3	93.5	89.3	88.6	29.6
2018	6.5	0.8	7	13.5	73.7	67	93.9	38.5	78.3	124.4	166.2	22.6
2019	0	0	0	6.2	3.9	17	55.6	79.3	193.1	233.8	173.3	113.9
2020	1	0	0.2	23.9	33.6	75.6	158.2	84.2	133.9	107	131.5	197.6

Source: District survey report

Metrological 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

Project	Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi	Draft EIA Report
Project Proponent	Thiru.P.Sabapathi	
Project Location	Veerapatti Village, Iluppur Taluk, Pudukkottai District	

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 July to September 2023.

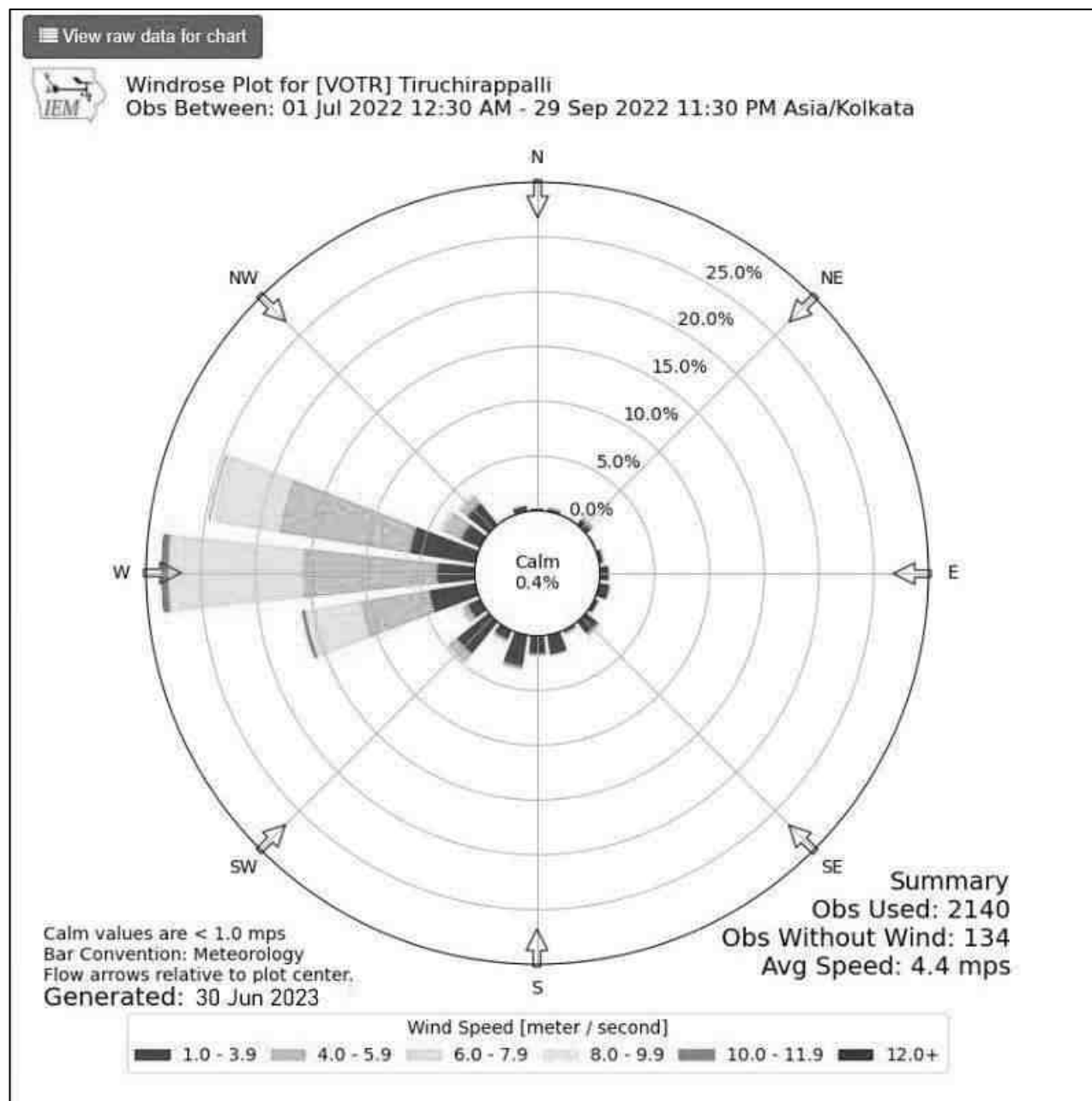


Figure 3.7 Wind rose.

Project	Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi	Draft EIA Report
Project Proponent	Thiru.P.Sabapathi	
Project Location	Veerapatti Village, Iluppur Taluk, Pudukkottai District	

3.3.9 Selection of Sampling Locations:

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

3.4 AMBIENT AIR QUALITY

Table 3-8: Selection of Sampling Location

Environmental Parameters: <i>Ambient Air</i>			
Monitoring Period	July to September 2023		
Design Criteria	The monitoring stations are selected based on factors like topography/terrain, prevailing meteorological conditions like predominant wind direction (July to September 2023), etc, play a vital role in the selection of air sampling stations. Based on these criteria, 5 air sampling station were selected in the area as shown below.		
Monitoring Locations			
	Location & Code	Distance (km)	Direction
	Project Site	-	-
	Kanchirampatti Shakthi Vinayagar Temple	4.33 Km	Upwind W
	Infant Jesus Matriculation School, Annavasal	6.51 Km	Downwind E
	Marappatti Temble, Illuppur	9.19 Km	Crosswind S
	P.u.m.s School, Kulavaippatty	6.33 Km	Crosswind N
	ARR Marriage Hall, Illuppur	6.97 Km	Crosswind NW
	Ariyur Sri Meenakshi Sundareswarar Temple, Ariyur	8.60 Km	Crosswind SE
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 in a week, 4 weeks in a month for 3 months in a season.		

<i>Project</i>	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Sabapathi</i>	
<i>Project Location</i>	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

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- 1.18.5 Ha by Thiru.P.Sabapathi	Draft EIA Report
Project Proponent	Thiru.P.Sabapathi	
Project Location	Veerapatti Village, Iluppur Taluk, Pudukkottai District	

Table 3-9 Ambient Air Quality

Code	Location	PM₁₀ (µg/m³)				PM_{2.5} (µg/m³)				SO₂ (µg/m³)				NO_x (µg/m³)			
		Min	Max	Avg	98 %	Min	Max	Avg	98 %	Min	Max	Avg	98 %	Min	Max	Avg	98 %
AAQ 1	Project Site	41	55	47.7	54.08	16	23	19.8	23	5	8	6.5	8	9	18	13.1	17.54
AAQ 2	Kanchirampatti Shakthi Vinayagar Temple	48	57	52.8	56.08	21	27	23.9	26.54	8	14	10.5	13.54	18	25	18.5	24.54
AAQ 3	Infant Jesus Matriculation School, Annasaval	54	63	58.5	62.08	24	33	28.3	32.08	12	18	14.2	18	20	31	24.1	31
AAQ 4	Marappatti Temple, Illuppur	53	61	56.4	60.08	21	31	25.3	30.08	10	19	13.4	18.54	15	29	21.9	28.08
AAQ 5	P.u.m.s School, Kulavaippatty	46	55	51.2	55	19	26	22.7	26	6	13	8.7	12.08	12	25	16.8	23.62
AAQ 6	ARR Marriage Hall, Illuppur	59	67	62.8	67	25	33	28.5	32.08	14	20	17.5	20	21	32	25.9	31.54
AAQ 7	Ariyur Sri Meenakshi Sundareswarar Temple, Ariyur	56	64	60.6	64	25	31	27.7	30.54	10	18	15.2	18	19	31	25.0	30.54
NAAQ Standards - Residential Area		100 (µg/m ³)				60(µg/m ³)				80 (µg/m ³)				80 (µg/m ³)			

Project	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

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 (67 (µg/m³), PM_{2.5}(33 (µg/m³), SO_x (20 (µg/m³), NO_x (32 (µg/m³) is observed in different places.

Inference:

The monitoring results for PM₁₀, PM_{2.5}, SO_x, NO_x was found to be high in ARR Marriage Hall, Iluppur area which is due to high movement of vehicles. The observed values are all well within the Standards prescribed by NAAQ.

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

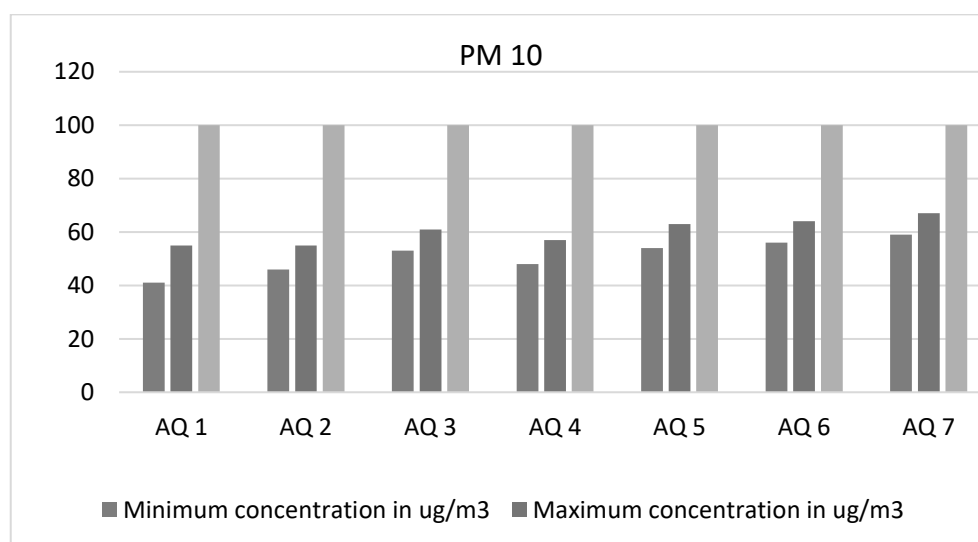


Figure 3.8 Concentration of PM₁₀ (µg/m³) in Study Area

Project	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

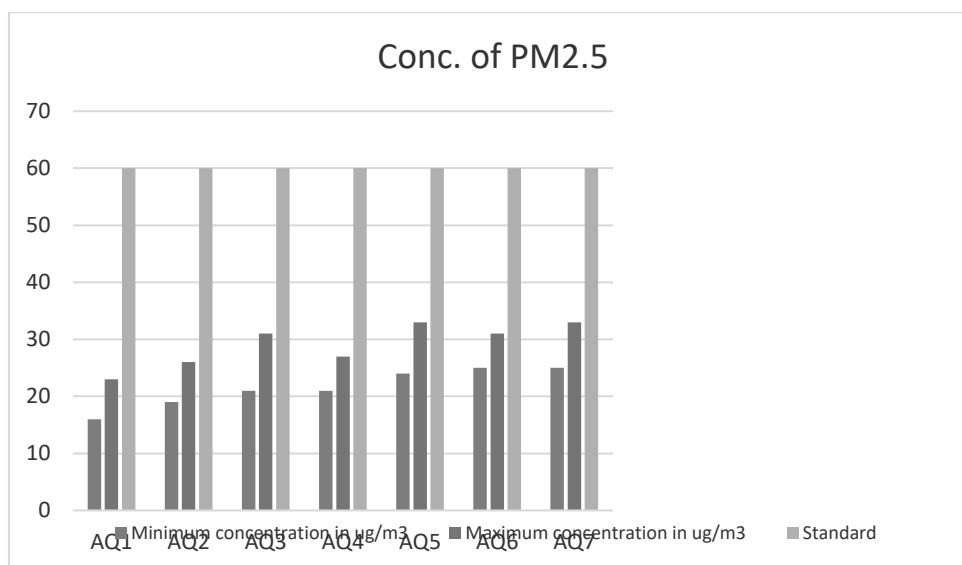


Figure 3.9 Concentration of PM2.5 (µg/m³) in Study Area

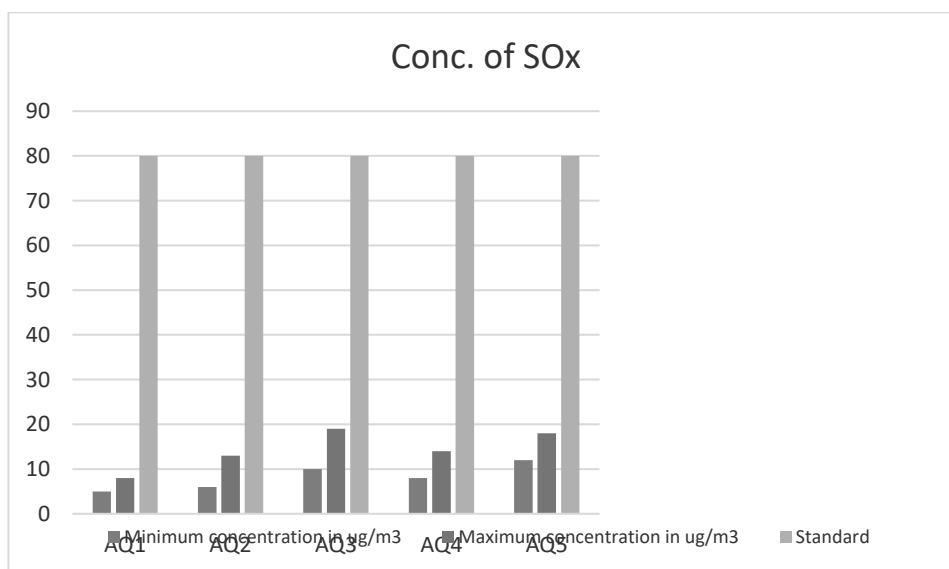


Figure 3.10 Concentration of SOx (µg/m³) in Study Area

Project	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

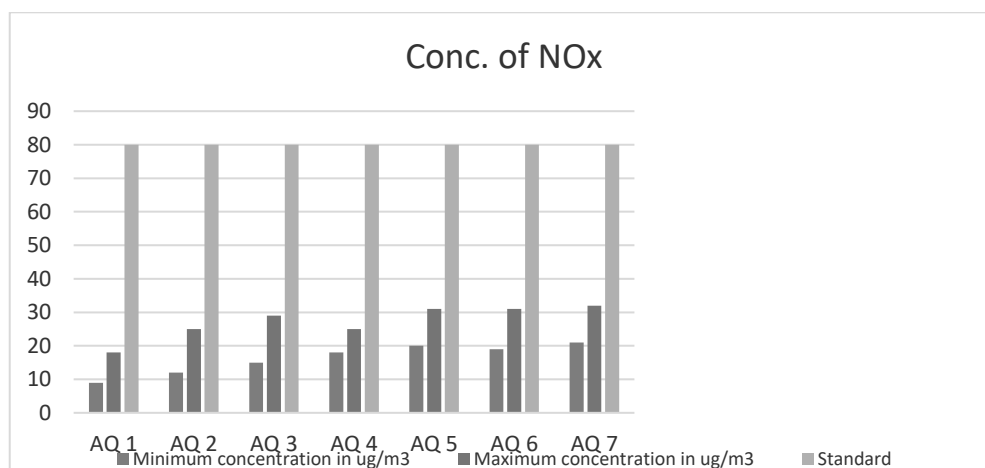


Figure 3.11 Concentration of NOx (µg/m³) in Study Area

3.5 NOISE ENVIRONMENT:

Table 3-10 Noise Analysis

Environmental Parameters: <i>Noise Analysis</i>	
Monitoring Period	July to September 2023
Design Criteria	Based on the Sensitivity of the area
Monitoring Locations	Project Site – N 1 Kanchirampatti Shakthi Vinayagar Temple – N2 Infant Jesus Matriculation School, Annavasal – N3 Marappatti Temple, Illuppur – N4 P.u.m.s School, Kulavaippatty – N5 ARR Marriage Hall, Illuppur – N6 Ariyur Sri Meenakshi Sundareswarar Temple, Ariyur – N7
Methodology	Noise level measurements were taken at the selected locations using noise level meter both during day and nighttime. Noise level measurements were taken continuously for 24 hours at hourly intervals.
Frequency of Monitoring	Noise samples were collected from 5 locations - Once in a season

Project	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

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	48	39	44
Kanchirampatti Shakthi Vinayagar Temple	52	42	48
Infant Jesus Matriculation School, Annavasal	55	46	51
Marappatti Temple, Illuppur	53	44	49
P.u.m.s School, Kulavaippatty	50	40	46
ARR Marriage Hall, Illuppur	57	46	52
Ariyur Sri Meenakshi Sundareswarar Temple, Ariyur	58	46	54

3.5.2 Night Noise Level (Leq Night)

Table 3-12 Night Noise Level (Leq Night)

Location	Leq Night in dB(A)		
	Max	Min	Average
Project Site	38	32	35
Kanchirampatti Shakthi Vinayagar Temple	43	35	39
Infant Jesus Matriculation School, Annavasal	45	38	31

Project	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

Marappatti Temple, Illuppur	42	32	37
P.u.m.s School, Kulavaippatty	40	32	36
ARR Marriage Hall, Illuppur	47	39	43
Ariyur Sri Meenakshi Sundareswarar Temple, Ariyur	47	36	40

Observation:

The maximum Day noise and Night noise were found to be 58 dB(A) and 47 dB(A) respectively in Ariyur Sri Meenakshi Sundareswarar Temple, Ariyur. The minimum Day Noise and Night noise were 48 dB(A) and 38 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

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

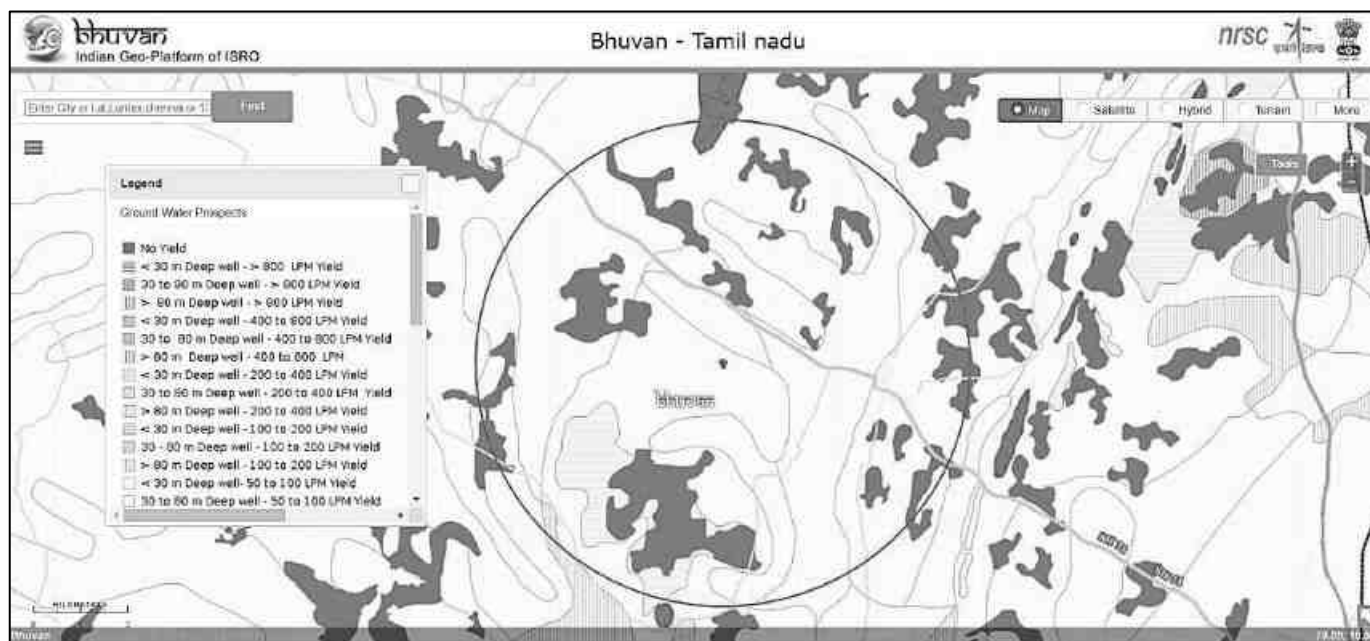


Figure 3.12 Soil Erosion pattern within 5 km radius of the project site.

<i>Project</i>	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Sabapathi</i>	
<i>Project Location</i>	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

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	July to September 2023
Design Criteria	Based on the environmental settings of the study area
Monitoring Locations	Project Site – SQ 1 Kanchirampatti Shakthi Vinayagar Temple – SQ 2 Infant Jesus Matriculation School, Annavasal – SQ 3 Marappatti Temple, Iluppur – SQ 4 P.u.m.s School, Kulavaippatty – SQ 5 ARR Marriage Hall, Iluppur – SQ 6 Ariyur Sri Meenakshi Sundareswarar Temple, Ariyur – SQ 7
Methodology	Composite soil samples using sampling augers and field capacity apparatus
Frequency of Monitoring	Soil samples were collected from 5 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

Project	<i>Rough stone and Gravel Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

Parameters	Unit	SQ 1	SQ 2	SQ 3	SQ 4	SQ 5	SQ 6	SQ 7
pH (at 25°C)	-	6.83	8.64	7.78	7.62	6.92	7.56	7.02
Specific Electrical Conductivity	mS/cm	0.04	0.42	0.07	0.13	0.16	0.33	0.4
Water Holding Capacity	ml/l	4.64	4.9	4.2	3.44	4.8	4.91	3.1
Chloride	g/cm ³	68.74	193	125	81.6	83.2	61.5	145
Soluble Calcium	mg/kg	26.2	67.7	14.3	38.5	22.2	55.7	72.2
Soluble Sodium	mg/kg	489	604	546	498	487	571	589
Soluble Potassium	mg/kg	463	501	482	566	462	490	512
Organic matter	%	0.09	0.09	0.11	0.24	0.18	0.21	0.08
Soluble Magnesium	mg/kg	7.42	34.4	15.9	24.6	10.8	37.6	28.5
Total Soluble Sulphates	%	23.6	22.3	11.5	46.6	15.7	22.5	19.4
Cation Exchange Capacity	mg/kg	11.2	10.9	11.8	12.6	10.8	12.1	13.7
Carbonate	mg/kg	NIL	8.35	NIL	NIL	NIL	NIL	NIL
BiCarbonate	mg/kg	22.9	127	37.4	64.3	46.7	63.2	90.5
Total Nitrogen	%	0.16	0.21	0.11	0.11	0.18	0.13	0.09
Bulk Density	meq/100g	1.28	1.13	1.33	1.36	1.3	1.35	1.42
Phosphorous	meq/kg	5.66	6.45	13.4	21.3	11.4	11.5	56.1
Sand	%	76.9	55.6	71.4	75.0	70.6	56.3	53.3
Clay	mg/kg	7.69	16.6	14.28	6.25	5.88	12.5	6.66
Silt	mg/kg	15.38	27.77	14.28	18.75	23.52	31.25	40
SAR	mg/kg	21.73	14.92	23.63	15.43	21.21	14.50	14.86
Silicon	%	8.91	11.2	10.7	12.6	11.3	13.3	11.5

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

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1.13 to 1.42 g/cm³ which indicates favorable physical condition for plant growth. The water holding capacity was found in the range of 3.1 ml/l to 4.91 ml/l.

3.6.1.2 Chemical Properties:

Chemical characteristics of soils include pH, exchangeable cations and fertility status in the form of NPK values and organic matter. The value of the pH ranges from 6.83 to 8.64, which indicates majority of pH of the soil is slightly alkaline. The soil in the project site is sodic in nature, which challenges because they tend to have very poor structure which limits or prevents water infiltration and drainage. The organic matter varies from 0.08 to 0.24%, which indicates the soil is slightly unfertile.

3.7 ECOLOGY AND BIODIVERSITY

Ecology and Biodiversity is studied for a 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.

- 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.

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3.7.1.2 Plot less Sampling Methods

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

3.7.2 Field study& Methodology adopted:

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

3.7.3 Study outcome:

Phyto-sociological parameters, such as *Density, Frequency, Basal Area, Abundance and Importance Value Index* of individual species (Trees) were determined in randomly placed 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

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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 Concern
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

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

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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	Stachytarpheaurticifolia	Rat tail	13	9	24	0.63	0.38	1.67	7.73	9.09	Not Assessed
9	Woodfordiafruiticosa	Velakkai	4	3	24	0.13	0.13	1	1.55	3.03	Least Concern
10	Hibiscus rosa sinensis	Sembaruthi	3	2	24	0.13	0.08	1.5	1.55	2.02	Not Assessed
11	Lantana camara	Unnichedi	8	6	24	0.38	0.25	1.5	4.64	6.06	Not Assessed
12	Parthenium hysterophorous	Vishapoondur	45	13	24	2.08	0.54	3.85	25.77	13.13	Not Assessed
13	Euphorbia geniculata	Amman Pacharisi	5	3	24	0.13	0.13	1	1.55	3.03	Not Assessed

Table 3-18 Herbs & Grasses in the core zone

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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:

The 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
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

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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 hysterophorus	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

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

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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: Paddy, Maize are the main crop grown. Different fruits like Banana, papaya, mangoes, guava and vegetables like brinjal, drumsticks, onion, Coriander 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), *Aegle marmelos* (golden apple), *Azadirachta indica* (Neem) etc.

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

3.7.7 Faunal Communities

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

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

Roadside Counts: The observer traveled by motor vehicles from site to site, all sightings were recorded (this was done both in the day and nighttime). 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, a survey of relevant literature was also done to consolidate the list of fauna distributed in the buffer zone.

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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:

The 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:

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

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

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

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

Table 3-20 List of fauna species

Scientific Name	Common Name	Schedule of wildlife 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

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Herestes edwardsii	Common Mangoose	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
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

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Table 3-21: Demography Survey Study

Source: Census of India, 2011

Villages	Household	Population	Sex Ratio		Literacy Rate		SC	ST
			Male	Female	Male	Female		
Panangudi	569	2335	1178	1157	749	553	49	0
Panampatti	516	2292	1167	1125	810	632	657	0
Perunijinai	223	919	448	471	306	238	416	0
Mangudi	453	1963	976	987	676	542	589	0
Vayalogam	727	2809	1349	1460	1000	871	821	0
Kudumiyamalai	614	2643	1314	1329	1007	758	337	0
Pulvayal	535	2216	1069	1147	767	649	1040	0
Ayingudi	600	2582	1328	1254	968	657	1143	0
Veerapatti	574	2415	1202	1213	873	726	395	0
Kodandaramapuram	430	1863	936	927	639	478	0	0
Visalur	230	949	475	474	261	188	126	0
Pilakudipatti	90	383	194	189	138	99	110	0
Nallur	508	2078	1033	1045	729	480	328	0
Visalur	180	697	334	363	239	179	377	1
Mangudi	396	1429	687	742	492	415	157	0
Marayappatti	389	1757	891	866	593	459	743	0
Vellanur	1454	6014	3061	2953	2286	1809	1365	217
Lembalakudi	1090	4539	2257	2282	1681	1332	678	15
Thekkattur	1932	7632	3845	3787	3019	2310	867	1

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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

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 71	-	SH 71
1	Cars	901	1	901

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2	Buses	314	3	942
3	Trucks	368	3	1104
4	Two wheelers	941	0.5	470.5
5	Three wheelers	430	1.5	645
Total		2954	-	4062.5

Table 3-23: Existing Traffic Scenario and LOS

Road	V (Volume in PCU/hr)	C (Capacity in PCU/hr)	Existing V/C Ratio	LOS
NH45	4062/24=169	442	0.38	B

Note: The existing level may be “Very Good” for SH=-95.

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</i>	The proposed 1.18.5 Ha mine located in Veerapatti Village having 100727 m ³ of rough stone and 8820m ³ of Gravel respectively. The quarry operation is proposed to carry out with conventional opencast mechanized mining with 5.0-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 600 Nos of local tree species (Neem, Magizham, Tamarind, Elandhai and Vilvam) along the roads, outer periphery of the mining area which enhances the binding property of the soil.									
		It is proposed to improve the affected land wherever possible for better land use, so as to support vegetation and creation of water reservoir in the ultimate pit after quarrying.									
		The over burden in the form of Topsoil is 8820 m ³ of used for greenbelt and afforestation development at the lease applied safety area.									
		The source of dust generation is majorly due to drilling, blasting, loading & unloading of the									
	<table><tr><th>Length in (m)</th><th>Width in Avg (m)</th><th>Depth in Max (m)</th></tr><tr><th>Avg</th><th>Avg</th><th></th></tr><tr><td>98</td><td>62</td><td>42.0m (Bgl)</td></tr></table>	Length in (m)	Width in Avg (m)	Depth in Max (m)	Avg	Avg		98	62	42.0m (Bgl)	
Length in (m)	Width in Avg (m)	Depth in Max (m)									
Avg	Avg										
98	62	42.0m (Bgl)									
	The main impact of open cast mining on land-use is land degradation. The land is bound to be excavated for mining of Rough Stone Quarry.										
	Impact on soil of the study area will be minimal as there are no wastewater generated, heavy metal infusion, stack emissions.										

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	Impact due to transformation of terrain characteristics over the large area results in soil degradation. 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.	mined out mineral, the impact will be mitigated by water sprinkling regularly once in 3hrs. The proposed mining activity is carried out in almost Plain terrain where the contour level difference is above 112 m. After removal of minerals, undulating portion will be created. Excavated area or ultimate pit at the end of the mine period will be converted into water reservoir. Two tier tree belts will be planted along the safety distance. The 100% recovery is achieved by extracting the entire mineable reserve. Hence there will be no refuse generation due to the mining activity. Apart from that, a very meagre quantity of domestic waste will be generated in the project, which will be handed over to the local body on daily basis.
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4.3 WATER ENVIRONMENT:

Aspect	Impact	Mitigation Measures
<i>Drilling, Blasting, Loading and unloading,</i>	The mining in the area may cause ground water contamination due to intersection of the water table and mine runoff.	The water table will not be intersected during mining, as the ultimate depth is limited up to 42m below ground level, whereas the ground

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<i>Transportation of the excavated mineral.</i>	The ground water depletion may occur due to mining activity. Chemicals consisting of nitrate used for blasting may pollute the surface run off. Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labours.	water table is at 64m below the ground level. The municipal wastewater will be disposed into septic tanks of 5 cum and soak pit. No chemicals consisting of toxic elements will be used for carrying out mining activity. The ground Water Level is noticed at the depth of 70m to 75m below Ground Level by monitoring nearby bore hole, during the climatic conditions, the fluctuations of water level is 70m in Rainy seasons and 75m in Summer seasons of this quarry area Further, the run-off water will be stored in sumps and after proper treatment; water will be used in the mining operation for dust suppression. Provision of urinals/Latrines along with septic tank followed by soak pit arrangement will be provided in the Mine Lease area for the proper management of wastewater
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4.4 AIR ENVIRONMENT:

Aspect	Impact	Mitigation Measures
<i>Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.</i>	<i>Impacts during Operation Phase</i> During mining operation, fugitive dust and other air pollutants like particulate matter (PM10 & PM 2.5) will be generated. The main source of pollutants arises due to drilling and blasting. 5 Nos of Tipper will be used for loading and unloading, 1 No of Excavator (0.90 m³ bucket capacity (with rock breaker attachment) will be used for excavation of the mineral which contributes to the generation of fugitive dust. In addition, blasting will be done using explosives leading to the generation of dust.	<i>Mitigation Measures during Operation Phase</i> It is proposed to plant 600 Nos of local species planted before starting the mining activities along the haul roads, outer periphery within the lease area to prevent the impact of dust in consultation with Forest department for the plantation of trees (Neem, Magizham, Tamarind, Elandhai and Vilvam) in two tier to combat air pollution and with herbs (Nerium) in between the tree species. Planning transportation routes of the mined-out mineral, so as to reach the nearest paved roads (an approach road) by shortest route connecting to SH 71. 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.

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	<u><i>Effect on Human</i></u> • 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. <u><i>Effect on Plants</i></u> • Stomatal index may be minimized due to dust deposit on leaf.	The trucks will be covered by tarpaulin. Overloading will be avoided. Personal Protective Equipments (PPEs) like eye goggles, dust mask, leather gloves, safety shoes & boots will be provided to the workers engaged at dust generation points like excavation and loading points. 0.5 KLD of water will be proposed for sprinkling on unpaved roads to avoid dust generation during transportation.
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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)

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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 – 0.9 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 July to September 2023 emissions were estimated. Emissions due to haul road and general plant traffic on the unpaved road network were modelled as volume sources. The model volume source parameter for the haul roads initially utilized USEPA developed emission factors for hauling trucking. The haul road sources utilized source to source spacing of 6 meters along the simulated haul roads. The initial lateral dimension of the sources were set to 3m and were used as an input to replicate a 2 truck travel adjacent for a typical mining scenario.

The parameters considered for the hauling operation include the following,

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

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Other fugitive particulate emission sources:

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

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

Post Project Scenario

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

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

Table 4-1 Emission Factors for uncontrolled mining

Activity	Emission Factor		References	
Topsoil handling	Scraper	0.029 Kg TSPM/ average time between spray application	USEPA (2008)	Jose I. Huertas & Dumar A. Camacho & Maria E. Huertas,

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

4.5 NOISE ENVIRONMENT:

Aspect	Impact	Mitigation Measures
<i>Drilling, Blasting, Loading and unloading,</i>	Usage of Equipments (Excavator, Tipper, Jack Hammer),	• The machinery will be maintained in good running condition so that noise will be reduced to minimum possible level.

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<i>Transportation of the excavated mineral.</i>	Machinery and trucks used for transportation will generate noise. Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc due to prolonged exposure. Number of vehicles will be increased due to the proposed mining activity hence vehicle may collate which may result in unwanted sound and can also cause impact on human health like breathing and respiratory system, damage to lung tissue, influenza or asthma.	• Awareness will be imparted to the workers once in six months about the permissible noise level and effect of maximum exposure to those levels. Adequate silencers will be provided in all the diesel engines of vehicles. • It will be ensured that all transportation vehicles carry a valid PUC Certificates. • Speed of trucks entering or leaving the mine will be limited to moderate speed (20km/hr) to prevent undue noise from empty vehicles. The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipments. • It is proposed to plant 600 Nos. of local species (Neem, Mandharai, Athi, Tamarind, Ashoka, Casuarinas and Villam) to reduce the impact of noise in the study area. The development of green belts around the periphery of the mine will be implemented to attenuate noise. • The trucks will be diverted on two roads viz. SH 71 and a District Road to avoid traffic congestion. • Health check-up camps will be organized once in six months. • Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas. • Provision of quiet areas, where employees can get relief from workplace noise.
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4.6 BIOLOGICAL ENVIRONMNET:

Aspect	Impacts	Mitigation Measures
Site Clearance	Loss of habitat due to site clearance which may lead to ecological disturbance.	The proposed mining lease is already dry land hence no site clearance is required. Only a few shrubs and herbs like parthenium sp., prosopis juliflora were present.
Planting of trees	Development of afforestation in the mine lease area will have a positive impact as the land was initially a barren.	10 m safety distance will be provided all along the boundary of the mine lease area and safety. Around 0.48.5 Ha of land is utilized for greenbelt development (1250 Nos – 5 years). This will attract avifauna thus enhancing the existing ecological environment.

4.7 SOCIO ECONOMIC ENVIRONMNET:

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	The proposed project is a Patta land of <i>Thiru.P.Sabapathi</i> and the land is vacant where there are no human settlement within 300m radius. Hence the project does not involve Rehabilitation and resettlement

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	will make the PAP to shift, losing their normal routine and livelihood	
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 Veerapatti village which is 1.35 – NNE km from site
Grazing and Rearing activities in the nearby villages	The Grazing and rearing of local animals like Sheep, Goat and cows is observed in the nearby villages, which may be affected due to the project as the movement of the vehicles may affect/injure the animals	It is proposed to use gravelled road and nearest paved road and preferred not to use unpaved roads. In addition to that, the speed of trucks will be limited to 20km/hr to avoid any accidents.
Employment opportunity	The project will improve the livelihood of the local people	After the development of the proposed mine, it will improve the livelihood of local people and also provide the direct and indirect employment opportunities. The rough stone for the infrastructural development in the area will be made available from the local markets at reasonably lower price.
Corporate Environmental Responsibility	The proposed project will help in natural resource augmentation & Community resource development.	As a part of CER i.e, 5 Lakhs will be allocated. Panchayat Union Middle School, Kaaladipatti Village Veerapatti Post – Provision of

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		Almirah for arranging books, Smart TV for smart class, Table & Chair, and Basic amenities such as Environmental awareness books (Tamil) in Library for students, Green Belt development, 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 labor
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 – 5.00 Pm to 6.00 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 labors 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

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 environment friendly and cost effective. The mine plan and mine closure plan has been approved by the Assistant Director, Department of Mining and Geology, Pudukkottai District prior to submission of the Form-1 and PFR.

ToR issued by the SEIAA-TN vide Letter No. SEIAA-TN/ F. No. 9990/SEAC/1(a) ToR-1661/2024 Dated: 07.02.2024. 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 principle 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/semi-mechanized/mechanized depending upon the geological and topographical setup of the mineral (ROM) to be won and the daily/annual targeted production.

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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 mechanized Involving drilling and blasting are preferred. Benefits: Material is hard so to make it loose and to bring it to appropriate size.
2.	Employment	Local employment.	Outsource employment	Local employment is preferred Benefits: Provides employment to local people along with financial benefits. No residential building/ housing is required.
3.	Labour transportation	Public transport	Private transport	Local labours will be deployed from Veerapatti village so they will either reach mine site by bicycle or by foot. Benefits: Cost of transportation of labors will be negligible
4.	Material transportation	Public transport	Private transport	Material will be transported through trucks/trolleys on the contract basis Benefits: It will give indirect employment.
5.	Water	Tanker supplier	Ground water/	Tanker supply will be preferred. Water will be sourced from Veerapatti village which is 1.35km - NNE 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, a 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	7 locations	24 hourly twice a week 4 hourly.	Project site, Kanchirampatti Shakthi Vinayagar Temple, Infant Jesus Matriculation

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PM 2.5 SO ₂ NO _x		Twice a week, One non monsoon season 8 hourly, twice a week 24 hourly, twice a week	School, Annavasal, Marappatti Temple, Illuppur, P.u.m.s School, Kulavaippatty, ARR Marriage Hall, Illuppur, Ariyur Sri Meenakshi Sundareswarar Temple, Ariyur
Noise	7 locations	24 hourly Once in 7 locations	Project site, Kanchirampatti Shakthi Vinayagar Temple, Infant Jesus Matriculation School, Annavasal, Marappatti Temple, Illuppur, P.u.m.s School, Kulavaippatty, ARR Marriage Hall, Illuppur, Ariyur Sri Meenakshi Sundareswarar Temple, Ariyur
Water (Ground water) - pH - Temperature - Turbidity - Magnesium Hardness - Total Alkalinity - Chloride - Sulphate - Fluoride - Nitrate - Sodium - Potassium - Salinity - Total nitrogen	7 locations	Once in 7 locations	Project site, Kanchirampatti Shakthi Vinayagar Temple, Infant Jesus Matriculation School, Annavasal, Marappatti Temple, Illuppur, P.u.m.s School, Kulavaippatty, ARR Marriage Hall, Illuppur, Ariyur Sri Meenakshi Sundareswarar Temple, Ariyur

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• 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	Varakavandi Kulam
Soil (Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	7 locations	Once in 7 locations	Project site, Kanchirampatti Shakthi Vinayagar Temple, Infant Jesus Matriculation School, Annavasal, Marappatti Temple, Illuppur, P.u.m.s School, Kulavaippatty, ARR Marriage Hall, Illuppur, Ariyur Sri Meenakshi Sundareswarar Temple, Ariyur

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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	

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.K.Manickam – 0.73.5Ha.

Proposed Quarries – Thiru.Dineshwaran – 2.17.0 Ha.,
Thiru.M.Karuppaiya – 1.62.5 Ha,
Thiru.P.Sabapathi – 1.18.5 Ha.

Lease Expired Quarries - Thiru.C.Shanmugam – 0.60.5 Ha, – Thiru.A.Alagupandiyan – 0.33.0 Ha, Thiru.A.Alagupandiyan – 0.87.5 Ha, Thiru.C.Chelladurai – 0.88.0 Ha, Thiru.U.Ganasamoorthy – 0.41.0 Ha, Thiru.P.Sabapathi – 1.18.5 Ha & Thiru.D.Ramu servai – 0.46.0 Ha

The Total extent of the Existing / Proposed quarries is 6.59.0 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 Pudukkottai 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

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a level of risk. The hazards cannot be completely eliminated, and thus there is a need to define and estimate an accident risk level possible to be presented either in quantitative or qualitative way.

7.1.3 Identification of Hazard

7.1.3.1 Blasting Pattern:

The quarrying operation will be carried out by Opencast Semi Mechanized method 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:

1	Diameter of the hole	32-36 mm
2	Spacing	1.2m
3	Depth of each hole	1 to 1.5 m
4	Burden for hole	1.0m
5	Inclination of hole	80° from the horizontal.
6	Use of delay detonators	25 milliseconds
7	Detonating fuse	Detonating cord
8	Blasting Design	Staggered “ V ” Pattern

a. Types of explosives to be used:

Small dia of 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.

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

The quarry is situated more than 1.27 km from the nearby villages. Controlled blasting measures will be adopted for minimizing ground vibration and fly of rock. Shallow depths jackhammer drilling & blasting is proposed to be carried out with minimum use of explosive mainly to give the shattering effect in rough stone for easy excavation and to control fly of rocks.

Diameter of Holes = 32-36mm

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Powder factor = 6 to 7 Tons/Kg of explosives

Depth = 1 to 1.5 m

Charge/Hole = 140 gms of 25mm dia cartridge

Blasted at day time = 5 to 6 Pm (or whenever required)

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 (with Rock Breaker attachment), Jack Hammers (32 mm Dia) of 2 Nos.
- Loading Equipment – Excavator of 0.90 Cum Bucket Capacity (with Bucket attachment)
- Transportation (includes within the mine and mine to destination) – Tipper 5 No 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 (34 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 economical resource for construction. Due to 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 300 numbers of 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 programmes are as follows:

Panchayat Union Middle School, Kaaladipatti Village Veerapatti Post – Provision of

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Almirah for arranging books, Smart TV for smart class, Table & Chair, and Basic amenities such as Environmental awareness books (Tamil) in Library for students, Green Belt development, Hygienic Toilet and maintenance of toilet upto lease period, Veerapatti.

8.3 PROJECT COST / INVESTMENT DETAILS

S.NO	Description of cost	Cost of lakhs
A	Fixed Asset cost:	
	Land cost	Rs.9,45,600/-
	Labours shed	Rs.3,00,000/-
	Refilling/Fencing cost	Rs.2,00,000/-
	Sanitary facilities	Rs.1,50,000/-
	Total Fixed Assest cost	Rs.15,95,600/-
B	Operational cost:	
	Machinery cost	Rs.20,00,000/-
	Total Operational Cost	Rs.20,00,000/-
Total Project cost (A+B)		Rs.35,95,600/-
C	EMP Estimation:	
	Air Quality sampling, Water quality sampling, Noise/Vibration test, drinking water facility for the labours, Safety kits, Water sprinkling, Afforestation cost, Gradation & drainage, Wet drilling procedure, Tarpaulin, Speed governors, Wheel wash, Blasting shelter, Blasting material, Garland drain, Fixed display board, Parking shed, CCTV camera, Mines manager/Foreman salary and Greenbelt developmet inside & outside of the lease area.	Rs. 61,57,825/-
	Total EMP Cost	Rs. 61,57,825/-

Total Project Cost: Rs.35,95,600/-

Total EMP Cost: Rs.61,57,825/-

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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, Pudukkottai. Subsidence/slope failures are not envisaged because there are no loose strata overlying the deposit (mineral to be excavated). The bench height will be average 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.,

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9.3.2 *Drainage*

Local workers will be deployed for the project. But, urinals and Latrines will be provided and the same will be connected to septic tank followed by soak pit arrangement. No domestic waste will be deposited into the nearby area. Regular checking will be carried out to find any blockage due to silting or accumulation of loose materials. The drains will also be checked for any damage in lining / stone pitching, etc.

9.3.3 *Administrative and Technical Setup*

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

To carry out the above activities, Thiru.P.Sabapathi 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 (PM ₁₀ & PM _{2.5}) will be generated.	Planting of trees along the safety distance of the Mine Lease Area Water will be sprinkled in the site as dust suppression measure.
2.	Water	Wastewater Generation	Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labors	Provision of urinals/Latrines along with septic tank followed by soak pit arrangement will be provided in the Mine Lease area for the proper management of wastewater.
3.	Noise	Mining activities like drilling, blasting, loading and transportation	Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc due to prolonged exposure. Apart from Mining activities like drilling, blasting may generate noise	Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas.
4.	Land	Improper management of Storm water Runoff	Storm water Runoff may result in Soil Erosion	Garland drainage of 1m x 1m will be provided to avoid storm water run- off.

<i>Project</i>	<i>Rough stone and Gravel Quarry - 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Sabapathi</i>	
<i>Project Location</i>	<i>Veerapatti Village, Illuppur Taluk, Pudukkottai District</i>	

5.	Social Responsibility	Mining workers	Unhygienic site sanitation facilities may cause health damage to workers.	The objective is to ensure health and safety of the workers with effective provisions for the basic facilities of sanitation, drinking water, safety of equipments or machinery etc. The following will be done in the site ✓ By complying with the safety procedures, norms and guidelines (as applicable) as outlined in the National Building Code of India, Bureau of Indian Standards. ✓ Provide adequate number of decentralized latrines and urinals ✓ Providing Septic tank along with Soak pit arrangement ✓ Providing First Aid room, conducting frequent health checkups to labor and conducting free medical camps ✓ Providing safety helmet, Gloves, Jacket & Boots ✓ Providing measures to prevent fires. Firefighting
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Project	Rough stone and Gravel Quarry - 1.18.5 Ha by Thiru.P.Sabapathi	Draft EIA Report
Project Proponent	Thiru.P.Sabapathi	
Project Location	Veerapatti Village, Illuppur Taluk, Pudukkottai District	

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

Table 9-2: Budgetary Allocation for EMP during Mining

Categories	Mitigation Measure	Provision for Implementation	Capital	Recurring
Air Environm ent	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	11850	11850
	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	400000	25000

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	Air Quality will be regularly monitored as per norms within ML area	Yearly Compliance as per CPCB norms	0	40000
	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	Monitoring of Exhaust Fumes by Manual Labour	0	5000
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	23700
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	30000	10000

Project	<i>Rough stone and Gravel Quarry - 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Illuppur Taluk, Pudukkottai District</i>	

Noise Environm ent	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Ambient Noise will be regularly monitored as per norms within ML area & near Reserve Forest with necessary permission	Yearly Compliance as per CPCB norms	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and	Provision made in Operating Cost	0	0

Project	<i>Rough stone and Gravel Quarry - 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Illuppur Taluk, Pudukkottai District</i>	

	implementing controlled blasting.			
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Compentent 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 Environm ent	Water management	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	11850	5000
Waste Managem ent	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	5000	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
Implemen tation of EC, Mining	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

Project	Rough stone and Gravel Quarry - 1.18.5 Ha by Thiru.P.Sabapathi	Draft EIA Report
Project Proponent	Thiru.P.Sabapathi	
Project Location	Veerapatti Village, Illuppur Taluk, Pudukkottai District	

Plan & DGMS Condition	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee)	144000	36000
	Health check up for workers will be provisioned	IME & PME Health check-up @ Rs. 1000/- per employee	0	36000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	2370
	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	237000	10000
	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	59250	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	10000	5000

Project	<i>Rough stone and Gravel Quarry - 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Illuppur Taluk, Pudukkottai District</i>	

	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 st Class / 2 nd 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
Green Belt Development	Green belt development - 500 trees per one hectare (200 Inside Lease Area & 300 Outside Lease Area). Total trees 550 (220 Inside lease area & 330 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)	47400	7110
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	106650	10665
	Total		1145000	907195
Total Cost			2052195/-	

<i>Project</i>	<i>Rough stone and Gravel Quarry - 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Sabapathi</i>	
<i>Project Location</i>	<i>Veerapatti Village, Illuppur Taluk, Pudukkottai District</i>	

Year	Cost (@ 5% per year inflation adjustment) in Rs.
1 st Year	2052195/-
2 nd Year	952555/-
3 rd Year	1000182/-
4 th Year	1050192/-
5 th Year	1102701/-
Total	61,57,825/- (Sixty-one lakhs fifty seven thousands and eight hundreds twenty five rupees only)

<i>Project</i>	<i>Rough stone Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Sabapathi</i>	
<i>Project Location</i>	<i>Veerapatti Village, Illuppur Taluk, Pudukkottai District</i>	

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.P.Sabapathi site is a cluster of five mining project. The individual mine lease area is 1.18.5 Ha of Rough Stone Quarry located at S.F.Nos. 153/2, 3, 4A, 4B, 4C & 5 of Veerapatti Village, Illuppur Taluk in Pudukkottai District.

10.2 PROJECT OVERVIEW

Table 10-1: Project Overview

S. No.	Description	Details
1	Project Name	New Rough Stone and Gravel Quarry- 1.18.5 Ha
2	Proponent	Thiru.P.Sabapathi
3	Mining Lease Area Extent	1.18.5 Ha
4	Location	S.F.Nos. 153/2, 3, 4A, 4B, 4C & 5 Veerapatti Village, Illuppur Taluk, Pudukkottai District.
5	Latitude	10°27'53.79"N to 10°27'59.47"N
6	Longitude	78°40'07.18"E to 78°40'12.02"E
7	Topography	Plain terrain
8	Site Elevation above MSL	130.0 m from MSL
9	Topo Sheet No.	58 J/11

Project	Rough stone Quarry- 1.18.5 Ha by Thiru.P.Sabapathi	Draft EIA Report
Project Proponent	Thiru.P.Sabapathi	
Project Location	Veerapatti Village, Iluppur Taluk, Pudukkottai District	

10	Minerals of Mine	Rough Stone and Gravel Quarry
11	Proposed production of Mine	2,54,870 m ³ of Rough stone and 8820 m ³ of Gravel
12	Ultimate depth of Mining	42 m below ground level
13	Method of Mining	Open cast mechanized mining
14	Water demand	2.5 KLD
15	Source of water	Water will be supplied through tankers supply
16	Man power	36 Nos.
17	Mining Lease	Precise Area Communication Letter received from Assistant Director, Dept. Geology and Mining, Pudukkottai vide letter Rc.No.694/2022 (G&M) dated 14.02.2023.
18	Mining Plan Approval	Mining Plan was approved by the Assistant Director, Dept. of Geology & Mining, Pudukkottai vide letter Rc.No.694/2022 (G&M) dated 08.03.2023
19	Production details	Geological reserves: 6,76,000m ³ of Rough stone and 12,530m ³ of Gravel. Proposed year wise recoverable reserves: 1,00,727m ³ of Rough stone and 8,820m ³ of Gravel.
20	Boundary Fencing	7.5 m barrier all along the boundary Fencing will be provided.

<i>Project</i>	<i>Rough stone Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Sabapathi</i>	
<i>Project Location</i>	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

21	Disposal of overburden	The over burden in the form of Topsoil is 8,820 m ³ of used for greenbelt and afforestation development at the lease applied safety area.
22	Ground water	The ground Water Level is noticed at the depth of 70m to 75m below Ground Level by monitoring nearby bore hole, during the climatic conditions, the fluctuations of water level is 70m in Rainy seasons and 75m in Summer seasons of this quarry area. The quarry operation is proposed upto a depth of 42.0m (Max) (2.0m Gravel & 40.0m Rough stone). Hence the quarrying operation may not affect the ground water in any manner. It shall be ensured that quarrying shall not be carried out below ground water table under any circumstances. If ground water table occurs/intervenes within the permitted depth, then also the quarrying shall be stopped.
23	Habitations within 500m 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 Veerapatti village which is 1.35 Km NNE of the area

Project	<i>Rough stone Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

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.

Since Pudukkottai, a city known for its small-scale industries and also the soil in the area near project site is not very fertile making it unsuitable for carrying out agricultural activities. The topography near the lease area is barren dry lands showing only less chance for crop growth and development of vegetation. In addition to that, geological reserves of rough stone is abundant in the lease area which is evident from the mine activities carried out in the nearby sites.

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 equipment will be carried out on contractual basis. Plantation will be carried out along approach roads & mine premises.

Project	<i>Rough stone Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.P.Sabapathi</i>	
Project Location	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

2	Waste water will be generated due to mining activity and from other domestic activities. These may contaminate the ground water leading to ground water. The mining activity may affect the ground water table	No waste water will be generated from the mining activity of minor minerals as the project only involves lifting of over burden from mine site. The wastewater generated from the domestic activity will be disposed off safely through the proposed septic tank. Mining will not intersect ground water table. Hence the water table will not be impacted due to the proposed project
3	Noise will be generated in the mine area during various mining activities such as blasting, drilling, excavation. During transportation of the mined out mineral, there may be noise generation due to the movement of vehicles. This may impact the health condition of the workers by creating headache	Periodical monitoring of noise will be done. No other equipment except the transportation vehicles and Excavator (as & when required) for loading will be allowed at site. Noise generated by these equipments shall be intermittent and does not cause much adverse impact. Plantation will be carried out along approach roads. The plantation minimizes propagation of noise and also arrest dust.
4	Solid waste will be generated from the mining activity as there will be refuse after 95% recovery and also generation of domestic waste	The 100% recovery is achieved by extracting the entire mineable reserve. Hence there will be no refuse generation due to the mining activity. Apart from that, a very meagre quantity of domestic waste will be generated in the project,

<i>Project</i>	<i>Rough stone Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
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<i>Project Location</i>	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

		which will be handed over to the local body on daily basis.
5	During mining activities, there are chances of workers getting health issues or may be prone to accidents	Dust masks will be provided as additional personal protection equipment to the workers working in the dust prone area. Periodical trainings will be conducted to create awareness about the occupational health hazards due to activities like blasting, drilling, excavation Workers health related problem if any, will be properly addressed.

<i>Project</i>	<i>Rough stone Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Sabapathi</i>	
<i>Project Location</i>	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai 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.

11.2.1 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.

<i>Project</i>	<i>Rough stone Quarry- 1.18.5 Ha by Thiru.P.Sabapathi</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.P.Sabapathi</i>	
<i>Project Location</i>	<i>Veerapatti Village, Iluppur Taluk, Pudukkottai District</i>	

- 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**



THIRU. RAHUL NADH, I.A.S.,
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY-TAMILNADU

3rd Floor, Panagal Maaligai,
No.1, Jeenai Road, Saidapet,
Chennai - 600 015.
Phone No. 044-24359973
Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr.No.SEIAA-TN/F.No.9990/SEAC/1(a)ToR- 1661/2024 Dated: 07.02.2024.

To

Thiru.P.Sabapathi,
S/o. Palaniyandi,
No.971, Seethappatty,
Mampatty, Iluppur Taluk,
Pudukkottai District - 622102.

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Proposed Rough Stone & Gravel quarry over an extent of 1.18.5 Ha in S.F.No. S.F.Nos. 153/2, 3, 4A, 4B, 4C & 5 of Veerapatti Village, Iluppur Taluk, Pudukkottai District, Tamil Nadu by Thiru. P. Sabapathi - under project category – “B1” and Schedule S.No.1 (a) “Mining of Minerals Projects” – **ToR issued along with Public Hearing** - preparation of EIA report – Regarding.

Ref: 1. Online proposal No.SIA/TN/MIN/425823/2023, dated: 12.04.2023.
2. Your application submitted for Terms of Reference dated: 20.04.2023.
3. Minutes of the 382nd SEAC meeting held on 09.06.2023.
4. Minutes of the 632nd SEIAA meeting held on 21.06.2023 & 22.06.2023.
5. Proponent reply dated: 28.12.2023.
6. Minutes of the 692nd SEIAA meeting held on 07.02.2024.

Kindly refer to your proposal submitted to the State Level Impact Assessment Authority for Terms of Reference.

MEMBER SECRETARY
SEIAA-TN

The proponent, Thiru. P.Sabapathi has submitted an application for Terms of Reference (ToR) on 20.04.2023, for the Proposed Rough Stone & Gravel quarry over an extent of 1.18.5 Ha in S.F.Nos. 153/2, 3, 4A, 4B, 4C & 5 of Veerapatti Village, Iluppur Taluk, Pudukkottai District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

The proposal is placed for appraisal in the 382nd SEAC meeting held on 09.06.2023. The details of the project furnished by the proponent are given in the website (parivesh.nic.in).

The SEAC noted the following:

1. The project proponent, Thiru. P. Sabapathi has applied for Terms of Reference for the Proposed Rough Stone & Gravel quarry over an extent of 1.18.5 Ha in S.F.No. S.F.Nos. 153/2, 3, 4A, 4B, 4C & 5 of Veerapatti Village, Iluppur Taluk, Pudukkottai District, Tamil Nadu
2. The project/activity is covered under Category "B1" of Item 1(a) "Mining of Mineral Projects" of the Schedule to the EIA Notification, 2006.
3. As per mining plan, the lease period is for 5 years. The mining plan is for 5 years & production should not exceed 1,00,727m³ of Rough Stone & 8,820m³ of Gravel for the five years. The annual peak production 23,310m³ of Rough Stone & 5,202m³ of Gravel. The ultimate depth of mining is 42m BGL.

Now, the proposal was placed in the 382nd Meeting of SEAC held on 09.06.2023. Based on the presentation made by the proponent SEAC recommended grant of Terms of Reference (TOR) with Public Hearing, subject to the following TORs, in addition to the standard terms of reference for EIA study for non-coal mining projects and details issued by the MOEF & CC to be included in EIA/EMP Report:

1. The proponent is requested to submit the valid registered lease document during the EIA appraisal after the previous lease granted for the mining operations is legally surrendered (or) lapsed with the consent of the competent authority.
2. The proponent is requested to carry out a survey and enumerate on the structures located within 100m, 200m, 300m from the boundary of the mine lease area.
3. 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.



MEMBER SECRETARY
SEIAA-TN

4. The Project Proponent shall conduct the 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) 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. Necessary data and documentation in this regard may be provided.
5. The proponent shall submit the "Blast Design Parameters for controlling the vibration and flyrock from the quarry blasting" considering the existence of sensitive structures including habitations within 1 km from the lease boundary.
6. The PP shall furnish DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., upto a radius of 25 km from the proposed site.
7. The PP shall provide individual notice regarding the Public Hearing to the nearby house owners located in the vicinity of the project site.
8. Since the quarry is existing with a depth of excavation varies from 6 m to 19 m without benches of appropriate dimension (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall carry out a 'Slope Stability Assessment' studies for the existing conditions of the quarry wall by involving any of these reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research (CIMFR) / Dhanbad, NIRM - Bengaluru, IIT-Madras, NIT Surathkal – Dept of Mining Engg.. The above studies shall spell out 'a 'Slope Stability Action Plan' for the proposed quarry covering the existing condition of the quarry wall including the overall pit slope angle where the proposed depth exceeds 30 m and it shall cover the aspects of stability of quarry walls including the access ramp keeping the benches intact.
9. If the blasting operation is to be carried out, the PP shall present a conceptual design for carrying out the NONEL initiation based controlled blasting operation including the line drilling & muffle blasting techniques and a Simulation Model indicating the anticipated Blast-induced Ground Vibration levels in the proposed quarry as stipulated by the DGMS Circular No.7 of 1997, during the EIA Proposal.
10. Details of Green belt & fencing shall be included in the EIA Report.



MEMBER SECRETARY
SEIAA-TN

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 Drone video and photographic evidences.
12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,
 - a) What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
 - b) Quantity of minerals mined out.
 - c) Highest production achieved in any one year
 - d) Detail of approved depth of mining.
 - e) Actual depth of the mining achieved earlier.
 - f) Name of the person already mined in that leases area.
 - g) If EC and CTO already obtained, the copy of the same shall be submitted.
 - h) Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
13. 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).
14. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing, Garland drainage etc.,
15. 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.
16. 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 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.
17. 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.



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18. 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.
19. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
20. 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.
21. 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.
22. 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.
23. 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.
24. Impact on local transport infrastructure due to the Project should be indicated.
25. 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.
26. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
27. Public Hearing points raised and commitments 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 and to be



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- submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.
28. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.
29. The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.
30. 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.
31. 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.
32. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly 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
33. 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.
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.
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.

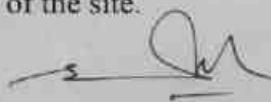


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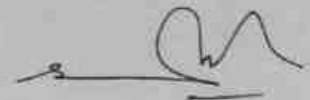
37. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
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.
39. 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.
- 40. 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.**
41. 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.
42. 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.

ANNEXURE I

1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:
 - (i) Original pit dimension
 - (ii) Quantity achieved Vs EC Approved Quantity
 - (iii) Balance Quantity as per Mineable Reserve calculated.
 - (iv) Mined out Depth as on date Vs EC Permitted depth
 - (v) Details of illegal/illicit mining
 - (vi) Violation in the quarry during the past working.
 - (vii) Quantity of material mined out outside the mine lease area
 - (viii) Condition of Safety zone/benches
 - (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.
2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.

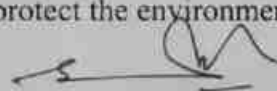

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3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.
4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.
5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.
6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.
7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.
8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.
9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.
10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.



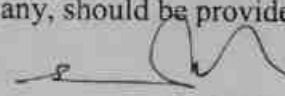
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11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.
12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,
13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
14. Quantity of minerals mined out.
 - Highest production achieved in any one year
 - Detail of approved depth of mining.
 - Actual depth of the mining achieved earlier.
 - Name of the person already mined in that leases area.
 - If EC and CTO already obtained, the copy of the same shall be submitted.
 - Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,
17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.
19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.



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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.
21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.
22. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
24. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.
26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.
27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.



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28. Impact on local transport infrastructure due to the Project should be indicated.
29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc..) both within the mining lease applied area & 300m buffer zone and its management during mining activity.
30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
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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.



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38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
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42. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.
43. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.



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Appendix -I
List of Native Trees Suggested for Planting

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Aegle marmelos</i>	Vilvam	விலவம்
2	<i>Adenaanthera pavonina</i>	Manjadi	மஞ்சாடி, ஆனைக்குன்றிமணி
3	<i>Albizia lebbek</i>	Vaagai	வாகை
4	<i>Albizia amara</i>	Usil	உசில்
5	<i>Bauhinia purpurea</i>	Mantharai	மந்தாரை
6	<i>Bauhinia racemosa</i>	Aathi	ஆத்தி
7	<i>Bauhinia tomentosa</i>	Iruvathu	இருவாத்
8	<i>Buchanania axillaris</i>	Kattuma	காட்டுமா
9	<i>Borassus flabellifer</i>	Panai	பனை
10	<i>Butea monosperma</i>	Murukkamaram	முருக்கமரம்
11	<i>Bobax ceiba</i>	Ilavu, Sevvilavu	இலவு
12	<i>Calophyllum inophyllum</i>	Punnai	புன்னை
13	<i>Cassia fistula</i>	Sarakondrai	சரக்கொன்றை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கொன்றை
15	<i>Chloroxylon sweetenia</i>	Purasamaram	பரசு மரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Manjallavu	கோங்கு, மஞ்சள் இலவு
17	<i>Cordia dichotoma</i>	Naruvuli	நருவுளி
18	<i>Creteva adansoni</i>	Mavalingum	மாலைங்கம்
19	<i>Dillenia indica</i>	Uva, Uzha	உசா
20	<i>Dillenia pentagyna</i>	SiruUva, Sitruzha	சிறு உசா
21	<i>Diospyro sebenum</i>	Karungali	கருங்காலி
22	<i>Diospyro schloroxylon</i>	Vaganai	வாகனை
23	<i>Ficus amplissima</i>	Kalltchi	கல் இச்சி
24	<i>Hibiscus tiliaceu</i>	Aatrupoovarasu	ஆற்றுப்புலக
25	<i>Hardwickia binata</i>	Aacha	ஆச்சா
26	<i>Holoptelia integrifolia</i>	Aayili	ஆயா மரம், ஆயிலி
27	<i>Lannea coromandelica</i>	Odhuam	ஒதியம்
28	<i>Lagerstroemia speciosa</i>	Poo Marudhu	பூ மருது
29	<i>Lepisanthus tetraphylla</i>	Neikottaimaram	நெய் கொட்டை மரம்
30	<i>Limonia acidissima</i>	Vila maram	விலா மரம்
31	<i>Litsea glutinos</i>	Pisinpattai	சரம்பா, பிசின்பட்டை
32	<i>Madhuca longifolia</i>	Iluppai	இலுப்பை
33	<i>Manilkara hexandra</i>	UlakkaiPaalai	உலக்கை பாலை
34	<i>Mimusops elengi</i>	Magizhamaram	மகிழ்மரம்
35	<i>Mitragyna parvifolia</i>	Kadambu	கடம்பு
36	<i>Morinda pubescens</i>	Nuna	நுணா
37	<i>Morinda citrifolia</i>	Vellai Nuna	வெள்ளை நுணா
38	<i>Phoenix sylvestre</i>	Eachai	ஈச்சமரம்
39	<i>Pongamia pinnat</i>	Pungam	புங்கம்



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40	<i>Premna mollissima</i>	Muruvai	முள்ளை
41	<i>Premna serratifolia</i>	Narumunrai	நறு முள்ளை
42	<i>Premna tomentosa</i>	Malapoovarasu	மலை பூவரசு
43	<i>Prosopis cinerica</i>	Varu maram	வள்ளி மரம்
44	<i>Pterocarpus marzipium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Vennangu, Tada	வேண்ணங்கு
46	<i>Pterospermum xylocarpum</i>	Polaru	புலரு
47	<i>Puthranjiva roxburghii</i>	Karpala	கற்பலா
48	<i>Salvadora persica</i>	Ugaa Maram	ஊகா மரம்
49	<i>Sapindus emarginatus</i>	Manipungan, Soapukai	மணிப்புகள் சோப்புகாய்
50	<i>Saraca asoca</i>	Asoca	அசோகா
51	<i>Strobilus asper</i>	Piray maram	பிராய் மரம்
52	<i>Stychnos nuxiomic</i>	Yetti	எட்டி
53	<i>Stychnos potatorum</i>	Therthang Kottai	தேத்தாங் கொட்டை
54	<i>Syzygium cumini</i>	Naval	நாவல்
55	<i>Terminalia bellieric</i>	Thandri	தாந்தி
56	<i>Terminalia arjuna</i>	Ven marudhu	வேண் மருது
57	<i>Toona ciliata</i>	Sandhana vembu	சந்தாங் வேம்பு
58	<i>Thompsonia populnea</i>	Puvarasu	பூவரசு
59	<i>Walsuratrifoliata</i>	valsura	வாலசுரா
60	<i>Wrightia tinctoria</i>	Veppalai	வேப்பலை
61	<i>Pithecellobium dulce</i>	Kodukkapuli	கொடுக்காப்பூளி

Discussion by SEIAA and the Remarks:-

The subject was placed in 692nd Authority meeting held on 07.02.2024. The authority noted that the subject was appraised in 382nd SEAC meeting held on 09.06.2023.

Based on the presentation and documents furnished by the project proponent, SEAC after detailed deliberations, decided to **recommend the proposal for the grant of Terms of Reference (ToR).**

Subsequently, the proposal was placed in 632nd SEIAA meeting held on 21.06.2023 & 22.06.2023.

After detailed deliberations, the Authority decided to call for additional details

1. The proponent has uploaded existing pit letter obtained from Assistant Director, G&M, vide Rc.No.694/2022 (G&M) Dated: 08.03.2023.

Sl. No.	Name and Address	S.F.Nos.	Extent	Collector's Proceedings	Lease period
1.	Thiru.Chidambaram, S/o.Dhanukodi, Illuppur Taluk, Pudukkottai District	153/3	0.79.0	Rc.No.3282/2002 (G&M) dated 19.01.2003	03.03.2003 to 02.03.2008
2.	Thiru.Chidambaram, S/o.Dhanukodi, Illuppur Taluk, Pudukkottai District	153/3	0.79.0	Rc.No.360/2008 (G&M) dated 18.07.2008	07.10.2008 to 06.10.2013
3.	Thiru.P.Sabapathi S/o.Palaniyandi, Seethapatty,Kilikudi post, Illuppur Taluk, Pudukkottai District	153/2, 153/3, 153/4A, 153/4B, 153/4C & 153/5	1.18.5	Rc.No.539/2017 (G&M) dated 28.07.2017	23.08.2017 to 22.08.2022



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Hence, based on the above, it is ascertained that the proponent had obtained lease for a period of 5 years from 23.08.2017 to 22.08.2022. Further, the proponent shall give details regarding whether EC was obtained from SEIAA-TN for the above-mentioned period. If so, copy of the same shall be submitted.

2. Further, the proponent may be requested to submit Certified Compliance Report obtained from IRO, MoEF&CC as per the OM Dated: 08.06.2022, if prior EC had been obtained from SEIAA-TN for the earlier lease period from 23.08.2017 to 22.08.2022.

Upon the receipt of aforesaid details, further deliberation shall be done.

Subsequently, proponent vide letter received by this office on 28.12.2023 submitted a reply. Based on the above, the proposal was again placed in 692nd SEIAA meeting held on 07.02.2024.

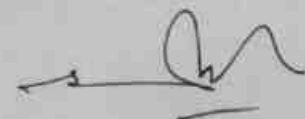
Based on the documents furnished by the PP, Authority after detailed deliberation, accepts the recommendation of SEAC and decided to grant Terms of Reference (ToR) along with Public Hearing under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions in addition to the following conditions and the conditions mentioned in 'Annexure B' of this minute:

1. The proponent shall submit the Certified Compliance Report, obtained from IRO, Chennai for the earlier EC obtained from DEIAA and the same shall be submitted along with EIA Report.

Annexure 'B'

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.



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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.
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.
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 furnish the Emergency Management plan within the cluster.
9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.
10. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
11. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.

Impact study of mining

12. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
 - a) Soil health & soil biological, physical land chemical features.
 - b) Climate change leading to Droughts, Floods etc.
 - c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
 - d) Possibilities of water contamination and impact on aquatic ecosystem health.
 - e) Agriculture, Forestry & Traditional practices.
 - f) Hydrothermal/Geothermal effect due to destruction in the Environment.
 - g) Bio-geochemical processes and its foot prints including environmental stress.
 - h) Sediment geochemistry in the surface streams.

Agriculture & Agro-Biodiversity

13. Impact on surrounding agricultural fields around the proposed mining Area.
14. Impact on soil flora & vegetation around the project site.



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15. 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.
16. 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.
17. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
18. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.

Forests

19. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
20. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
21. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
22. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.

Water Environment

23. 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.
24. Erosion Control measures.
25. 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.
26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.



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27. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.
28. 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.
29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.

Energy

31. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.

Climate Change

32. 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.
33. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.

Mine Closure Plan

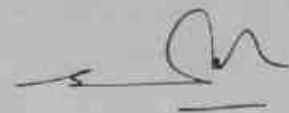
34. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.

EMP

35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.
36. 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

37. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.



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Disaster Management Plan

38. 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

39. 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.
40. 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.
41. 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.

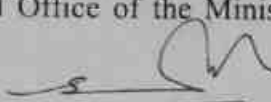
A. STANDARD TERMS OF REFERENCE

- 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).



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- 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


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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.



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- 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.



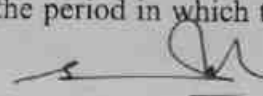
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- 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
- 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater 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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- 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
- 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- 44) Besides the above, the below mentioned general points are also to be followed:-
 - a) Executive Summary of the EIA/EMP Report
 - b) All documents to be properly referenced with index and continuous page numbering.
 - c) Where data are presented in the Report especially in Tables, the period in which the data



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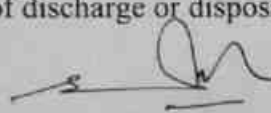
were collected and the sources should be indicated.

- 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.


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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 is acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest , eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given

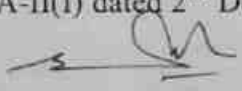


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23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
27. A detailed report 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,


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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.



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Copy to:

1. The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
4. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi 110003
5. The District Collector, Pudukottai District.
6. Stock File.

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 1.18.5 Ha

COMPLIANCE OF TOR CONDITIONS

Point wise compliance of ToR points issued by SEIAA, TN vide letter No. SEIAA-TN/F. No. 9990/SEAC/1(a)ToR-1661/2024 Dated: 02.07.2024 for Mining of Minor Minerals in the Mine of “Proposed Rough stone & Gravel Quarry Over an Extent of 1.18.5 Ha at S.F.No. 153/2, 3, 4A, 4B, 4C & 5 of Veerapatti Village, Illuppur Taluk, Pudukkottai District, Tamil Nadu State.

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.	This is a fresh mining project of Proposed Rough stone and Gravel quarry. Precise Area Communication Letter received from Assistant Director, Dept. Geology and Mining; Pudukkottai vide letter Rc.No.694/2022 (G&M) dated 14.02.2023. Mining Plan was approved by the Assistant Director, Dept. of Geology & Mining, Pudukkottai vide letter Rc.No.694/2022 (G&M) dated 08.03.2023. As area is being exploited for the first time hence Year-wise production details since 1994 and before 1994 are not relevant or applicable.	Chapter-2 Table No.2.9 Page No.47

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 1.18.5 Ha

		<table><tr><th>Year</th><th>Rough stone (m³)</th><th>Gravel (m³)</th></tr><tr><td>I</td><td>23310</td><td>5202</td></tr><tr><td>II</td><td>21500</td><td>3618</td></tr><tr><td>III</td><td>22327</td><td>-</td></tr><tr><td>IV</td><td>19545</td><td>-</td></tr><tr><td>V</td><td>14045</td><td>-</td></tr><tr><td>Total</td><td>100727</td><td>8820</td></tr></table> Proposed Production of Rough Stone & Gravel for five years is proposed in the EIA/EMP in chapter no-2.	Year	Rough stone (m³)	Gravel (m³)	I	23310	5202	II	21500	3618	III	22327	-	IV	19545	-	V	14045	-	Total	100727	8820	
Year	Rough stone (m³)	Gravel (m³)																						
I	23310	5202																						
II	21500	3618																						
III	22327	-																						
IV	19545	-																						
V	14045	-																						
Total	100727	8820																						
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 1.18.5 hectare in Veerapatti Village for Rough stone and Gravel quarry approved by Assistant Director, Dept. of Geology & Mining, Pudukkottai vide Rc.No.694/2022 (G&M) dated 08.03.2023.	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, Pudukkottai.	Annexure-VI Chapter- II																					

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4	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/toposheet should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Details of coordinates of all corners of proposed mining lease area have been incorporated in mining plan and Chapter 2 of EIA/ EMP Report.	Chapter-2, Fig no. 2.2 Page. no. 38
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. 39
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 given in Chapter 2.	Chapter-2 Page 41
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	Noted.	

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	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.	It is an open cast mining project. Blasting details are incorporated in chapter 2.	Chapter-2, Page no.49
9	The study area will comprise of 15 km zone around the mine lease from lease periphery and the data contained in the EIA	Study area comprises of 15 km radius from the mine lease boundary. Key Plan showing core zone (ML area).	Chapter-2 Fig no. 2.5

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	such as waste generation etc should be for the life of the mine / lease period.		Page no.40
10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land Use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, National Park, migratory routes of fauna, water bodies, human settlement and other ecological features has been prepared and incorporated in Chapter-3 of EIA/ EMP Report. There is no wildlife sanctuary and national park, migratory routes of fauna in the study area.	Chapter-2, Table no. 2.4 Page no.41
11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	The Gravel of the lease area is estimated as 8820m ³ . Gravel formation will be removed and transported to the needy end user, only after obtaining permission and paying necessary seigniorage fees to the Government.	Chapter-2, Page no.48
12	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area.	Complied. The proposed mining lease area is not falling under forest land.	

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	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.	The proposed mining lease area is not falling under forest land.	
14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	Not Applicable. There is no involvement of forest land in the project area.	

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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. 94
16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly detailed mitigative measures required, should be worked out with cost implications and submitted.	There is a relatively poor sighting of animals in the core and buffer areas of the mining lease is anticipated	

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17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger/Elephant Reserves/ (existing as well as proposed), if any, within 10km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of	There is no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger / Elephant Reserves / Critically Polluted areas within 10 km radius of the mining lease area.	
18	A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan for their conservation should be prepared in consultation with State Forest and Wildlife	Details biological study (flora & fauna) within 10 km radius of the project site have been incorporated in Chapter-3 of EIA/ EMP Report. No flora & fauna listed in scheduled I have been found in study area so there is no need of conservation plan. However, all care will be taken for protection of flora & fauna, if any in the lease hold area.	Chapter – 3 Pg No. 103

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

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	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 located in the mine lease area will be shifted or not. The issues relating to shifting of Village including their R&R and socio-economic aspects should be discussed in the report.	There is no Rehabilitation and resettlement is involved. Land classified as Patta land	
22	One season (non-monsoon) and (Summer Season), (Post monsoon) primary baseline data on ambient air quality CPCB	Baseline data collected during Pre-Monsoon Season and Monsoon (July to September 2023) has been incorporated in EIA/EMP report.	Chapter 3

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	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 500m of the mine lease in the pre- dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	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.	
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23	Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing predominant wind direction may also be indicated on the map.	Air quality modelling & Impact of Air quality will be furnished in Final EIA report. Transportation of mineral during operation of mines will be done by road & SH 71 through dumpers and the impact of movement of vehicles are incorporated in EIA/EMP report. Air quality modelling & Impact of Air quality will be furnished in Final EIA report.	Chapter-4 Page No.114
24	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.	Total water requirement: 2.5 KLD Dust Suppression: 0.5 KLD Domestic Purpose: 1.5 KLD Plantation :0.5 KLD Domestic Water will be sourced from nearby Veerapatti which is about 1.35 Km-NNE of the area.	Chapter-2 Page no.53
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Not Applicable Water will be taken from nearby villages	

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26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	At the last stage of mining operation, almost complete area will be worked to restore the land to its optimum reclamation for future use as water reservoir.	
27	Impact of the project on the water quality, both surface and groundwater should be assessed and necessary safeguard measures, if any required, should be provided.	Impact of the project on the water quality & its mitigation measures has been incorporated in Chapter-4 of EIA/EMP report.	Chapter-4 Page No.112
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. 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.	Maximum working depth: 70m to 75m BGL The ground water table is reported as 64m below surface ground level in nearby wells of this area. Now, the present quarry shall be proposed above the water table and hence, quarrying may not affect the ground water So mine working will not be intersecting the ground water table.	Chapter-2 Page no. 38
29	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the	There is no any stream crossing in the proposed quarry.	Executive Summary

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	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.	Highest elevation: 130.0m from MSL The ground Water Level is noticed at the depth of 70m BGL.	Chapter-2 Table no. 2.2 Page no. 38
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 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	Green Belt Development plan is proved given in Chapter 2.	Chapter-2

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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	Impact on local transport infrastructure due to the project has been assessed. There shall not be much impact on local transport. Traffic density from the proposed mining activity has been incorporated in EIA/EMP report.	Chapter-3 Page No.107
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	Suitable measure will be adopted to minimize occupational health impacts of the project. The project shall have	Chapter-10 Pg No. 145

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	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	positive impact on local environment. Details are given in chapter-10 of EIA/EMP.	
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. 145
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 have been discussed in Chapter 4	Chapter-4 Pg No. 118
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. 136

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39	Public hearing points raised and commitment of the project proponent on the same along with time bound action plan to implement the same should be provided and incorporated in the final EIA/EMP Report of the Project.	Public Hearing proceedings will be furnished in Final EIA report													
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><tr><th>S. No</th><th>Description</th><th>Cost</th></tr><tr><td>1</td><td>Fixed Asset Cost</td><td>15,95,600/-</td></tr><tr><td>2</td><td>Operational Cost</td><td>20,00,000 /-</td></tr><tr><td></td><td>Total</td><td>35,95,600/-</td></tr></table> EMP Cost: 61,57,825/-	S. No	Description	Cost	1	Fixed Asset Cost	15,95,600/-	2	Operational Cost	20,00,000 /-		Total	35,95,600/-	Chapter-8 Pg No. 135
S. No	Description	Cost													
1	Fixed Asset Cost	15,95,600/-													
2	Operational Cost	20,00,000 /-													
	Total	35,95,600/-													
42	Disaster Management Plan	Disaster Management and Risk Assessment has been incorporated in Chapter-7	Chapter-7 Pg No. 127												
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. 135												

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44	Besides the above, the below mentioned general points are also to be followed:		
(a)	Executive Summary of the EIA/EMP report	Executive Summary of EIA Report is given from page No.15-28	
(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 EIA report has been	

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

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	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.	

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Additional ToR Compliance

S.No.	Condition	Compliance
1.	The proponent is requested to submit the valid registered lease document during the EIA appraisal after the previous lease granted for the mining operations is legally surrendered (or) lapsed with the consent of the competent authority.	Noted. Agreed to comply.
2.	The proponent is requested to carry out a survey and enumerate on the structures located within 100m, 200m, 300m from the boundary of the mine lease area.	Enumeration study report will submit with Final EIA presentation.
3.	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 the greenbelt, fencing will be furnished with Final EIA presentation.
4.	The Project Proponent shall conduct the 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) 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. Necessary data and documentation in this regard may be	Noted and the letter will be submitted with final EIA presentation.

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	provided.	
5.	The proponent shall submit the "Blast Design Parameters for controlling the vibration and fly rock from the quarry blasting" considering the existence of sensitive structures including habitations within 1 km from the lease boundary.	It is an open cast mining project. Blasting details are incorporated in chapter 2.
6.	The PP shall furnish DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., upto a radius of 25 km from the proposed site.	The DFO letter will be submitted during final EIA.
7.	The PP shall provide individual notice regarding the Public Hearing to the nearby house owners located in the vicinity of the project site.	Noted and agreed to comply.
8.	Since the quarry is existing with a depth of excavation varies from 6 m to 19 m without benches of appropriate dimension (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall carry out a 'Slope Stability Assessment studies for the existing conditions of the quarry wall by involving any of these reputed Research and Academic Institutions-CSIR-Central Institute of Mining & Fuel Research (CIMFR) / Dhanbad, NIRM Bengaluru, IIT-Madras, NIT Surathkal Dept of Mining Engg.. The above studies shall spell out 'a 'Slope Stability Action Plan for the proposed quarry covering the existing condition of the quarry wall including the overall pit slope angle	Slope stability action plan will be furnished with final EIA presentation.

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	where the proposed depth exceeds 30 m and it shall cover the aspects of stability of quarry walls including the access ramp keeping the benches intact.	
9.	If the blasting operation is to be carried out, the PP shall present a conceptual design for carrying out the NONEL initiation based controlled blasting operation including the line drilling & muffle blasting techniques and a Simulation Model indicating the anticipated Blast-induced Ciround. Vibration levels in the proposed quarry as stipulated by the DGMS Circular No 7 of 1997, during the EIA Proposal.	Noted and agreed to comply.
10.	Details of Green belt & fencing shall be included in the EIA Report	Green belt & fencing will be included in the Final EIA Report.
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 Drone video and photographic evidence.	It's a existing quarry. Drone video and photographs will be submitted during Final EIA presentation.
12.	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines. a) What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines? b) Quantity of minerals mined out.	Noted and the letter from AD/DD will be submit with final EIA presentation.

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	c) Highest production achieved in any one year d) Detail of approved depth of mining. e) Actual depth of the mining achieved earlier. f) Name of the person already mined in that leases area. g) If EC and CTO already obtained, the copy of the same shall be submitted. h) Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	
13.	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).	Complied. All corners with coordinates of the mine lease area have attached with EIA report in chapter 2
14.	The PP shall carry out Drone video survey covering the cluster, Green belt, fencing. Garland drainage etc.,	Drone video survey will be submitted in final EIA report
15.	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.	The details of Geological reserves, Mineable reserves and Yearwise production reserves are tabulated in Chapter 2. The mining methodology and impacts are follow as on prescribed norms by Government.
16.	The Project Proponent shall provide the Organization chart indicating the appointment	Manpower requirements table attached in EIA report chapter 2

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	of various statutory officials and other competent persons to be appointed as per the provisions of 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	
17.	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 quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study details attached in EIA report chapter 3
18.	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.
19.	Rainwater harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	Noted. Agree to comply.
20.	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of	Current land use of the study area has attached in EIA report chapter 3. Operational and post operational land

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	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.	use will be submitted.
21.	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.	
22.	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	The proposed mining lease area is not falling under critically polluted area.
23.	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.
24.	Impact on local transport infrastructure due to the Project should be indicated.	Traffic impact assessment has given in EIA report chapter 3.

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25.	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.
26.	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, Pudukkottai District
27.	Public Hearing points raised and commitments 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 and to be submitted to SEIAA/SEAC with regard to the office Memorandum of MoEF&CC accordingly.	Public Hearing points raised and commitments will be furnished in Final EIA report.
28.	The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.	Agreed to comply.
29.	The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.	Noted.
30.	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,	Noted. Agree to comply.

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	wherever possible.	
31.	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-1 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.	Around 600 (120 per year) trees will be planted around the site. The list of trees to be planted are given below: Neem, Pungam, Poovarasu, Naval, Mantharai, Arasa Maram, Magizham, Vilvam, vaagai, Marudha maram, Thandri, Poovarasu, Quaker buttons, Thethankottai maram, Manjadi, Usil, Aathi, Panai, Uzha, Illuppai, Eachai, Vanni Maram
32.	Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly 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
33.	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 ELA/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.

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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.	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.
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.	Public health implication and remedial measures is given in EIA/EMP report.
37.	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.
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.	No. litigation is pending against the project in any court.
39.	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	Benefits of the project has incorporated in EIA report chapter 8

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	potential, etc.	
40.	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.	Certified compliance report will be furnish in Final EIA.
41.	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	Complied.
42.	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.
Additional ToR by SEIAA		
1	The project proponent has uploaded existing pit letter obtained from AD, G&M vide Rc.No.694/2022 (G&M) Dated: 08.03.2023 Hence Based on the above, it is ascertained that the proponent has obtained lease for a period of 5years from 23.08.2017 to 22.08.2022. Further, the proponent shall give details regarding whether EC was obtained from SEIAA-TN for	Noted. We will submit if previous EC obtained from SEIAA-TN.

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	the above-mentioned period. If so, copy of the same shall be submitted.	
2	Further, the Proponent may be requested to submit Certified Compliance Report obtained from IRO, MoEF&CC as per the OM dated:08.06.2022, if prior EC had been obtained from SEIAA-TN for the earlier lease period from 23.08.2017 to 22.08.2022	Noted. Agree to comply.
Discussion by SEIAA and the Remarks: -		
Annexure 'B'		
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.	Noted All the proponents in the cluster is 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 is discussed in chapter 2
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 and will be submitted with final EIA report.

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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. It will be furnished in final 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.	Agreed to comply. It will be furnished in final EIA report.
8	The committee shall furnish the Emergency Management plan within the cluster.	Emergency management plan is discussed in chapter 7.
9	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.
10	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	Noted
11	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	Noted
Impact study of mining		
12	Detailed study shall be carried out in regard to impact of mining around the proposed mine	The biodiversity has been studied and discussed in chapter 3.

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	lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following. a) Soil health & bio-diversity b) Climate change leading to Droughts, Floods etc., c) Pollution leading to release Greenhouse gases (GHG), rise in Temperature & Livelihood of the local people. d) Possibilities of water containment and impact on aquatic ecosystem health. e) Agriculture, Forestry & Traditional practices. f) Hydrothermal/Geothermal effects due to destruction in the Environment. g) Bio-geochemical processes and its foot prints including environmental stress h) Sediment geochemistry in the surface streams Sediment geochemistry in the surface streams.	The soil erosion map 10km surrounding the project site has been given in chapter 3. The detailed study will be carried out and will be enclosed in the Draft EIA Report.
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Agriculture & Agro-Biodiversity

13	Impact on surrounding agricultural fields around the proposed mining area.	There is no agricultural fields around the proposed mining area
14	Impact on soil flora & vegetation around the project site	Impact on soil flora & vegetation around the project site discussed in Chapter-4
15	Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all	The detailed study will be carried out and will be furnished in the Final EIA Report.

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	along the boundary of the proposed mining area shall committed mentioned in EMP.	
16	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	Obtained and same has been attached as Annexure.
17	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services	Noted and public hearing details will be included along with final EIA report.
18	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.	Noted and will be complied in Final EIA report.
Forests		
19	The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.	The biodiversity has been studied and discussed in chapter 3.
20	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
21	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.
22	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	The water environment impacts and its mitigation measures has been given in Chapter 4

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Water Environment		
23	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 EMP details has been given in Chapter 8
24	Erosional Control Measures.	Noted and will be complied in Final EIA report.
25	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.	There is no Reserve Forest within 1 km radius of the Project Site. Hence our project will not cause any damage to reserve forest. Also, we have received letter from DFO indicating the nearest reserve forest and attached with Annexures. There is no protected areas, National Parks, Corridors and Wildlife pathways near project site.
26	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	Noted and will be complied in Final EIA report.
27	The project proponent shall study and furnish	Noted.

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	the details on potential fragmentation impact on natural environment, by the activities.	Agree to comply.
28	The PP 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	Noted. Agree to comply.
29	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	Noted. Agree to comply.
30	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites	Environmental Impact Assessment study is detailed in Chapter 3.
Energy		
31	The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.	Noted. Agree to comply.
Climate Change		
32	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	Agreed to comply
33	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	A Risk Assessment and management Plan will be prepared and included in the final EIA/EMP Report.

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Mine Closure Plan		
34	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued	Mine closure plan has been attached along with mining plates as Annexure.
EMP		
35	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued	Environment Management Plan has been described in detail in Chapter-10 of the Draft EIA/EMP Report.
36	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		
37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	A Risk Assessment and management Plan will be prepared and included in the final EIA/EMP Report.
Disaster Management Plan		
38	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.	A disaster management Plan will be prepared and included in the final EIA/EMP Report.
Others		
39	The project proponent shall furnish VAO	VAO certificate is enclosed as

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	certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odal, vaari, canal, channel, river, lake pond, tank etc.	Annexure.
40	As per the MoEF& CC office memorandum F.No 12-65/2017-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	Agreed to comply
41	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.	Agreed to comply

ANNEXURE-II

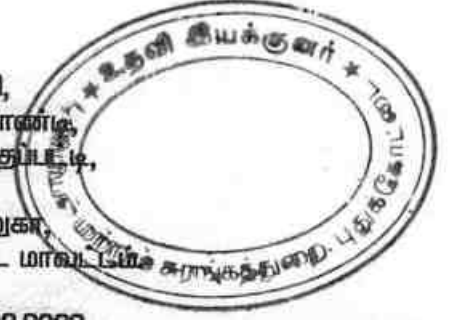
PRECISE AREA COMMUNICATION LETTER

அனுப்பநர்

திரு.கி.விஜயராகவன், எம்.எஸ்.எரி,
உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
புதுக்கோட்டை.

பெறுநர்

திரு.ப.சபாபதி,
த/பெ.பழனியாண்டி,
எண்.971, சீத்துபட்டி,
மாம்பட்டி,
இலுப்பூர் தாலுகா,
புதுக்கோட்டை மாவட்டம் சுரங்கத்துறை, புதுக்கோட்டை.



ந.க.எண்.694/2022(பு.ம.சு) நாள் 14.02.2023

அய்யா,

பொருள் : கனிமங்கள் மற்றும் சுரங்கங்கள் - புதுக்கோட்டை மாவட்டம் - இலுப்பூர் வட்டம் - வீரப்பட்டி கிராமம் - பட்டா புல எண்கள்.153/2 மற்றும் சிலவற்றின் மொத்தப்பரப்பு 1.18.5 ஹெக்டேரில் கல் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் கோரி திரு.ப.சபாபதி த/பெ.பழனியாண்டி என்பவர் விண்ணப்பம் செய்தது - வரைவு சுரங்கத்திட்டம் சமர்ப்பிக்க அறிவுறுத்துதல் - தொடர்பாக தொடர்பாக.

- பார்வை : 1. திரு.ப.சபாபதி த/பெ.பழனியாண்டி என்பவரின் விண்ணப்பம் நாள்: 31.10.2022.
2. வருவாய் கோட்டாட்சியர், இலுப்பூர், அவர்களின் கடிதம் ந.க.8740/2022/அ5, நாள்: 27.01.2023.
3. உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, புதுக்கோட்டை அவர்களின் அறிக்கை நாள்: 03.02.2023.
4. மற்றும் தொடர்புடைய ஆவணங்கள்.

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புதுக்கோட்டை மாவட்டம், இலுப்பூர் தாலுகா, வீரப்பட்டி கிராமம், பட்டா புல எண்கள்.153/2(0.02.5), 153/3(0.79.), 153/4A(0.10.5), 153/4B(0.06.0), 153/4C (0.05.5) & 153/5(0.15.0)- ஆகியவற்றின் மொத்தப்பரப்பு 1.18.5 ஹெக்டேரில் கல் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் கோரி திரு.ப.சபாபதி த/பெ.பழனியாண்டி என்பவர் அனுமதி கோரி விண்ணப்பம் செய்துள்ளார்.

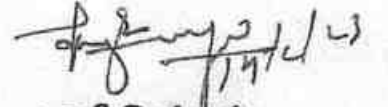
பார்வை 2 மற்றும் 3ல் கண்டுள்ளவாறு வருவாய் கோட்டாட்சியர், இலுப்பூர், உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, புதுக்கோட்டை மற்றும் தனிவருவாய் ஆய்வாளர் (கனிமம்) ஆகியோர் புலத்தணிக்கை மேற்கொண்டு இலுப்பூர் தாலுகா, வீரப்பட்டி கிராமம், பட்டா புல எண்கள்.153/2(0.02.5), 153/3(0.79.), 153/4A(0.10.5), 153/4B(0.06.0), 153/4C (0.05.5) & 153/5(0.15.0)-ஆகியவற்றின் மொத்தப்பரப்பு 1.18.5 ஹெக்டேரில் கல் மற்றும் கிராவல் குத்தகை உரிமம் வழங்க அனுமதி வழங்கலாம் என பரிந்துரை செய்துள்ளனர்.

எனவே, திரு.ப.சபாபதி த/பெ.பழனியாண்டி என்பவருக்கு இலுப்பூர் தாலுகா, வீரப்பட்டி கிராமம், பட்டா புல எண்கள்.153/2(0.02.5), 153/3(0.79.), 153/4A(0.10.5), 153/4B(0.06.0), 153/4C (0.05.5) & 153/5(0.15.0)-ஆகியவற்றின் மொத்தப்பரப்பு 1.18.5 ஹெக்டேர் பரப்பினை 1959-ம் வருடாந்திய

தமிழ்நாடு சிறுகனிம சலுகை விதிகள், விதி எண்.19 & 20-ன் கீழ் 5 வருட காலங்களுக்கு கல் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் அனுமதி வழங்க உகந்த புலமாக கருதி அறிவிப்பு செய்யப்படுகிறது.

மேலும், திரு.ப.சபாபதி த/பெய்முனியாண்டி என்பவர் மூன்று மாத காலத்திற்குள் வரைவு சுரங்கத்திட்ட அறிக்கை (Draft Mining Plan) கீழ்க்கண்ட நிபந்தனைகளுக்குட்பட்டு தயார் செய்து புதுக்கோட்டை மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை, உதவி இயக்குநரிடம் ஒப்புதல் பெற்றும், தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 41 & 42-ன் படி ஏற்பளிக்கப்பட்ட சுரங்கத்திட்ட அறிக்கை மற்றும் மாவட்ட சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்திடமிருந்து தடையின்மைச்சான்று பெற்றும் சமர்ப்பிக்குமாறு அறிவுறுத்தப்படுகிறது.

1. அருகிலுள்ள மட்டா புலங்களுக்கு 7.5மீட்டர் பாதுகாப்பு இடைவெளி விடவேண்டும்.
2. புல எண்.155-ல் அமைந்துள்ள அரசு புறம்போக்கு பாறைக்கு 10மீ பாதுகாப்பு இடைவெளிவிட வேண்டும்.



உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
புதுக்கோட்டை

08/14/23

ANNEXURE-III
MINING PLAN APPROVED LETTER

Thiru.K.Vijayaragavan,M.Sc.,
Assistant Director,
Geology and Mining,
Pudukkottai.

Thiru.P.Sabapathi,
S/o.Palaniyandi, No.971,
Seethappatti, Mambatti,
Illuppur Taluk,
Pudukkottai District

Rc.No. 694/2022 (G&M) dated 08.03.2023

Sir,

Sub: Mines and Quarries - Minor Minerals - Pudukkottai District - Illuppur Taluk - Veerapatti village in S.F.Nos.153/2 etc, - over an extent of 1.18.5 Hects., of patta lands - Rough stone & Gravel quarry lease - draft mining plan submitted to Thiru.P.Sabapathi - Approval of mining plan - Regarding.

Ref: 1.Application of Thiru.P.Sabapathi, S/o.Palaniyandi, dt.31.10.2022.
2.Precise area communication in Rc.No.694/2022(G&M) dated 14.02.2023.
3.Letter from Thiru.P.Sabapathi, S/o.Palaniyandi letter dt.07.03.2023.

In the reference 1st cited, Thiru.P.Sabapathi, S/o.Palaniyandi, No.971, Seethappatti, Mambatti, Illuppur Taluk, Pudukkottai District has applied for the grant of lease to quarry rough stone & Gravel, over an extent of 1.18.5 hecets in patta lands in S.F.Nos.153/2(0.02.5), 153/3(0.79.), 153/4A(0.10.5), 153/4B(0.06.0), 153/4C (0.05.5) & 153/5(0.15.0) of Veerapatti village, Illuppur Taluk, Pudukkottai District under Rule 19(1) of Tamil Nadu Minor Mineral Concession Rules, 1959.

2) The precise area has been communicated to the applicant under reference 2nd cited above, based on the recommendations of the Revenue Divisional Officer, Illuppur and the Assistant Geologist of Geology and Mining, Pudukkottai and Special Revenue Inspector (Mines), Pudukkottai.

3) In exercise of powers delegated under Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959, I hereby approve the mining plan submitted by Thiru.P.Sabapathi, S/o.Palaniyandi for grant of lease to quarry rough stone & gravel, over an extent of 1.18.5 hecets in patta lands in S.F.Nos.153/2(0.02.5), 153/3(0.79.), 153/4A(0.10.5), 153/4B(0.06.0), 153/4C (0.05.5) & 153/5(0.15.0) of Veerapatti village, Illuppur Taluk, Pudukkottai District for a period of five years and the proposed mineable reserves of rough stone and gravel after leaving safety distance is arrived as **100727M³** and **8820M³** to the proposed depth of 42m. This approval is subject to the following conditions:-

- (i). That the mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such Laws are made by the Central Government, State Government or any other authority.
- (ii). This approval of the 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) Act, 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Indian Explosives Act, 1884(Central Act IV of 1884) and the rules made there under the Tamil Nadu Minor Mineral Concession Rules, 1959.
- (iii). That the mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- (iv). That the mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such Laws are made by the Central Government, State Government or any other authority.


Assistant Director,
Geology and Mining,
Pudukkottai.

Encl: 2 copies of Approved Mining Plan.

Copy submitted to :

1. The Chairman,
State Level Environment Impact Assessment Authority, Chennai
2. The Commissioner of Geology and Mining, Industrial Estate, Guindy,
Chennai- 32.

ANNEXURE-IV
500M Radius letter

Thiru.K.Vijayaragavan,M.Sc.,
Assistant Director,
Geology and Mining,
Pudukkottai.

Thiru.P.Sabapathi,
S/o.Palaniyandi, No.971,
Seethappatti, Mambatti,
Illuppur Taluk,
Pudukkottai District.

Sir,

Rc.No.694/2022 (G&M) dated 08.03.2023

Sub : Mines and Minerals - Minor Mineral – Pudukkottai District - S.F.Nos.153/2etc., of Veerapatti Village, Illuppur Taluk, over an extent of 1.18.5 Hects – Rough stone & gravel -Quarry Lease Application preferred by Thiru.P.Sabapathi – Reg.

Ref : 1.Application of Thiru.P.Sabapathi, S/o.Palaniyandi, dt.31.10.2022.
2.Precise area communication in Rc.No.694/2022(G&M) dated 14.02.2023.
3.Letter from Thiru.P.Sabapathi, S/o.Palaniyandi letter dt.07.03.2023.

.....

With reference to your letter in the reference 3rd cited, the details of existing and lease expired quarries located within 500m radius from the proposed Rough stone & gravel quarry, over an extent of 1.18.5 Hects in patta S.F.Nos.153/2(0.02.5), 153/3(0.79.), 153/4A(0.10.5), 153/4B (0.06.0), 153/4C (0.05.5) & 153/5(0.15.0) of Veerapatti village, Illuppur Taluk, Pudukkottai District are as follows:

1) Existing Other Quarries:

S. N o	Name of the Lessee / Permit Holder	Village & Taluk	S.F.No	Extent	Lease period
1.	Thiru.K.Manickam, S/o.Krishnan, Agarappatti, Vayalogam post, Illuppur Taluk, Pudukkottai District	Veerapatti Illuppur	153/7A 1B1	0.73.5	28.02.2022 to 27.02.2027

2) Proposed Area

S. No	Name of the applicant	Village & Taluk	S.F.No	Extent
1	Thiru.Dineshwaran, S/o.Devadass, No.54/B, Periyasengapatti, Annavasal, Illuppur Taluk, Pudukkottai(D)	Veerapatti Illuppur	145/3A and 145/4A	0.87.5
2.	Thiru.Selvaraj, S/o.Chokkalingam, No.34/D, Sengappatti, Annavasal, Illuppur Taluk, Pudukkottai District	Veerapatti Illuppur	159/5B2, 160, 161/1, 159/3A, 159/3B, 159/3C, 159/4A, 159/4B, 159/5A and 159/5B1	2.17.0

3.	Thiru.M.Karuppaiya, S/o.Maduraiveeran, No.252, West Street, Mannavelampatti, Mangudi, Illuppur Taluk, Pudukkottai District	Veerapatti Illuppur	153/11, 153/9A2 and 153/7A1B2A,	1.62.5
4.	Thiru.P.Sabapathi S/o.Palaniyadi, Seethapatty,Kilikudi post, Illuppur Taluk, Pudukkotti District	Veerapatti Illuppur	153/2 &etc.,	1.18.5
Total				5.85.5

3) Lease Expired

S. No	Name of the Lessee / Permit Holder	Village & Taluk	S.F.No	Extent	Lease period
1	Thiru.C.Shanmugam, S/o.Chidambaram, Sivankoil Theru, Illuppur Post & Taluk, Pudukkottai District	Veerapatti Illuppur	532/3J	0.60.5	19.01.2017 to 18.01.2022
2	Thiru.A.Alagupandiyan, S/o.Alaguperumal, Poikadippatti, Illuppur Post & Taluk	Veerapatti Illuppur	148/3A	0.33.0	30.12.2016 to 29.12.2021
3	Thiru.A.Alagupandian, S/o.Alaguperumal, Poikkadipatti, Veerappatti, Illuppur	Veerapatti Illuppur	145/3A, 145/4A	0.87.5	01.03.2016 to 28.02.2021
4.	Thiru.C.Chelladurai, S/o.Chinnaiah, Veerappatti village & post, Illuppur Taluk, Pudukkottai District	Veerapatti Illuppur	145/1	0.88.0	30.07.2016 to 29.07.2021
5.	Thiru.U.Ganasamoorthy S/o.Umayan sekey Punginipatti, Irundhirapatti	Veerapatti Illuppur	153/1 & etc.,	0.41.0	23.06.2016 to 22.06.2021
6.	Thiru.P.Sabapathi S/o.Palaniyadi, Seethapatty,Kilikudi post,Illuppur Taluk, Pudukkotti District	Veerapatti Illuppur	153/2 &etc.,	1.18.5	23.08.2017 to 22.08.2022
7.	Thiru.D.Ramu Servai S/o.Duraisamy servai, Mannavelanpatti, Illuppur Taluk, Pudukkottai District	Veerapatti Illuppur	153/6B	0.46.0	29.09.2017 to 28.09.2022
Total				4.74.5	


Assistant Director,
Geology and Mining,
Pudukkottai

96
8/3/2023

ANNEXURE-V

CONSENT REGISTER DOCUMENT

507/2023

ANNEXURE: IV



தமிழ்நாடு தமிழ்நாடு TAMILNADU

தமிழ்நாடு எண்

நாள்

28.2.2023

லாப்துபவர் பெயர்

R. Dhanasekhar

உண்

தொகை

ஒதுக்கீடு
500/-

AS 986148
சென்னை அப்துல் ரகுமான்
புத்திரைத்தாள் விற்பனையாளர்.
உரிமம் எண்: 2/2008
கடை வீதி: அன்னவிரதல்.

குத்தகை ஒப்பந்தப் பத்திரம்

2023 ஆண்டு பிப்ரவரி மாதம் 28 ஆம் நாள்,
தமிழ் சுபகிருது வருடம் மாசி திங்கள் 16 ஆம் நாள்,
குத்தகைத் தொகை வருடம் 1-க்கு : ரூ.5,000/- வீதம்

குத்தகை முன்பணம் இல்லை வாய்தா காலம் : 7 வருடங்கள்

புதுக்கோட்டை மாவட்டம், இலுப்பூர் தாலுகா, வீரப்பட்டி
கிராமம், தெற்குகளத்தில் 420(1) எண் இல்லத்தில் வசிக்கும்
திரு.ராமசாமி அவர்களின் மகன் திரு.R.ராமசாமி (ஆதார்
அடையாள அட்டை எண் : 5973 6789 0663, கைபேசி எண்:
9976186225) 1-வது நபராகவும்,

1-வது நபர்

2-வது நபர்

R. R.

2023 ம் வருடம்
ஆதாரம் 12
1-வது தளம்

507 P. S. Dhanasekhar

சுபகிருது
அன்னவிரதல்

புதுக்கோட்டை மாவட்டம், இலண்டன் தாலுகா, சித்தம்பட்டி கிராமம், மாம்பட்டியில் 97-1 எண் துறைமுகத்தில் வசிப்பவர் திரு.பழனிபாண்டி அவர்களின் மகன் திரு. P. சம்பதி (வயது அடையாள அட்டை எண் : 4113 0133 0726, கைபேசி எண் 9443205617) 2-வது நபராகவும் அதிப நாம இலண்டன் தாலுகா, சித்தம்பட்டி எழுதிக்கொண்ட குத்தகை ஒப்பந்தப் பத்திரம்



1-வதுநபர் மற்றும் 2-வதுநபரின் பெயர் (கைபேசி எண் 9443205617) 52/2017 எண் ஆவணப்படி கிரையம்பெற்று அதன்பிறகு 1-வதுநபர் மற்றும் 2-வதுநபர் பெயரில் வீரப்பட்டி கிராமத்தில் கைபேசி எண் 9443205617 3578 ஏற்பட்டு அதுநாள் முதல் 1-வதுநபர் மற்றும் 2-வதுநபரால் கூட்டாக அரத்தீர்வை செலுத்தி அதுபயன்படுத்தப்படும் சொத்துக்களில் 1-வதுநபருக்கு சொந்தமான கீழ்க்கண்ட சொத்து விபரத்தில் கண்ட சொத்தான இரண்டில் ஒரு பங்கை மாட்டம் (1/2) மாவட்ட ஆட்சியர் அனுமதிபுடன் மேற்படி நிலத்தில் தொழில் செய்துவர குத்தகை ஒப்பந்தம் செய்வது கொள்ளப்பட்டுள்ளது.

மேற்படி குத்தகை காலம் முடிந்தவுடன் நிலத்தை 1-வது நபர் வசம் 2-வது நபர் குத்தகை சொத்துக்களை திரும்பவும் ஒப்படைத்துவிட வேண்டியது. சொத்து விபரத்தில் கண்ட குத்தகை சொத்தை மேற்படி குத்தகை வாய்தா காலம் முடியும் வரையில் நம்மில் 2-வது நபர் எந்தவித வில்லங்கத்திற்கும் உட்படுத்தவில்லை என்றும் இதன் மூலம் ஒப்புக்கொண்டுள்ளார். குத்தகை ஒப்பந்த பத்திரத்தை பிற நிபந்தனைகளுக்கும் நாம் இருவரும் கட்டுப்பட்டவர்கள் எனவும் நம்முன்சம்மதித்து எழுதிக்கொண்ட குத்தகை ஒப்பந்தப் பத்திரம். இதன் பதிவு பெற்ற அசல் காப்பி நம்மில் 2-வது நபரிடமும் இதன் நகல் காப்பி (Xerox) நம்மில் 1-வது நபரிடமும் இருந்துவர வேண்டியது.

1-வது நபர்

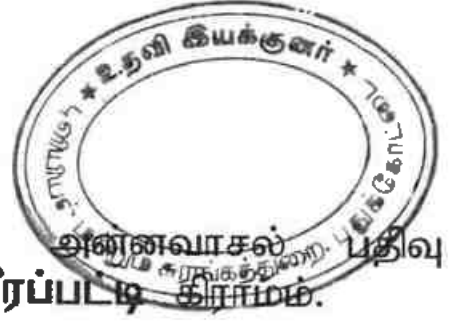
2-வது நபர்

2.02

P. S. S.

புத்தகம்	2023	பக்கம்	507
ஆவணம்	12	தாள்கள்கொண்டது	
2-வது தாள			

சம்பதி
சாப்பிதவரன்
சென்னை



சொத்துவிபரம் :-

புதுக்கோட்டை பதிவு மாவட்டம், அன்னவாசல் பதிவு துணை மாவட்டம், இலுப்பூர் தாலுகா, வீரப்பட்டி கிராமம்.

சர்வே எண்கள்:

1. 153-2 புன்செய் ஹெ.0.02.5-ல் ஹெ.0.01.25-க்கு ஏ.0.03
2. 153-3 புன்செய் ஹெ.0.79.0-ல் ஹெ.0.39.5-க்கு ஏ.0.98
3. 153-4A புன்செய் ஹெ.0.10.5-ல் ஹெ.0.05.25-க்கு ஏ.0.13
4. 153-4B புன்செய் ஹெ.0.06.0-ல் ஹெ.0.03.0-க்கு ஏ.0.07
5. 153-4C புன்செய் ஹெ.0.05.5-ல் ஹெ.0.02.75-க்கு ஏ.0.07
6. 153-5 புன்செய் ஹெ.0.15.0-ல் ஹெ.0.07.5-க்கு ஏ.0.19

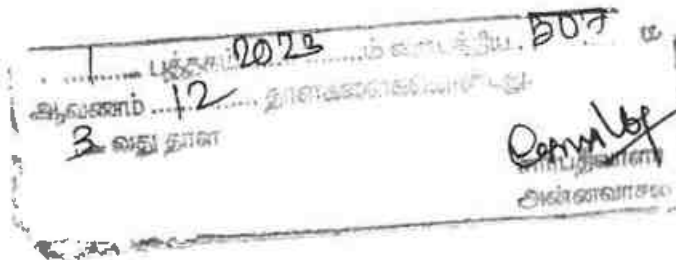
ஆகக்கூடுதல் ஹெ.0.59.25-க்கு ஏ.1.46 (ஒரு ஏக்கர் நாற்பத்தி ஆறு செண்ட்) புன்செய் நிலங்கள் மட்டும் இந்த குத்தகை ஒப்பந்தப் பத்திரத்தில் கட்டுப்பட்டது.

1-வது நபர்

[Handwritten signature]

2-வது நபர்

[Handwritten signature]



மேற்படி சொத்து அன்னவாசல் ஊராட்சி ஒன்றியத்தின் இயக்குநர் ஊராட்சி எல்லைக்கு உட்பட்டதாகும்.

சாட்சிகள் :-

1. R.6 ஈன் லீம் மொன் கார்த்திக்குமார் த/பெ. ராமதாமி
முகவரி. 420(1), தெற்குகளம், வீரப்பாடி கிராமம்,
இலுப்பூர் தாலுகா, புதுக்கோட்டை மாவட்டம். 622103.
(ஆதார் அடையாள அட்டை எண் : 2142 3094 4552)

2. சிதம்பரம் த/பெ. ராமையா
முகவரி. 52, மண்ணவேளாம்பட்டி, மாங்குடி கிராமம்,
இலுப்பூர் தாலுகா, புதுக்கோட்டை மாவட்டம். 622101.
(ஆதார் அடையாள அட்டை எண் : 9340 3313 2121)

1-வது நபர்

R. R.

2-வது நபர்

P. S.

வரைவு தயார் செய்தவர் :-



மு.கிருஷ்ணன் பி.ஏ.,
த/பெ.முத்துக்கருப்பன்,
மாநில ஆவண எழுத்தர்
உரிமம் எண் : A/10/PKT/2009
16, மேட்டுத்தெரு, அன்னவாசல்,
622101, புதுக்கோட்டை (D.t),
கைபேசி எண்: 9688699445.

பத்திரம் 2023 507
ஆவணம் 12
4 வது தரம்
சாப்பிடுவதற்கு
பின்னவரை





சொத்தானது நீர்நிலை பகுதிகளில் அமைப்புப் பெறவில்லை
என்பதற்கான சான்று/உறுதிமொழி (Declaration) (நீதி
பேராணை எண் : 22163/2018-ல் வழங்கப்பட்ட தீர்ப்புரையை
காண்க)

இந்த ஆவணத்தில் கண்ட சொத்தானது .

நீர்நிலைகள், நீர்வழிப்பாதைகள், நீர்ப்பிடிப்பு பகுதிகளில் கட்டுப்படவில்லை என சான்றளிக்கின்றோம். மேலும் இதனில் தங்களுக்கு தவறான தகவல் அல்லது சான்று அளிக்கப்பட்டதாக பின்னாளில் கண்டுபிடிக்கப்பட்டால் அதனால் நான்/நாங்கள் சட்ட பூர்வ நடவடிக்கைகளுக்கு உட்படுத்தப்படுவோம் என்பதையும் அறிவேன்/அறிவோம்.

ஆவணத்தை
எழுதிப்பெறுபவர்களின்
கையொப்பம்

P. S. S.

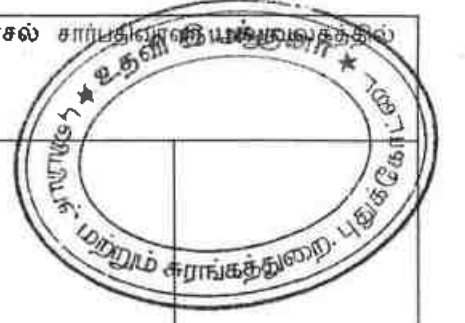
ஆவணத்தை
எழுதிக்கொடுப்பவர்களின்
கையொப்பம்

R. R.

1	பத்திரம் 2023	507
சுயவணம் 12	5 வது தாள்	
சுயவணம்		சுயவணம்

R/அன்னவாசல்/புத்தகம்-1/507/2023

2023 ஆம் ஆண்டு பிப்ரவரி மாதம் 28ம் தேதி பிப 1241 மணியளவில் அன்னவாசல் சார்பதிவாளர் மையத்தில் தாக்கல் செய்து கட்டணம் ₹ 575/- செலுத்தியவர்



இடது பெருவிரல்



P. Jeyaraj

கூடுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி

எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர்
இடது ஆள்காட்டி விரல்



R. R.

“சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்” என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது ஒப்பீட்டு எண் : UKC:928612de2a1196228e4c1681bf3c1cf5e579fe (Details from UIDAI : Ramasamy R S/O Ramasamy, 10-07-1969, xxxxxxxx0663)



எழுதி வாங்கியதாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்



P. Jeyaraj

“சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்” என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது ஒப்பீட்டு எண் : UKC:57635009446a623e3e404aa8dc5d6f71ceaa3 (Details from UIDAI : Sabapathi P S/O Palaniyandi, 22-06-1971, xxxxxxxx0726)



2023 ஆம் ஆண்டு பிப்ரவரி மாதம் 28ம் நாள்

சாப்பதிவாளர் ம
அன்னவாசல்

12 2023 507



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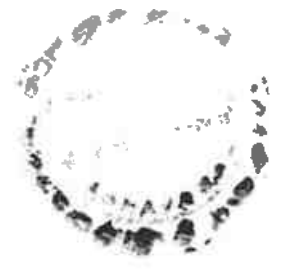
R/அன்னவாசல்/புத்தகம்-1/507/2023 எண்ணாகப் பதிவு செய்யப்பட்டது

நாள்: 28/02/2023
அன்னவாசல்

Cemilay 28/02/2023
ஜாஜிதாபேகம் மீ
சார்பதிவாளர்



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அ.வ.ப.த. 12
7 வது தரம்
Cemilay
அன்னவாசல்







Government of India

ராமசாமி ரா
Ramasamy R
பிறந்த நாள்/DOB: 10/07/1969
ஆண்/ MALE

5973 6789 0663
VID : 9132 1200 2438 3115

எனது ஐதார். எனது அடையாளம்

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முதலாளி:
S/O Ramasamy, எண் 420(1), தெற்கு காலம்,
வேரப்பட்டு, வேரப்பட்டு, புதுக்கோட்டை,
தமிழ்நாடு - 622103

Address:
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Tamil Nadu - 622103

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VID : 9132 1200 2438 3115

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R. R.

12/07/2023

பிறந்தநாள் 12/07/2023

9 வது தரம்

Completed





சபபதி ப
Sabbapathi P
பிறந்த நாள்/DOB: 22/06/1971
ஆண் / MALE

4413 0133 0726

VID: 9198 5649 2492 5955

எனது ஆதார். எனது அடையாளம்

சபபதி ப
Sabbapathi P
பிறந்த நாள்/DOB: 22/06/1971
ஆண் / MALE

4413 0133 0726

VID: 9198 5649 2492 5955

எனது ஆதார். எனது அடையாளம்

P. J. J.

12/12/2023

10

சபபதி ப

சபபதி ப

சபபதி ப





 இந்திய அரசாங்கம் Government of India  கார்த்திகேயன் ரா Karthikeyan R தந்தை ராமசாமி Father: RAMASAMY பிறப்பு தேதி DOB: 05/04/1980 ஆண் / Male  2142 3094 4552 ஆதார் - சாதாரண மனிதனின் அதிகாரம்	 Unique Identification Authority of India முனைவர் ராமசாமி ராமசாமி பெருந்தி கலாம், வீரபட்டி, வேரபட்டி வீரபட்டி, பூதக்கோட்டை, தமிழ்நாடு 622103 Address: S/O Ramasamy, 420/1, SOUTH KALAM, VEERAPATTI, Veerapatti, Veerapatti, Pudukkottai, Tamil Nadu, 622103 2142 3094 4552 1847 1800 300 1847 help@uidai.gov.in www.uidai.gov.in
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R.கார்த்திகேயன் ராமசாமி

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4 வது தரம்		
		

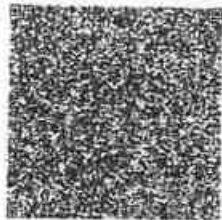




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பதிவேட்டு எண்/ Enrolment No.: 2007/30094/35817

Signature valid



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சிதம்பரம் இரா
Chidambaram R
பிறந்த நாள்/DOB: 22/04/1971
ஆண் / MALE

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மண்ணவெளாட்டிய, இலாபுர் தாலுகா,
பனாகுடு, தருதகோட்டி.
தொலைபேசி - 622101

Address:
S/O Ramaiya, NO 128, EAST STREET,
MANNAVELAMPATTI, ILUPPUR TALLUKA,
Panangudi, Pudukkottai,
Tamil Nadu - 622101

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ANNEXURE-VI MINING PLAN REPORT & PLATES

MINING PLAN FOR VEERAPATTI ROUGH STONE & GRAVEL QUARRY

(Prepared under Rule 19, 20, 41 & 42 Tamilnadu Minor Mineral Concession Rules)

And amended Minor Mineral Conservation and Development Rules

Lease in Own / Consent Patta Land

(Period: (Five) 5 Years only

IN

LOCATION OF THE LEASE APPLIED AREA

EXTENT : 1.18.5 Ha

S.F.Nos : 153/2, 3, 4A, 4B, 4C & 5

VILLAGE : VEERAPATTI

TALUK : ILUPPUR

DISTRICT : PUDUKKOTTAI

STATE : TAMIL NADU

Applicant

Thiru. P. Sabapathi,
S/o. Palaniyandi,
No. 971, Seethappatty,
Mampatty, Iluppur Taluk,
Pudukkottai - 622 102

Prepared by

V.RADHAKRISHNAN.M.Sc.
Recognised Qualified Person
RQP/MAS/119/98/A

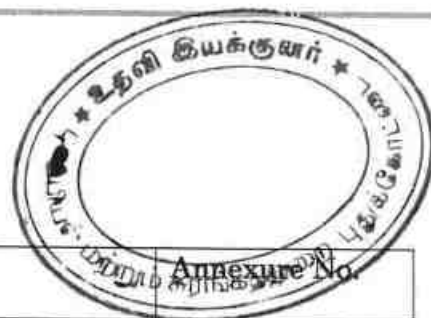
No.48/49, Renga Nagar 1ST Cross,
Ayyappa Nagar, K.K.Nagar Post,
Trichy District - 620 021.
Tamil Nadu State.

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LIST OF PLATES

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8	Conceptual Plan and Sections	VIII & VIII-A	Plan-1:1000 Sec Hor-1:1000; Ver-1:500

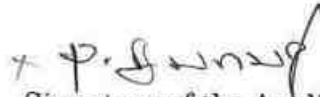
CONSENT LETTER FROM THE MINE OWNER

The Mining Plan in respect of Rough stone & Gravel quarry over an extent of 1.18.5 hectares of Own / Consent Patta Land in S.F.Nos.153/2 (0.02.5), 153/3 (0.79.0), 153/4A (0.10.5), 153/4B (0.06.0), 153/4C (0.05.5), 153/5 (0.15.0) of Veerapatti Village, Iluppur Taluk, Pudukkottai District and Tamilnadu State has been prepared by Thiru.V.Radhakrishnan, M.Sc., Registration Number. RQP/MAS/119/98/A

I request the *Assistant Director*, Department of Geology and Mining, Pudukkottai District to make further correspondence regarding modifications of the Mining Plan with the said Recognised Qualified Person on this following address.

V.RADHAKRISHNAN.M.Sc.,
Recognised Qualified Person
Reg.No.RQP/MAS/119/98/A
No.48/49, Renga Nagar 1ST Cross,
Ayyappa Nagar, K.K.Nagar Post,
Trichy District – 620 021.
Tamil Nadu State.

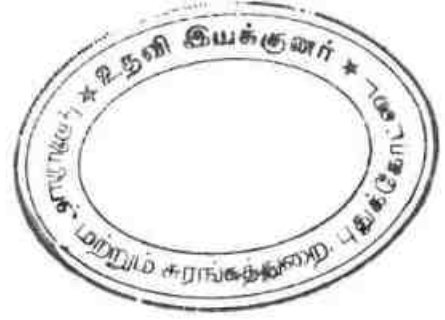
I hereby undertake that all modifications so made in the Mining Plan by the Recognised Qualified Person may be deemed to have been made with my knowledge and Own and shall be acceptable to me and building on me in all respects.


Signature of the Applicant
(P.Sabapathi)

Place : Pudukkottai

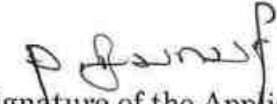
Date :

Thiru. P.Sabapathi,
S/o. Palaniyandi,
No. 971, Seethappatty, Mampatty,
Iluppur Taluk, Pudukkottai - 622 102



DECLARATION

The Mining Plan in respect of **Rough stone & Gravel quarry** over an extent of 1.18.5 hectares of Own / Consent Patta Land in S.F.Nos. 153/2 (0.02.5), 153/3 (0.79.0), 153/4A (0.10.5), 153/4B (0.06.0), 153/4C (0.05.5), 153/5 (0.15.0) of Veerapatti Village, Iluppur Taluk, Pudukkottai District and Tamil Nadu State has been prepared with my consultation and I have understood the contents and agree to implement the same in accordance with the Mining Laws.

x 
Signature of the Applicant
(P.Sabapathi)

Place : Pudukkottai

Date :

V.RADHAKRISHNAN.M.Sc.

Recognised Qualified Person,

Reg.No. RQP/MAS/119/98/A

No.48/49, Renga Nagar 1ST Cross,

Ayyappa Nagar, K.K.Nagar Post,

Trichy District – 620 021.

Tamil Nadu State.



CERTIFICATE

This is to certify that, the provisions of Minor Minerals Conservation and Development Rules, 2010 (MMCDR) have been observed in the Mining Plan for the grant of **Rough stone & Gravel quarry** lease over an extent of 1.18.5 hectares of Own / Consent Patta Land in S.F.Nos. 153/2 (0.02.5), 153/3 (0.79.0), 153/4A (0.10.5), 153/4B (0.06.0), 153/4C (0.05.5), 153/5 (0.15.0) of Veerapatti Village, Iluppur Taluk, Pudukkottai District, Tamil Nadu State applied by **Thiru. P.Sabapathi**.

Wherever specific permission / exemptions / relaxations or approvals are required, the applicant will approach the concerned authorities of State and Central Government for granting such permissions etc.,

Certified

Signature of Recognised Qualified Person
V. RADHAKRISHNAN, M.Sc.,
RECOGNISED QUALIFIED PERSON
Reg. No. RQP/MAS/119/98/A

Place : Trichy

Date :

V.RADHAKRISHNAN.M.Sc.

Recognised Qualified Person,

Reg.No. RQP/MAS/119/98/A

No.48/49, Renga Nagar 1ST Cross,

Ayyappa Nagar, K.K.Nagar Post,

Trichy District – 620 021.

Tamil Nadu State.



CERTIFICATE

Certified that, in preparation of Mining Plan for **Rough stone & Gravel quarry** over an extent of 1.18.5 hectares of Own / Consent Patta Land in S.F.Nos. 153/2 (0.02.5), 153/3 (0.79.0), 153/4A (0.10.5), 153/4B (0.06.0), 153/4C (0.05.5), 153/5 (0.15.0) of Veerapatti Village, Iluppur Taluk, Pudukkottai District and Tamilnadu State.

Thiru. P.Sabapathi covers all the provisions of Mines Act, Rules, and Regulations etc., made there under and whenever specific permission are required, the Applicant will approach the Director General of Mines Safety, Pudukkottai. The standards prescribed by DGMS in respect of Mines Health will be strictly implemented.

Certified

Signature of Recognised Qualified Person
V. RADHAKRISHNAN, M.Sc.,
RECOGNISED QUALIFIED PERSON
Reg. No. RQP/MAS/119/98/A

Place : Trichy

Date :

CERTIFICATE

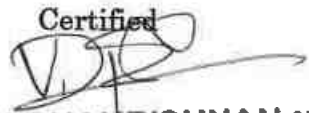


Certified that I am V. Radhakrishnan, M.Sc., residing at address No.48/49, Renga Nagar 1ST Cross, Ayyappa Nagar, K.K.Nagar Post, Trichy District - 620 021. Tamil Nadu State, holding a Post Graduate Degree in Geology (M.Sc., Geology) from Annamalai University, Chidambaram and I worked in the field of Geology in s role of Geologist.

IBM Rule 15 (I) (a) and (b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) **Concession Rule, 2016 stipulates 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 am prepared this Mining Plan for the grant of Rough stone & Gravel quarry over an extent of 1.18.5 hectares of Own / Consent Patta Land in S.F.Nos. 153/2 (0.02.5), 153/3 (0.79.0), 153/4A (0.10.5), 153/4B (0.06.0), 153/4C (0.05.5), 153/5 (0.15.0) of Veerapatti Village, Iluppur Taluk, Pudukkottai District, Since the Mining Plan is prepared as per the provisions contained in Rule 15(I)(a) and (I)(b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rule, 2016.

Certified


V. RADHAKRISHNAN, M.Sc.,
RECOGNISED QUALIFIED PERSON
Reg. No. RQP/MAS/119/98/A

MINING PLAN FOR MINOR MINERAL

ROUGH STONE & GRAVEL QUARRY

*(Prepared under 19, 20 41 & 42 Tamilnadu Minor Mineral Concession Rules, 1959
And amended Minor Mineral Conservation and Development Rules, 2010)*



1.0 INTRODUCTION

1. The present Mining Plan and Environmental Management Plan are prepared for Thiru. P.Sabapathi, S/o. Palaniyandi, residing at No. 971, Seethappatty, Mampatty, Iluppur Taluk, Pudukkottai - 622 102
2. The applicant proposed to quarry Rough stone & Gravel quarry in Own / Consent Patta Land, over an extent of 1.18.5 Ha at S.F.Nos. 153/2,3,4A,4B,4C & 5 of Veerapatti Village, Iluppur Taluk, and Pudukkottai District for a period of (Five) 5 Years Rough stone & Gravel only. The excavated Rough stone is used for building's basement stones and also used for crushing units and Gravel is used for filling and leveling of low lying areas of road projects and other infrastructure development work in and around the district.
3. The application was meritoriously processed and precise area communication letter issued by the District Collector, Pudukkottai District has passed an order vide R.c.No.694/2022 (G&M) dated 14.02.2023. The applicant to submit the Mining Plan and to get approval from the Assistant Director, Department of Geology & Mining, Pudukkottai District and to obtain Environmental Clearance from State Level Environment Impact Assessment Authority, Tamil Nadu State, as per EIA Notification 2006 and its amendments vide MOEF and Climate Change Notification. S.O.141 (E) dated 15.01.2016.
1. Geological Resources is estimated at 6,76,000m³ of Rough stone and 12,530m³ Gravel upto a depth of 67.0m and Mineable Reserves is estimated at 8,820m³ of Gravel & 1,00,727m³ of Rough stone upto a depth of 42.0m (max) below ground level. The proposed quarry area should be maintain the safety distance of 10m for the Government Poramboke Quarry located in S.F.Nos.155 on Northwestern side and 7.5m for the Adjoining Patta land from the lease applied area as indicated in precise area communication letter and relevant mining laws in force.

2. Production Schedule is proposed an average production of 1,00,727m³ of Rough stone & 8,820m³ Gravel up to a depth of 42.0m (Max) (2.0m Gravel and 40m Rough stone) for the period of (Five) 5 Years only.
3. Safety measures under mechanized loading as per the provisions Reg.106(2)(b) of Metalliferous Mines Regulation-1961, Labour welfare Amenities as per the Mines Rules -1955 and amended DGMS circular shall be taken care of in preparation of Mining Plan

ENVIRONMENTAL PARAMETERS,

(i) Forest Conservation Act, 1980:

1) Narthamalai R.F – 7.6km - NE

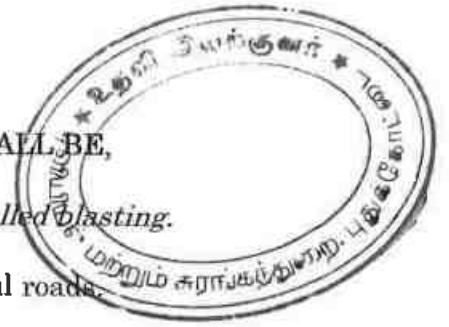
(ii) Wildlife (Protection) Act, 1972: The area does not attract the wild life sanctuary around 10Kms radius.

(iii) The Coastal Regulation Zone (CRZ) Notification 2011: The area does not attract the Coastal zone around 10kms radius.

(iv) Infrastructure around 500m radius : Nil

I. ENVIRONMENTAL MEASURES TO BE ADOPTED SHALL BE,

- 1) Dust Control at source while *wet drilling* and *controlled blasting*.
- 2) Dust suppression at loading point and transport haul roads.
- 3) Noise Control in Blasting, control of fly rock missiles and Vibration by doing peak particle velocity with in standard as prescribed by the DGMS and MOEF.
- 4) Unnecessary land degradation should be avoided or damaged land should be reclaimed or rehabilitated.
- 5) Avoid uneven rat hole mining and follow scientific and systematic mining by safe bench system of open cast mining.
- 6) Mining near major fracture zones if any should be avoided to control ground water fluctuation in the adjacent agricultural lands.
- 7) Emission test of vehicles should be in tack to maintain minimum emission level of fuel gases.
- 8) Noise level should not exceed *80db* and the vehicles should use only permitted Air Horn while on road near residential areas.
- 9) Safety zones as prescribed by the Department of Geology and Mining from adjacent infrastructures should be strictly to adhere to.
- 10) Any other conditions as stipulated by the concerned authorities should be followed to protect the Environment and Ecology of the area.

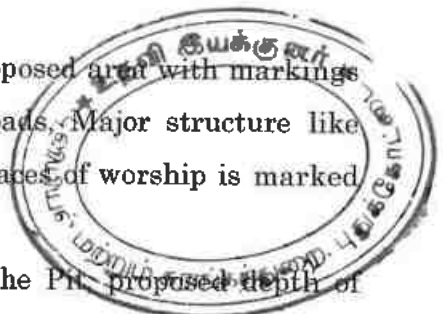


2.0. EXECUTIVE SUMMARY

The area applied for lease is a Rough stone & Gravel quarry in Own / Consent Patta Land at Survey Numbers – 153/2,3,4A,4B,4C & 5 of Veerapatti Village, Puppur Taluk, and Pudukkottai District.



- a. The proposed Total Minalable Reserves –8,820m³ of Gravel & 1,00,727m³ of Rough stone formation.
- b. Production Schedule is proposed an average production of 1,00,727m³ of Rough stone & 8,820m³ of Gravel up to a depth of 42.0m(Max) (2.0m Gravel and 40m Rough stone) for the period of (Five) 5 Years only
- c. Total extent of the area –1.18.5 Ha
- d. Proposed Lease Period –(Five) 5 Years only
- e. Existing depth of mining – 19.0m(Max) below ground level
- f. Proposed Depth of mining – 42.0m(Max) below ground level
- g. Method of mining / level of mechanization - Opencast, Semi-mechanized Mining with a bench height of 5.0m & width of 5.0m is proposed and involves shallow Jackhammer drilling, Slurry blasting is proposed for this quarrying operation.
- h. Types of Machinerries used in the quarry –Jack hammer 30-32mm dia, Tractor mounted compressor attached with Jack hammer.
Excavator of 0.9m³ bucket capacity is attached with Rock breaker is proposed to deploy for quarrying operation. Total consumption of Diesel for Rough stone & Gravel is around= 82,046 Liters of HSD for the entire period of life of the quarry.
- i. No Trees will be uprooted due to this quarrying operation.
- j. The existing road from the main road to quarry is in good condition and the Same will be maintained and utilized for Transportation of Rough stone & Gravel.
- k. There is no Export of this quarrying Rough stone & Gravel.

- 
- l. Topo sketch covering 10Km,500m radius around the proposed area with markings of Habitations, Water bodies like Streams, Rivers, Roads, Major structure like Bridges, Wells, Archeological, Historical importance, Places of worship is marked and enclosed as Plate No. IV & V
 - m. The diagram showing the Mining area, dimensions of the PH, proposed depth of mining for the mining plan period are enclosed as Plate No -VI
 - n. The lease applied area is 10Km away from the Inter State boundary, protected area under Wildlife Production Act 1972, critically polluted area as identified by CPCB and notified Eco sensitive areas.
 - o. There are no wastages anticipated during this quarry operation, hence waste dump is not proposed in this lease applied area.
 - p. Around 36 Employees are deploying in this quarrying operation.

1. The lease applied area is bounded by all corners and the coordinates are clearly marked in Plate no - VI

Table -1

BOUNDARY CO-ORDINATES		
LABEL	LATITUDE	LONGITUDE
1	10° 27' 57.37" N	78° 40' 7.18" E
2	10° 27' 58.94" N	78° 40' 7.71" E
3	10° 27' 59.16" N	78° 40' 8.88" E
4	10° 27' 59.47" N	78° 40' 9.23" E
5	10° 27' 58.90" N	78° 40' 10.07" E
6	10° 27' 58.30" N	78° 40' 12.02" E
7	10° 27' 56.51" N	78° 40' 11.51" E
8	10° 27' 56.35" N	78° 40' 11.01" E
9	10° 27' 56.65" N	78° 40' 10.41" E
10	10° 27' 55.25" N	78° 40' 10.03" E
11	10° 27' 54.69" N	78° 40' 10.62" E
12	10° 27' 53.79" N	78° 40' 10.41" E
13	10° 27' 54.07" N	78° 40' 09.36" E
14	10° 27' 55.23" N	78° 40' 09.58" E
15	10° 27' 55.39" N	78° 40' 08.92" E
16	10° 27' 56.08" N	78° 40' 09.09" E
WGS - 84 DATUM		

PART - A

3.0. GENERAL INFORMATION:

3.1. Name of the Applicant with Address, contact no, email etc.

Name : **Thiru.P.Sabapathi,**
S/o. Palaniyandi,
No. 971, Seethappatty, Mampatty,
Iluppur Taluk,
District : **Pudukkottai**
State : **Tamilnadu**
Pin code : **622 102**
Contact : **8523935617**



3.2. Status of the Applicant (Individual / Company / Firm)

The applicant is a Private Individual.

3.3. Mineral which the Applicant intends to mine

Rough stone & Gravel only.

3.4. Precise area communication Letter details received from the competent authority of the government.

Precise area communication letter issued from the District Collector, Pudukkottai vide R.c.No.694/2022 (G&M) dated 14.02.2023

3.5. Period of permission / lease to be granted

The applicant has applied permission for Five years. The Assistant Director, Geology and Mining consider grant for a lease period of (Five) 5 Years only.

3.6. Name and Address of the RQP/Authorized person for preparing the Mining Plan

Name : **V.RADHAKRISHNAN. M.Sc.,**
Address : **No.48/49, Renga Nagar 1ST Cross,**
Ayyappa Nagar, K.K.Nagar Post,
Trichy District – 620 021.
Tamil Nadu State.
Registration Number : **RQP/MAS/119/98/A**

4.0. LOCATION:

Table No: 2

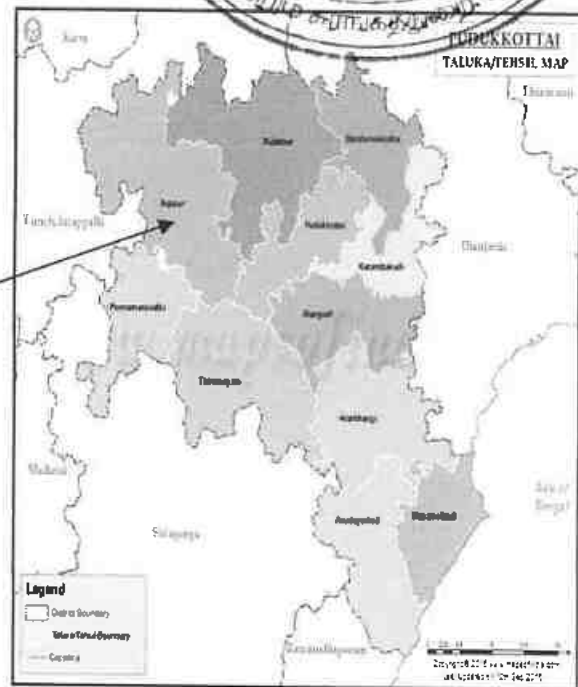
State	Tamil Nadu
District	Pudukkottai
Taluk	Iluppur
Village	Veerapatti
S.F.Nos	153/2,3,4A,4B,4C & 5
Extent in (Ha)	1.18.5Hectare

**4.1. Details of Existence of public road /railway line, if any nearby and approximate distance.**

Table No: 3

S.No	Description	Place	Distance (Km)	Direction
1	Bus stop	Annavaasal	5.3	SE
2	Post Office	Annavaasal	5.3	SE
3	Police Station	Annavaasal	5.3	SE
4	Fire service	Annavaasal	5.3	SE
5	Railway Station	Vellanur	13.8	E
6	Government Hospital	Annavaasal	5.3	SE
7	Government School	Annavaasal	5.3	SE
8	Airport	Trichy	33.0	NE

Location site of Thiru. P.Sabapathi, Veerapatti Village, Huppur Taluk,
Pudukkottai District.



Classification of the Area (Ryotwari / Poramboke /Patta/ others)

- It is an Applicant Own / Consent Patta Land and non-agricultural land

a. Ownership / Occupancy of the applied area (Surface rights)

- It is Own / Consent Patta land registered in the name of Applicant Thiru. P.Sabapathi & Thiru. Ramasamy vide Patta No – 3578
- The applicant has got surface rights Please refer Annexure-IV

b. Toposheet No. with Latitude and Longitude

Toposheet No: 58– J / 11

Latitude : 10°27'53.79"N to 10°27'59.47"N

Longitude : 78°40'07.18"E to 78°40'12.02"E

5.0. GEOLOGY AND MINERAL RESERVES

5.1. Topography:

- ❖ The lease applied area is exhibits Plain terrain topography covered by gravel and rough stone formation.
- ❖ The Rough stone and gravel formation is clearly visible to quarried pit of the lease applied area gentle sloping towards southeastern side of the area, the altitude of the area is above 130.0m MSL.
- ❖ No major river is found nearby the lease applied area.
- ❖ Water Level is found at a depth of 70m to 75m below Ground Level, 70m in Rainy seasons and 75m in summer seasons by monitoring nearby bore hole.
- ❖ Temperature of the area is reported to be 18°C to a maximum of 42°C during summer.
- ❖ Rainfall of this area is about 800mm to 900mm during the both NE & SW monsoons.

5.2. General Geology of the area (with plans):

- ❖ The area is underlain by the wide range of metamorphic rocks of peninsular gneissic complex. These rocks are extensively weathered and overlain by the recent valley fills and alluvium at places.
- ❖ The geological formations found in the district are Archaean rocks like Gneisses, Granites, granitic gneiss basic granulites and calc-gneisses. The younger formations are Quartz veins and pegmatite.
- ❖ The rock type noticed in the area for lease is granitic gneiss which contains mostly Quartz and Feldspar with some ferromagnesian minerals.
- ❖ The granitic gneiss is part of peninsular Gneisses, a high grade metamorphic rock.
- ❖ The strike of the granitic gneiss formation is $N45^{\circ}W-S45^{\circ}E$ with dipping towards $SE30^{\circ}$.

The General Geological succession of the area is given as under.

Age	Formation
Recent	- Quaternary to recent formation (Gravel)
----- Unconformity -----	
Archaean	- granitic gneiss Peninsular Gneiss complex

5.3. Details of Exploration already carried out if any:

- ❖ There is no exploration carried out in this applied quarry area.
- ❖ State Geology and Mining Department Government of Tamilnadu has been carried out geological exploration and regional mapping study of the lease area.
- ❖ Geological Survey of India has carried out detailed mapping in Pudukkottai District.
- ❖ Besides the RQP and his Team members made a detailed geological study of the area the massive Rough stone & Gravel formation is clearly inferred from the visible in nearby quarried pit of the lease applied area.

PROPOSED QUARRY SITE PHOTOS



5.3. a. Estimation of Reserves (Geological Resources with geological Sections on a scale of 1:1000)

- ❖ As far as Rough stone & Gravel is concerned, the only practical method is the systematic geological mapping and delineation of Rough stone & Gravel within the field and careful evaluation of body lustre, physical properties, engineering properties, commercial aspects etc.,
- ❖ Totally Four sections have been drawn, Two sections drawn length wise as (X-Y) & (X1-Y1) another Two Sections drawn width wise as (A-B) & (C-D) to cover maximum area considered for lease.
- ❖ The Topographical, Geological plan and sections demarcated the commercial, marketable Rough stone & Gravel deposit has been prepared in Scale 1:1000 and Sections have been drawn with a scale of Hor 1:1000 and Ver 1:500 respectively.
- ❖ Please refer Plate No. VII, VII-A & VII-B as Rough stone & Gravel are terms of Cubic Meters (Volume) only and not for in terms of Tonnage calculations.

I. GEOLOGICAL RESOURCES :

The Geological Resources is estimated as 6,76,000 m³ of Rough stone & 12,530m³ Gravel up to a depth of 67.0m (2.0m Gravel & 65m Rough stone).

Table No: 4

GEOLOGICAL RESOURCES						
Section	Length in (m)	Width in (m)	Depth in (m)	Volume m ³	Geological Resources of Gravel in m ³	Geological Resources of Rough stone in m ³
XY-AB	53	24	2	2544	2544	
	53	56	65	192920		192920
XY-CD	45	49	2	4410	4410	
	63	64	65	262080		262080
X1Y1-AB	82	34	2	5576	5576	
	100	34	65	221000		221000
TOTAL					12530	676000

Existing Quarry Pit Dimension

Pit	Length in (m)	Width in (Avg) (m)	Depth in (m)
I	19	17	6.0 bgl
II	52	15	7.0 bgl
III	53	25	19.0 bgl
IV	33	20	10.0 bgl

II. AVAILABLE MINEABLE RESERVES:

The available Mineable Reserves are calculated by deducting the safety distance of 10m for the Government Poramboke Quarry located in S.F.No.155 on Northwestern side and 7.5m for the Adjoining Patta land from the lease area and bench loss as height 5.0m and width 5.0m.



Table No-5

MINEABLE RESERVES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Gravel Formation in m ³	Mineable Reserves of Rough stone in m ³
XY-AB	130-128	43	17	2	1462	1462	
	128-123	43	17	5	3655		3655
	123-118	43	17	5	3655		3655
	118-113	43	17	5	3655		3655
	113-108	43	17	2	1462		1462
	113-108	43	49	3	6321		6321
	108-103	38	44	5	8360		8360
	103-98	33	39	5	6435		6435
	98-93	28	34	5	4760		4760
	93-88	23	29	5	3335		3335
TOTAL						1462	41638
XY-CD	130-128	55	34	2	3740	3740	
	128-123	55	34	5	9350		9350
	123-118	38	29	3	3306		3306
	123-118	38	44	2	3344		3344
	118-113	38	39	5	7410		7410
	113-108	39	29	2	2262		2262
	113-108	56	29	3	4872		4872
	108-103	50	19	5	4750		4750
TOTAL						3740	35294
X1Y1-AB	130-128	67	27	2	3618	3618	
	128-123	67	27	5	9045		9045
	123-118	80	22	5	8800		8800
	118-113	70	17	5	5950		5950
TOTAL						3618	23795
GRAND TOTAL						8820	100727

The available Mineable Reserves is computed as 1,00,727m³ of Rough stone and 8,820m³ of Gravel formation at the rate of 100% recovery upto a depth of 42.0m(Max) (2.0m Gravel & 40m Rough stone).

6.0. MINING

6.1. Method of Mining (Open cast / Underground)

Opencast method of semi mechanized mining with 5.0m vertical bench height and width 5.0m of the bench is not less than bench height.

However, as far as the quarrying of Rough stone & Gravel is concerned, observance of the provisions of Regulation 106 (2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of mines safety for which necessary provision is available with the regulation 106 (2) (b) of MMR-1961, under Mine Act-1952.

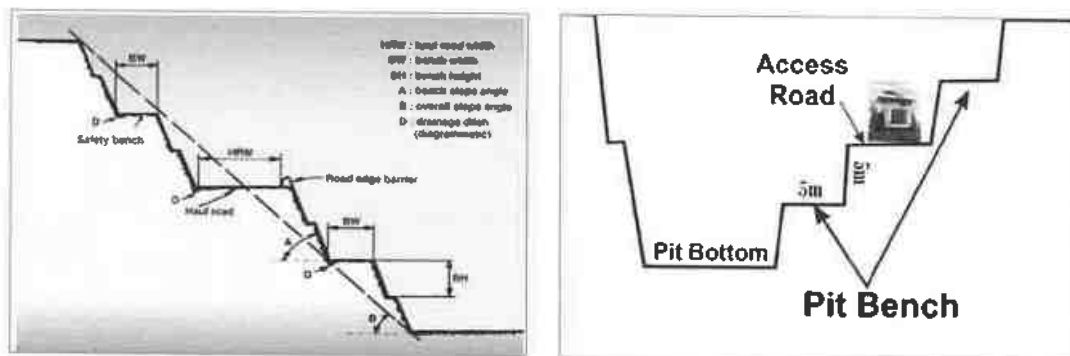


Figure shows Open pit Mining method

6.2. Mode of Working (Mechanized, Semi-mechanized, Manual)

- ❖ The Rough stone is proposed to quarry 5.0m bench height and 5.0m bench width with conventional opencast semi-Mechanized method. The quarrying operation involves manual Jackhammer drilling, Slurry explosives blasting, loading and transportation of Rough stone & Gravel to the needy nearby crusher units, road formation filling purpose of low lying area for road project works of residential and industrial customers.
- ❖ 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.
- ❖ The splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting ,hydraulic excavators are used for loading of Rough stone & Gravel from pithead to the needy crushers.
- ❖ The hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting.

- ❖ The primary boulders thus splitted are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators. It is a conventional opencast semi mechanized method of mining.

6.3. Proposed bench Height and Width

- ❖ The quarrying of Rough stone is proposed to the safely bench height of 5.0m and bench width of 5.0m.

6.4. Indicate the overburden/mineral production expected pit wise as detailed as below (Composite plan and section showing pit layout, dumps, disposal of waste if any etc.,)

The excavated Rough stone & Gravel will be directly loaded into Tippers to the needy crushers / Customers site. The Composite Plan, Development Plan and section indicating pit layout, Green belt development are shown in Plate No. VII.

III. RECOVERABLE RESERVES :

The Year wise Recoverable Reserves are calculated by deducting the safety distance of 10m for the Government Poramboke quarry located in S.F.No.155 on Northwestern side and 7.5m for the Adjoining Patta land from the lease applied area and bench loss as height 5.0m and width 5.0m. (Table-6)

YEARWISE DEVELOPMENT & PRODUCTION RESERVES								
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m³	Gravel Formation in m³	Recoverable Reserves of Rough stone in m³
I	XY-AB	130-128	43	17	2	1462	1462	
		128-123	43	17	5	3655		3655
		123-118	43	17	5	3655		3655
	XY-CD	130-128	55	34	2	3740	3740	
		128-123	55	34	5	9350		9350
		123-118	38	29	3	3306		3306
		123-118	38	44	2	3344		3344
TOTAL						5202	23310	
II	X1Y1-AB	130-128	67	27	2	3618	3618	
		128-123	67	27	5	9045		9045
		123-118	80	22	5	8800		8800
	XY-AB	118-113	43	17	5	3655		3655
TOTAL						3618	21500	
III	XY-AB	113-108	43	17	2	1462		1462
		113-108	43	49	3	6321		6321
	XY-CD	118-113	38	39	5	7410		7410
		113-108	39	29	2	2262		2262
		113-108	56	29	3	4872		4872
TOTAL							22327	

IV	XY-AB	108-103	38	44	5	8360	8360
		103-98	33	39	5	6435	6435
	XY-CD	108-103	50	19	5	4750	4750
TOTAL							19545
V	XY-AB	98-93	28	34	5	4760	4760
		93-88	23	29	5	3335	3335
	X1Y1-AB	118-113	70	17	5	5950	5950
TOTAL							14045
GRAND TOTAL							8820 100727

- Recoverable Reserves are estimated 1,00,727m³ of Rough stone and 8,820m³ of Gravel up to depth of 42.0m(Max) (2.0m Gravel & 40m Rough stone) for the lease period of (Five) 5 Years only.

Production quantity per day (1Load=6m³approx) (1Year=260 Working days)

Rough stone quantity = 1,00,727m³ / 16,787 Loads
= 16,787 / 1300 days (5 years)
= 78m³ or 13 Lorry Loads per day

Gravel quantity = 8,820m³ / 1,470 Loads
= 1,470 / 520 days (2 years)
= 18m³ or 3 Lorry Loads per day

The applicant ensures the total quantity of proposed reserves in benches will not exceed the quarrying operation. Besides the Rough stone & Gravel locked up in bench loss will be exploited after obtaining necessary permission from Director General of Mines Safety, Pudukkottai region by submit the relevant documents, appropriate safety plans and its necessary mitigation safety measures.

6.5. MACHINERIES TO BE USED

a. Mining

It is proposed to use the following machineries on rental basis for the development and production work in this quarrying operation,

S.No	Type	Dia Hole mm	Size capacity	Make	Motive Power
1	Jack Hammer	32	1.2m to 6m	Atlas Copco	Compressed air
2	Compressor	-	400psi	Atlas Copco	Diesel Drive

b. Loading

Manual loading (considerable Rough stone & Gravel accumulates the same will be loaded by Hired front end loader like JCB) Excavator of 0.90m³ bucket capacity (with Rock breaker attachment)

S.No	Type	Bucket capacity	Make	Motive Power
1	Excavator	0.90m ³	Tata Hitachi - 210	Diesel Drive

c. Transportation

Tippers/Trucks = 5Nos. 10 /20Tons capacity (from the quarry to destination (customer/other buyers))

S.No	Type	Capacity	Make	Motive Power
1	Tippers	10/20 Tons	Tata Tipper	Diesel Drive

IMAGES OF MACHINERIES



EXCAVATOR



TATA TIPPER



JACK HAMMER

6.6. Energy

The Electricity for Mines office and Lights only at nights (working is restricted on day time only between 9 Am to 5 Pm). Diesel (HSD) will be used for quarrying machineries around 82,046 Liters of HSD will be used for the entire project life. Diesel will be brought from nearby diesel pumps. Lightings on the Night time the power will be taken from nearby electric poles after obtaining permission from concerned authorities.

1. Gravel:

The Excavator will consume	= 10 Liters / 1 hour
The Excavator will excavate	= 60m ³ of Gravel
Gravel quantity	= 8,820 / 60= 147 hours
Diesel consume	= 147 hours x 10 liters

Total diesel consumption= 1,470 Liters of HSD will be utilized for this Gravel Quarry.

2. Rough stone :

The Excavator will consume	= 16 Liters / 1 hour
The Excavator will excavate	= 20m ³ of Rough stone
Rough stone quantity	= 1,00,727 / 20 = 5,036 hours
Diesel consume	= 5,036 hours x 16 liters

Total diesel consumption= 80,576 Liters of HSD will be utilized for this Rough stone Quarry.

Total consumption for Rough stone & Gravel is around = 82,046 Liters of HSD for the entire period of life

6.7. Disposal of Overburden/Waste

The over burden in the form of Gravel is 8,820m³ of used for filling and leveling of low lying areas of road projects and other infrastructure development work in and around the district.

6.8. Brief Note on Conceptual Mining Plan for the entire lease period

Conceptual Mining Plan is prepared with an object of (Five)5 Years of systematic development of bench lay outs, selection of ultimate pit limit, depth of quarrying, ultimate pit slope, selection of sites for construction of infrastructures etc.,

Ultimate pit size is designed based on certain practical factors such as the economical depth of mining, safety zones, permissible areas etc.,

Ultimate Pit dimension is given as under

Pit	Length in (m)	Width in Avg (m)	Depth in Max (m)
I	98	62	42.0m (Bgl)

Afforestation has been proposed on all along the safety barrier by planting native species of Saplings. All the baseline information studies like Air Quality monitoring, Noise and Vibration monitoring, Water Analysis studies will be carried out every year as per the MOEF norms. It is proposed to engage any local institution to monitor the EIA and EMP studies during the course of quarrying operation after the grant of quarry lease.

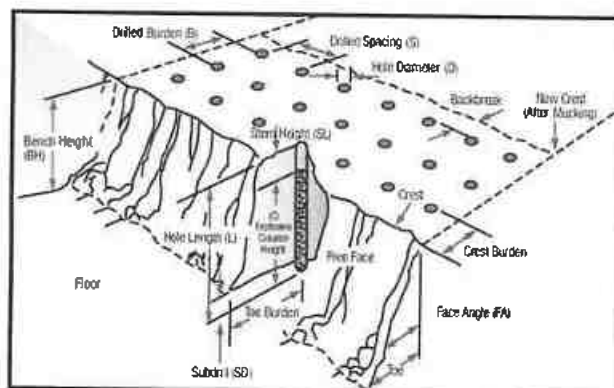
7.0. BLASTING

7.1. Blasting Pattern:

The massive formation shall be broken into pieces of portable size by drilling and blasting using jack hammers and shot hole blasting. Powder factor of explosives for breaking such hard rock shall be in the order of 6 to 7 Tonnes per K.g of explosives. Blasting parameters are as follows.

Drilling and blasting parameters are as follows

Diameter of the hole	: 30-32 mm
Spacing between holes	: 1.2m
Depth of each hole	: 1 to 1.5m
Burden for hole	: 1.0m
Inclination of hole	: 80° from the horizontal
Use of delay detonators	: 25 millisecond
Detonating fuse	: Detonating cord
Blasting Design	: Staggered "V" Pattern



7.2. Types of Explosives

Small dia, 45mm Slurry explosive 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



7.3. Measures proposed to minimize ground vibration due to blasting

- ❖ Controlled blasting measures will be adopted for minimizing ground vibration and fly of rocks. Shallow depth drilling and smooth blasting is proposed to carry out with minimum usage of explosive mainly to give shattering effect in Rough stone for easy excavation and control of fly rocks.
- ❖ The following steps shall be adopted to control ground vibration due to blasting. The minimum recommended delay time of 8ms was introduced to minimize ground vibration.
- ❖ In case of electronic detonators, which are inherently much more accurate delays (+/- 0.2 milliseconds delay) to minimizes the ground vibration reduction in air, reduction over break, improved well fragmentation and better control of fly-rocks.
- ❖ Use of Ammonium nitrate, fuel oil mixture for shot holes may be avoided because which cause for high fly of rocks in view critical diameter problem. Only high strength explosives like slurry will be used in the form of cartridge.

7.4. Storage of Explosives and safety measures to be taken while blasting.

- ❖ The Applicant is advised to engage an authorized explosive agency to carry out small amount of blasting and it will be supervised by the competent statutory Mining Mate /Foreman /Manager. The explosive agency should have the valid Blaster Certificate.
- ❖ He will blast holes in quarry site. After completion the blasting, the agency will take it out back the remaining quantity of explosives to the temporarily available the Magazine at the quarry site. The blasting time of the day is proposed to be 1 PM to 2.30PM.
- ❖ First Aid Box will be keeping ready at all the time in Mines Office room. Necessary precautionary announcement will be carried out before the blasting operation.

8.0. MINE DRAINAGE



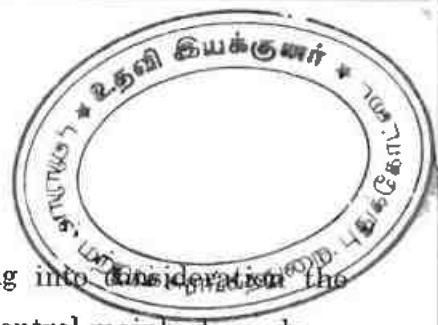
8.1. Depth of Water Level

- ❖ The ground Water Level is noticed at the depth of 70m to 75m below Ground Level by monitoring nearby bore hole, during the climatic conditions, the fluctuations of water level is 70m in Rainy seasons and 75m in Summer seasons of this quarry area.
- ❖ The quarry operation is proposed upto a depth of 42.0m (Max) (2.0m Gravel & 40.0m Rough stone). Hence the quarrying operation may not affect the ground water in any manner.
- ❖ It shall be ensured that quarrying shall not be carried out below ground water table under any circumstances.
- ❖ *If ground water table occurs/intervenes within the permitted depth, then also the quarrying shall be stopped.*

8.2. Arrangement and Places where the mine water is finally proposed to be discharged

- ❖ The ground water may not rise immediately in this type of mining. However, the rain water percolation and collection of from seepage shall be less than 300LPM and it will be pumped out periodically by a stand by diesel powered Centrifugal pump with 5HP Motor.
- ❖ The quality of water is potable and no contamination with any hazardous things.
- ❖ Hence, the water stored in quarrying pit will be pumped out the adjacent agricultural fields and further stored in old pit the water is used for Dust suppression/ Plantation purposes.

9.0. ECOLOGY AND BIODIVERSITY



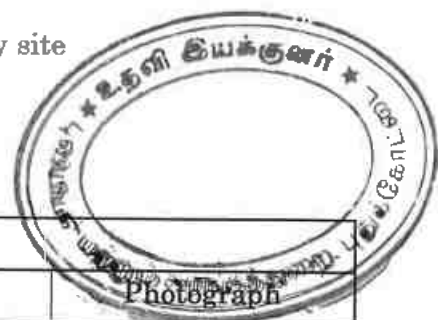
The green belt in the lease area be developed taking into consideration the availability of area as the efficiency of green belt in pollution control mainly depends on tree species, its width, distance from pollution sources, side of the habitat from working place and tree height. The proposed green belt should be designed to control PM10, gaseous pollutants, noise, surface run off and soil erosion etc., While considering the above aspects due care should be taken for selecting the suitable characteristics plant species such as fast growing, locally suitable plant species, resistant to specific pollutant and those which would maintain the regional ecological balance, soil and hydrological conditions.



Flora as observed and identified in the field are covered by mostly Neem, Erukku, Panai trees, Palmira tree are found more on regional scale. The Applicant has developed trees like Neem, Pungam, Teak, Caesarians and Eucalyptus, regional trees etc., with Proper nursery garden and plantation on vacant land. The fauna species observed around the 500m radius of the project site is given in the table.

List of Flora observed around the quarry site
(Flora Trees & Flora Shrubs)

Table No: 7



Flora - Trees			
S.No	Tamil Name	Botanical Name	Photograph
1	Neem tree	Azadirachataindica	
2	Panai tree	Borassusflabellifer	
3	MulluMaram	Prosopisjuliflora	
4	Punga Maram	Millettia pinnata	
5	SavukkuMaram	Casuarinacunninghamiana	

Flora - Shrubs			
1	Korai	CyperusPangorei	
2	Avaram	Senna articulate	
3	Erukku	Calotropis	
4	Mookuthichedi	Tridaxprocumbens	
5	Musumusukkai	Melothria	

List of Fauna observed around the quarry site
(Fauna Mammals & Fauna Avian)

Table No: 8



Fauna Mammals			
S.No	Common Name	scientific name	Photograph
1	Anil	FunambulusPalmarum	
2	Thavalai	Cane toad	
3	Keeri	HerpestesEdwardsii	
4	Rabbit	Oryctolaguscuniculus	
Avian Fauna			
1	Crow	CorvusSplendens	
2	Myna	Acridotherestrictis	
3	Chittukuruvi	SaxicoloidesFulicatus	
4	Parunthu	Haliastur Indus	

10.0. OTHER PERMANENT STRUCTURES



10.1. *Habitations / Village Natham (300m)*

- ❖ There are no inhabited sites within the radius of 300m from the boundary of lease area under Rule 36(1-A) (a) TNMMCR 1959.
- ❖ The Nearest Village habitation is Veerapatti at the distance of 1.5km on Northwestern side of the lease area.
- ❖ The applicant ensures the quarrying operation will be carried out without any hindrance to the habitants and adjoining land owners.

10.2. *Power lines (HT/LT) (50m)*

- ❖ There is no HT/LT line within the radius of 50m.

10.3. *Water bodies (River, Pond, Lake, Odai, Channel etc.,) (50m)*

- ❖ There is no water bodies within the radius of 50m.

10.4. *Archeological / Historical Monuments (500m)*

- ❖ There are no Archeological / Historical Monuments within a radius of 500m from the boundary of lease applied area.

10.5. *Existence of public road (SH, NH others), Railway line if any (50m)*

- ❖ There is an existing road from the area leads Kalladipatti road at the Northern side of the area.
- ❖ SH - 71 Iluppur to Annavasal is located which is about 1.8 Km on the Northern side of the area.
- ❖ NH-336 Pudukkottai to Keeranur is located which is about 12.0 Km on the Eastern side of the area.
- ❖ The Nearest Railway line is Vellanur station line which is about 13.8Km on the Eastern side of the area.

10.6. *Places of Worship (Temples, Church, Mosque etc.,) (500m)*

- ❖ There is no Places of Worship within a radius of 500m.

10.7. *Reserved Forest / Forest / Wild Life Sanctuary etc., (10Km)*

1. Narthamalai R.F – 7.6km - NE

10.8. *Any Other Structures : Nil*

11.0. EMPLOYMENT POTENTIAL & WELFARE MEASURES:

11.1. Employment Potential (Management & Supervisory personal)

The following man powers are proposed carry out the day to day quarrying activities at the proposed production and also comply with the statutory provision of the MMR 1961.

Management and Supervisor:

- | | |
|--|--------|
| 1. Second Class Mines Manager (with valid statutory qualification) | : 1 No |
| 2. Mines Foreman (with valid statutory qualification) | : 1 No |
| 3. Mines Mate (with valid statutory qualification) | : 1 No |
| 4. Blaster | : 1 No |

Laborers, Skilled, Semi-Skilled & Un-skilled

- | | |
|--|----------------|
| a. Skilled (Operators- Excavator & Jackhammer) | : 2Nos |
| b. Semi-skilled (Driver) | : 2Nos |
| c. Unskilled (Musdoor/Labours, Cleaners & Watch man) | : 28Nos |
| Total | : 36Nos |

Allowing 10% absenteeism, the no. of men of roll will be around 33 Nos.

It is been ensured that, *Child Labours under 18 Years of age will not be engaged for any quarrying operation.*

Necessary Life Insurance policies will be taken by the applicant to all the employees up to the end of the lease period.

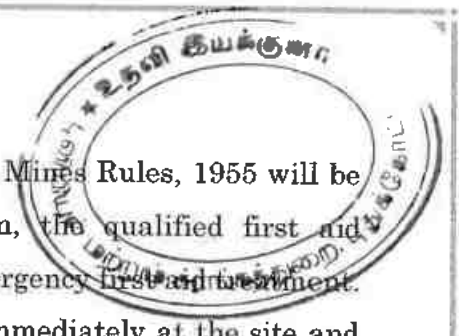
11.2. Welfare Measures

a. Drinking Water

- ❖ Drinking water is available from the nearby agriculture land owners or from water vendors in Veerapatti Village which is about 1.7km on Northwestern side of the lease applied area.

b. Sanitary facilities

- ❖ Semi-permanent latrines & urinals shall be maintained at convenient places for use of Labours as per the provisions of Rule (33) of the Mines Rules, 1955 separately for males and females. Washing facilities shall also be arranged as per Rule (36) of Mines Rules, 1955 and it will be maintained periodically.



c. First Aid Facility

- ❖ First Aid station as per provisions under Rule (44) of the Mines Rules, 1955 will be provided and First aid kits kept in mines office room, the qualified first aid personnel should be appointed or nominated to attend emergency first aid treatment.
- ❖ In case of eventuality, the victim will be given first aid immediately at the site and the injured person will be taken to the Gandharvakottai is about 11.2Km on Southeastern side. The competent and statutory of Foreman/Mate/Permit Manager will be incharge of the First aid.

d. Labour Health

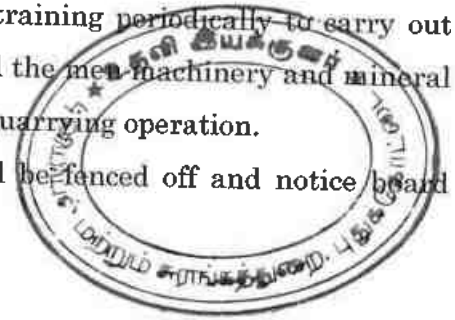
- ❖ Periodic medical examination has to be arranged for occupational health once in a year in addition to attending medical treatment of occupational injuries under the Rule 45(A), Mines Rules, 1955.

e. Precautionary safety measures to the Laborers

Safety measures will be implemented to prevent access in the excavation area an un authorized persons as per Mine Act 1952 and MMR 1961.

- ❖ *Safety measures will be implemented as per Mines Act 1952, MMR 1961 AND Mines Rules 1955.*
- ❖ *Provisions of MMR 1961 shall be strictly followed and all mine roads shall be wider than the height of bench or equal to the height of the bench and have a gradient of not more than 1 in 16.*
- ❖ *The bench height will be 5.0m.*
- ❖ *Protective equipment like dust mask, ear-plugs/muffs, sand respirator (avoid silica dusts forms-Silicosis), reflector jackets, safety thick shoes, etc., as Personnel Productive Equipment (PPE) as per the circulars and amendments made for Mine Labour under the guidance of DGMS.*
- ❖ *Notice giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries.*
- ❖ *Danger signs shall be displayed near the excavations and proper signal bt siren alarm will be provide before blasting time to prevent any accident.*
- ❖ *Security guards will be provided.*
- ❖ *Periodically medical checkup will be conducted for all workers for any mine health problems.*
- ❖ *Proper training and induction will be given by qualified and experienced safety officer to all employees about the safe and systematic quarrying operation.*

- ❖ The drillers and workers are sent for vocational training periodically to carry out the quarrying operations scientifically to safeguard the men, machinery and mineral and to create awareness of conventional opencast quarrying operation.
- ❖ In the event of temporary closer, approaches will be fenced off and notice board displayed.



f. Disaster Management and Risk Assessment

This should deal with action plan for risk accident like landslides. Subsidence, flood, fire, seismic activities, tailing dam failure etc. and emergency plan proposed for quick excavation. Ameliorative measures to be taken etc. The capability of applicant to meet such eventualities and the assistance to be required from the local authorities should be described.

- The mechanized mining activities in the area may involve any risk accident due to side falls/collapse, flying stones because of blasting etc.
- The complete mining operation will be carried out under the Management and control of experienced and with Mines Manager having Certificate of Competency to manage the mine granted by DGMS.
- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, TNMCR 1959 and other laws applicable to mine will be strictly complied with.
- During heavy rainfall the mining activities will be suspended.
- All persons in supervisory capacity will be provided with communication facilities.
- Competent Persons will be provided FIRST AID kits which they will always carry.
- The Greenbelt Development will be formed in around the quarried out top benches and panchayat roads of the lease applied area.

g. care and Maintenance during Temporary Discontinuance

In case of any temporary discontinuance due to court order or due to statutory requirement or any other unforeseen circumstance following measures shall be taken for care, maintenance and monitoring of conditions.

- Notice of temporary discontinuance of work in mine shall be given to the DGMS as per MMR 1961.
- All the mining machinery shall be shifted to the safe place.
- Entrance to the mine or part of the mine, to be discontinued shall be fenced off. Fencing shall be as per the circular 11/1959 from DGMS.

PART - B



12.0. ENVIRONMENTAL MANAGEMENT

12.1. Existing Land Use Pattern

The area is exhibit Plain Terrain topography. The applied area is already quarried and devoid of agriculture and habitations and the area is not used for the specific vegetation. The surrounding area is practiced by the seasonal cultivation.

The existing Land use pattern is given as under

Table No-9

S. No.	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)
1.	Quarrying Pit	0.31.8	0.60.7
2.	Infrastructure	0.01.0	0.03.0
3.	Roads	0.01.0	0.02.0
4.	Green Belt	0.02.0	0.35.8
5.	Unutilized	0.82.7	0.17.0
	Total	1.18.5	1.18.5

12.2. Water Regime

Water Level in this quarry area is noticed at a depth of 70m to 75m below Ground Level, observed nearby bore hole the quarrying of Rough stone & Gravel is proposed up to a depth of 42.0m(Max) (2.0m Gravel & 40.0m Rough stone). Hence, it will not affect the quality of ground water depletion of this area.

12.3. Flora and Fauna

The Thorny bushes are placed in quarry area and Neem, Pungam, Panai trees are noticed around the quarry area. Except acacia bushes, no other valuable trees are noticed in the lease applied area. Further, neither flora of botanical interest nor fauna of zoological interest is noticed in this area.

12.4. Climatic conditions

The area receives annual rainfall of about 800mm to 900mm and the rainy season is mainly from Oct – Dec receives rain both in south west and north east monsoon. The summer is hot with maximum temperature of 35°C and during Winter encounters a minimum temperature of 18°C.

12.5. Human Settlement

The nearest habitations with the population, approx. distance within 5.0Km radius from the proposed quarry site are as given under,

Table No-10

S. No	Name of the Village	Approximate distance	Direction from lease applied area	Approximate Habitations
1.	Koppampatti	0.4Km	South - East	481
2.	Veerapatti	1.7Km	North - West	215
3.	Wanadi	1.3 Km	South - West	195
4.	Kaladipatty	1.5 Km	North - East	231

12.6. Plan for Air, Dust Suppression

The air quality will be affected by the Suspended Particulate Matter (SPM) generated by the blasting, jack hammer drilling, loading and unloading during the quarrying operation. The following mitigation measures will be carried out, Mist water spraying will be carried out by means of water sprinklers to suppress dust emission in the Haul roads. The native species of Neem, Pungam, Panai etc., will be planted along the lease boundary and Safety buffer zone. The quarried out materials will be fully covered by the Tarpaulin during transportation to avoid the spillage of materials. The Air quality will be monitored periodically as per the norms and mitigate measures carried out to prevent dust and air propagation in to the air Operators, those exposed directly to such conditions will be provide such as (PPE) Personnel Protective Equipment's like Dust mask, Ear plug, Helmet, Gloze etc., as per the Mines Act -1952.

The estimated budget for dust suppression would be around Rs.7,20,000/- for the period of 5 Years only.

Image of the water spray Vehicle



12.7. Plan for Noise Control

- ❖ The quarrying of Rough stone will be carried out by Shallow holes of 32mm diameter and 1.5meter depth of wet drilling and conventional low power explosives such as slurry explosives, ordinary safety fuse only. Hence the ground vibration and noise pollution will be very minimum and restricted within the quarry workings. However, periodical noise level monitoring and other mitigation measures will be carried out to reduce the noise level and vibration in and around the quarry site.
- ❖ Nowhere the noise level should exceed the permissible limit of 80db during the quarry working hours.
- ❖ The drivers will be strictly instructed to move the vehicle during the transportation not exceeding 40Km per Hour, Sentries with Red Flag & whistle will be posted in village junction and regulate traffic.
- ❖ The estimated budget for Noise level monitoring would be around Rs.20,000/- for the period of 5 Years only.

12.8. Environmental Impact Assessment Statement Describing Impact on mining on the next Five years

- ❖ The mining plan proposed is for a small production of Rough stone & Gravel without involving deep hole drilling and heavy blasting. Such limited mining activity is not likely to cause any impact adversely on environment as far as pollution of air, Water and noise is concerned, anyhow environmental impact studies will be conducted as per EIA notification issued by MOEF. It is B2 Category of mine.
- ❖ The estimated Cost would be around Rs. 3,70,000/- for a period of 5 Years only.

12.9. Proposal for Waste Management

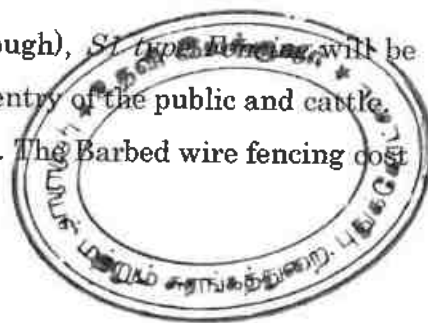
There are no wastes anticipated during this Rough stone & Gravel quarry operation. The quarried out materials 100% will be utilized.

12.10. Proposal of Reclamation of Land affected during mining activities and at the end of mining (refilling/fencing etc.,)

In the proposed mining plan only a maximum depth of 42.0m (Max) (2.0m Gravel & 40.0m Rough stone) has been envisaged as workable depth for Safe & Economic mining during the lease period. Hence, after quarry reaches Ultimate Pit Limit (for this

lease period) of 42.0m (Max) (2.0m Gravel & 40.0m Rough), *St. type fencing* will be constructed around the quarried pits to prevent inherent entry of the public and cattle.

There is no proposal for refilling and rehabilitation. The Barbed wire fencing cost would be around Rs.2,00,000/-



12.11. Program for Afforestation:

The 7.5m & 10m safety distance along the lease boundary has been identified to be utilized for Afforestation in a phased manner as described below

Table – 11

Year	No. of Saplings proposed to be planted	Survival %	Area to be covered Sq.m	Name of the species	No. of Saplings expected to be grown
I	60	80%	1110	Neem & Pungam	48
II	60	80%	450	Neem & Pungam	48
III	60	80%	345	Neem & Pungam	48
IV	60	80%	750	Neem & Pungam	48
V	60	80%	937	Neem & Pungam	48

- Nearly 3592 Sq.m area is proposed to use under Afforestation by planting 60Nos of Neem Saplings etc., every year in the spacing interval of (5m X 5m) with an anticipated survival rate of 80%.
- Appropriate native species of Neem, Pungan, Teak and Casuarinas Saplings will be planted approach roads, service roads, nearby villages, village roads, government school etc.,
- Saplings of local plants of regional tress will be planted as per the consultation of the local Forest Department.
- The Quarry Land use, Layout and Afforestation Plan are showing in Plate No. VII.

12.12. Proposed Financial Estimate / Budget for (EMP) Environment Management

Table - 12

S.No	Monitory and Analysis Description	Rate per location	No. of location	Total Charges for monitoring		
				6 months	Per Year	5 Years
1	Ambient Air quality monitoring	5000	4	20000	40000	2,00,000
2	Water sampling and analysis	10000	1	10000	20000	1,00,000
3	Noise level monitoring	500	4	2000	4000	20,000
4	Ground vibration monitoring	2500	2	5000	10000	50,000
Total EMP Cost				37000	74000	3,70,000

The Environment Monitoring EMP Studies Cost would be around Rs. 3,70,000/- for a period of 5 Years only.

I. Project Cost & Investment:

1) Land cost

The Land Value as per the Government Guideline cost is Calculated as follows
 $1.18.5 \text{ ha} \times \text{Rs.} 8,00,000 = \text{Rs.} 9,45,600/-$

2) Refilling/ Fencing

There is no proposal for Refilling, after the excavation of Rough stone & Gravel the quarried out land will be fenced with barbed wire fencing the cost would be around Rs.2,00,000/-

3) Laborers shed

Labours are proposed for quarrying Rough stone & Gravel. The machine Operators and workers are from nearby local villages, hence no cost is involved. Rest shelter will be constructed as semi-permanent structure at the cost of Rs.3,00,000/-

4) Sanitary facility

Sanitary facility will be constructed as semi-permanent structure, the cost will be around Rs.1,50,000/-

II. Machinery to be used :

The Machineries like Jack Hammer, Tractor mounted compressor attached with Jack hammer, Excavator Of 0.9m³ bucket capacity attached with Rock Breaker are proposed to deploy for quarrying operation and Tippers/Trucks of 10/2 Tons capacity will be used for the quarrying transportation for hired basis, the cost will be around Rs.20,00,000/-

I. Fixed Asset Cost :-

1. Land cost	= Rs. 9,45,600/-
2. Refilling/Fencing cost	= Rs. 2,00,000/-
3. Rest shelter	= Rs. 3,00,000/-
4. Sanitary Facility	= Rs. 1,50,000/-

II. Machinery Cost :- = Rs. 20,00,000/-

Total Project Cost = Rs. 35,95,600/-

III. Expenditure :

1) *Drinking Water facility and other utilities for the labourers*

36 Labours at the rate of Rs.3,500/- month for a period of (Five) 5 Years only, the cost will be around Rs.2,10,000/-

2) *Sanitary arrangement*

Sanitary maintenance at the cost of Rs.2500/- month the cost will be around Rs.1,50,000/- for a period of (Five) 5 Years only.

3) *Safety kits*

Rs.1,20,000 will be spent for the safety kits such as Helmet, Mine Goggles, Ear plugs, Ear muff, Dust Mask, Reflector jackets and safety Shoes.

4) *Water sprinkling (if necessary)*

Rs.12,000/- month will be spent for sprinkling the water on haul roads for Dust suppression; the cost will be around Rs.7,20,000/- for a period of (Five) 5 Years only.

5) *Afforestation etc.,*

Afforestation is proposed within safety zones of the lease applied area and plantations will be carried out on the nearby villages and village roads, Govt School after consultation with the Panchayat authorities. The cost estimate is around Rs.50,000/-

Expenditure :

1. Drinking water	= Rs. 2,10,000/-
2. Sanitary Arrangements	= Rs. 1,50,000/-
3. Safety kits	= Rs. 1,20,000/-
4. Water Sprinkling	= Rs. 7,20,000/-
5. Afforestation cost	= Rs. 50,000/-



Environment Monitoring / 5 Years :

1) Air Quality Sampling	= Rs. 2,00,000/-
2) Water Quality Sampling	=Rs. 1,00,000/-
3) Noise Level Monitoring	= Rs. 20,000/-
4) Ground vibration test	= Rs. 50,000/-

EMP Cost Total = Rs. 16,20,000/-

(Expenditure Including EMP Studies)

Total Project Cost =Rs.35,95,600/-

EMP Cost =Rs.16,20,000/-

12.13 Corporate Environment Responsibility (CER):

- ❖ The Applicant shall distribute Note books, Stationary items to nearby Govt Primary School and to conduct the Medical camp, Environment awareness program, etc., to nearby villages after consultation with local panchayat authorities.
- ❖ The Applicant shall ensure that a minimum of 2.0% from the Total project cost (Rs.71,912/-) for the entire lease period will be utilized for the CER Activities.
- ❖ *District Mineral Fund @10% of the Royalty shall be given to the Dept. of Geology and Mining.*

13.0. MINE CLOSURE PLAN



13.1. Steps proposed for phased restoration, reclamation of already mined out area.

- ❖ This conventional Systematic, Scientific and Eco- Friendly quarrying operation for a depth of 42.0m (Max) (2.0m Gravel & 40.0m Rough stone) and not required any Backfill, Reclamation and Rehabilitation, the quarried out lands will be used for Water storage/ Recharge purpose.
- ❖ The mined out area will be fenced on top of open cast working with S1 Fencing to arrest the entry of cattle and public in to the quarry site.

13.2. Measures to be under taken on mine closure as per Act & Rules.

Measure will be taken as per Act & Rules. The quarried pit will be fenced by using Barbed wire fencing to prevent inherent entry of public and cattle.

13.3. Mitigation measures to be undertaken for safety and restoration/ reclamation of the already mined out area.

Air Quality:

- ❖ (Air quality will be degrade due to drilling, blasting, mining operation and transportation)
- ❖ Drilling will be carried out by Wet drilling mode to control the dust propagation into the air.
- ❖ Blasting will be carried out on limited scale.
- ❖ Mist Water spraying on haul roads 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 Vehicles, Machineries)
- ❖ The applicant has proposed to plant native species of Neem, saplings all along safety area to prevent Noise besides wet drilling will be practiced to prevent dust and spillage.
- ❖ All the Vehicles, Machineries will be maintained in good conditions as per RTO and TNPCB Norms to prevent Noise, Smoke and Vibration to maintain Noise levels below 80 dB(decibel).

Water Regime:

- ❖ The quarrying operation has proposed upto a maximum depth of 42.0m (Max) (2.0m Gravel & 40.0m Rough stone) is well above the ground water table (Summer 75m and Rainy seasons 70m) for a period of 5 Years only. Hence the ground water table will not affect in any manner.
- ❖ The seepage and rain water stored in quarrying pit will be drained out by 5 H.P motor pump and will be discharged through 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 & Gravel quarry will not produce any harmful toxic effluence in the form of Solid, Liquid or Gas.

Human Health and Safety:

- ❖ All the labors are provided with Safety Equipment's like safety Helmet, Goggles, Ear muff, Ear Plug, Safety Jackets, Hand gloves, Thick Shoes etc., at applicant cost, as per the specifications of the Director of Mines Safety.
- ❖ The competent qualified person Foreman/Permit Mines Manager will provide First Aid will take care of small and minor injuries. If any accident happens, the Victim will be taken to the nearby hospital by the own vehicle which is always kept in the mines office. The nearest hospital is about 3.5Km on northeastern side of *Annavaasal*.



14.0. ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

- i. This Mining Plan for Rough stone & Gravel quarry is prepared under amended Rules 19(1), 41 & 42 of Tamilnadu Minor Mineral Concession Rules 1959.
- ii. The measures will be taken as per Mines Act & Mine Rules and Regulations and orders made there under shall be complied with, so that the safety of mine, machinery and mine workers will be protected.
- iii. It is expected that the mining will be done skillful, systematically, scientifically, and Eco-friendly quarrying operation.
- iv. There is no deep hole drilling and heavy blasting of this lease area.
- v. The Applicant will endeavor every attempt to quarry the Rough stone & Gravel economically without any wastage and to improve the environment and ecology.
- vi. Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the Department.

Prepared by



Signature of Recognised Qualified Person
V. RADHAKRISHNAN, M.Sc.,
RECOGNISED QUALIFIED PERSON
Reg. No. RQP/MAS/119/98/A

Place : Trichy

Date :

This mining plan is approved in exercise of the powers conferred under Rule 41(2) and (5) TNMMCR 1959 and subject to the conditions / stipulations indicated in the mining plan approved letter
Rc.No: 694/2023/AM Dated: 8/3/2023



ASSISTANT DIRECTOR
GEOLOGY AND MINING
PUDUKKOTTAI

அனுப்பநர்

திரு.கி.விஜயராகவன், எம்.எஸ்ஸி,
உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
புதுக்கோட்டை.

பெறுநர்

திரு.ப.சபாபதி,
த/பெ.பழனியாண்டி,
எண்.971, சீத்துபட்டி,
மாம்பட்டி,
இலுப்பூர் தாலுகா,
புதுக்கோட்டை மாவட்டம் சுரங்கத்துறை, புதுக்கோட்டை.



ந.க.எண்.694/2022(பு.ம.சு) நாள் 14.02.2023

அய்யா,

பொருள் : கனிமங்கள் மற்றும் சுரங்கங்கள் - புதுக்கோட்டை மாவட்டம் - இலுப்பூர் வட்டம் - வீரப்பட்டி கிராமம் - பட்டா புல எண்கள்.153/2 மற்றும் சிலவற்றின் மொத்தப்பரப்பு 1.18.5 ஹெக்டேரில் கல் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் கோரி திரு.ப.சபாபதி த/பெ.பழனியாண்டி என்பவர் விண்ணப்பம் செய்தது - வரைவு சுரங்கத்திட்டம் சமர்ப்பிக்க அறிவுறுத்துதல் - தொடர்பாக தொடர்பாக.

- பார்வை : 1. திரு.ப.சபாபதி த/பெ.பழனியாண்டி என்பவரின் விண்ணப்பம் நாள்: 31.10.2022.
2. வருவாய் கோட்டாட்சியர், இலுப்பூர், அவர்களின் கடிதம் ந.க.8740/2022/அ5, நாள்: 27.01.2023.
3. உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, புதுக்கோட்டை அவர்களின் அறிக்கை நாள்: 03.02.2023.
4. மற்றும் தொடர்புடைய ஆவணங்கள்.

.....

புதுக்கோட்டை மாவட்டம், இலுப்பூர் தாலுகா, வீரப்பட்டி கிராமம், பட்டா புல எண்கள்.153/2(0.02.5), 153/3(0.79.), 153/4A(0.10.5), 153/4B(0.06.0), 153/4C (0.05.5) & 153/5(0.15.0)- ஆகியவற்றின் மொத்தப்பரப்பு 1.18.5 ஹெக்டேரில் கல் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் கோரி திரு.ப.சபாபதி த/பெ.பழனியாண்டி என்பவர் அனுமதி கோரி விண்ணப்பம் செய்துள்ளார்.

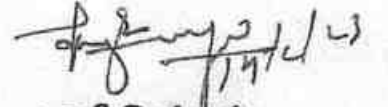
பார்வை 2 மற்றும் 3ல் கண்டுள்ளவாறு வருவாய் கோட்டாட்சியர், இலுப்பூர், உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, புதுக்கோட்டை மற்றும் தனிவருவாய் ஆய்வாளர் (கனிமம்) ஆகியோர் புலத்தணிக்கை மேற்கொண்டு இலுப்பூர் தாலுகா, வீரப்பட்டி கிராமம், பட்டா புல எண்கள்.153/2(0.02.5), 153/3(0.79.), 153/4A(0.10.5), 153/4B(0.06.0), 153/4C (0.05.5) & 153/5(0.15.0)-ஆகியவற்றின் மொத்தப்பரப்பு 1.18.5 ஹெக்டேரில் கல் மற்றும் கிராவல் குத்தகை உரிமம் வழங்க அனுமதி வழங்கலாம் என பரிந்துரை செய்துள்ளனர்.

எனவே, திரு.ப.சபாபதி த/பெ.பழனியாண்டி என்பவருக்கு இலுப்பூர் தாலுகா, வீரப்பட்டி கிராமம், பட்டா புல எண்கள்.153/2(0.02.5), 153/3(0.79.), 153/4A(0.10.5), 153/4B(0.06.0), 153/4C (0.05.5) & 153/5(0.15.0)-ஆகியவற்றின் மொத்தப்பரப்பு 1.18.5 ஹெக்டேர் பரப்பினை 1959-ம் வருடாந்திய

தமிழ்நாடு சிறுகனிம சலுகை விதிகள், விதி எண்.19 & 20-ன் கீழ் 5 வருட காலங்களுக்கு கல் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் அனுமதி வழங்க உகந்த புலமாக கருதி அறிவிப்பு செய்யப்படுகிறது.

மேலும், திரு.ப.சபாபதி த/பெய்முனியாண்டி என்பவர் மூன்று மாத காலத்திற்குள் வரைவு சுரங்கத்திட்ட அறிக்கை (Draft Mining Plan) கீழ்க்கண்ட நிபந்தனைகளுக்குட்பட்டு தயார் செய்து புதுக்கோட்டை மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை, உதவி இயக்குநரிடம் ஒப்புதல் பெற்றும், தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 41 & 42-ன் படி ஏற்பளிக்கப்பட்ட சுரங்கத்திட்ட அறிக்கை மற்றும் மாவட்ட சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்திடமிருந்து தடையின்மைச்சான்று பெற்றும் சமர்ப்பிக்குமாறு அறிவுறுத்தப்படுகிறது.

1. அருகிலுள்ள மட்டா புலங்களுக்கு 7.5மீட்டர் பாதுகாப்பு இடைவெளி விடவேண்டும்.
2. புல எண்.155-ல் அமைந்துள்ள அரசு புறம்போக்கு பாறைக்கு 10மீ பாதுகாப்பு இடைவெளிவிட வேண்டும்.

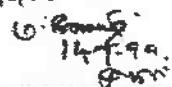


உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
புதுக்கோட்டை

08/14/23

6 ஜா. 66.5 ரூ

dt: 23.09.2020



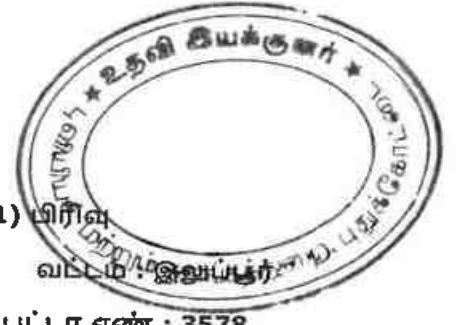
10/15



தமிழக அரசு

வருவாய்த் துறை

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



மாவட்டம் : புதுக்கோட்டை

வருவாய் கிராமம் : வீரப்பட்டி

பட்டா எண் : 3578

உரிமையாளர்கள் பெயர்

- | | | | |
|----|-------------------|------|---------|
| 1. | ராமசாமி | மகன் | ராமசாமி |
| 2. | பழனியாண்டி சேர்வை | மகன் | சபாபதி |

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	
153	2	0 - 2.50	0.06	--	--	--	--	2017/0103/22/018185- -- -- 09-02-2017
153	3	0 - 79.00	1.70	--	--	--	--	2017/0103/22/018185- -- -- 09-02-2017
153	4A	0 - 10.50	0.22	--	--	--	--	2017/0103/22/018185- -- -- 09-02-2017
153	4B	0 - 6.00	0.13	--	--	--	--	2017/0103/22/018185- -- -- 09-02-2017
153	4C	0 - 5.50	0.12	--	--	--	--	2017/0103/22/018185- -- -- 09-02-2017
153	5	0 - 15.00	0.32	--	--	--	--	2017/0103/22/018185- -- -- 09-02-2017
		1 - 18.50	2.55					

குறிப்பு2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 22/14/057/03578/110723 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 28-02-2023 அன்று 10:11:52 PM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

District: Podukkottai Taluk: ILLAIYUR Village: VEERAPATTI												
பகுதியை பெயர்	பகுதி பெயர்	அரசு - பகுதி	நிலத்தின் வகை	பாசன ஆதாரம்	இரு பாகமா	மண் வயனமும் ரகமும்	மண் தரம்	தீர்வை ஹெக்	பரப்பு ஹெக்	மொத்த தீர்வை	பட்டா எண்	குறிப்பு
உட்பிரிவு எண்	பகுதி பெயர்	அரசு - பகுதி	நிலத்தின் வகை	பாசன ஆதாரம்	இரு பாகமா	மண் வயனமும் ரகமும்	மண் தரம்	தீர்வை ஹெக்	பரப்பு ஹெக்	மொத்த தீர்வை	பட்டா எண்	குறிப்பு
4B	153-4	P	புஞ்சை		3	8-1	11	2	15	0 6.00	3578-ராமசாமி மற்றும் 1 நபர்கள்	
4C	153-4	P	புஞ்சை		3	8-1	11	2	15	0 15.00	3578-ராமசாமி மற்றும் 1 நபர்கள்	
5	153-5		புஞ்சை		3	8-1	11	2	15	0 7.50	3578-ராமசாமி மற்றும் 1 நபர்கள்	
6A	153-6		புஞ்சை		3	8-1	11	2	15	0 46.00	3578-ராமசாமி மற்றும் 1 நபர்கள்	
6B	153-6		புஞ்சை		3	8-1	11	2	15	0 24.00	3578-ராமசாமி மற்றும் 1 நபர்கள்	
7A1A	153-7A	P	புஞ்சை		3	8-1	11	2	15	0 154.50	3578-ராமசாமி மற்றும் 1 நபர்கள்	
7A1B	153-7A	P	புஞ்சை		3	8-1	11	2	15	0 25.50	3578-ராமசாமி மற்றும் 1 நபர்கள்	
7A2	153-7A	P	புஞ்சை		3	8-1	11	2	15	0 42.00	3578-ராமசாமி மற்றும் 1 நபர்கள்	
7B	153-7	P	புஞ்சை		3	8-1	11	2	15	0 11.00	3578-ராமசாமி மற்றும் 1 நபர்கள்	
8	153-8		புஞ்சை		3	8-1	11	2	15	0 115.50	3578-ராமசாமி மற்றும் 1 நபர்கள்	
9A	153-9	P	புஞ்சை		3	8-1	11	2	15	0 66.50	3578-ராமசாமி மற்றும் 1 நபர்கள்	
9B	153-9	P	புஞ்சை		3	8-1	11	2	15	0 2.50	3578-ராமசாமி மற்றும் 1 நபர்கள்	
TOTAL FOR SURVEY NUMBER- 153										0 39.00	3578-ராமசாமி மற்றும் 1 நபர்கள்	
154-1	154-1		புஞ்சை		3	8-1	11	2	15	0 39.00	3578-ராமசாமி மற்றும் 1 நபர்கள்	
154-2	154-2		புஞ்சை		3	8-1	11	2	15	0 39.00	3578-ராமசாமி மற்றும் 1 நபர்கள்	

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507/2023

ANNEXURE: IV



தமிழ்நாடு தமிழ்நாடு TAMILNADU

தமிழ்நாடு எண்

நாள்

28.2.2023

லாப்துபவர் பெயர்

R. Dhanasekhar

உண்

தொகை

ஒத்திசைவு
500/-

AS 986148
 சி.பி. அப்துல் ரகுமான்
 புத்திரைத்தாள் விற்பனையாளர்.
 உரிமம் எண்: 2/2008
 கடை வீதி: அன்னவிரதல்.

குத்தகை ஒப்பந்தப் பத்திரம்

2023 ஆண்டு பிப்ரவரி மாதம் 28 ஆம் நாள்,
 தமிழ் சுபகிருது வருடம் மாசி திங்கள் 16 ஆம் நாள்,
 குத்தகைத் தொகை வருடம் 1-க்கு : ரூ.5,000/- வீதம்

குத்தகை முன்பணம் இல்லை வாய்தா காலம் : 7 வருடங்கள்

புதுக்கோட்டை மாவட்டம், இலுப்பூர் தாலுகா, வீரப்பட்டி
 கிராமம், தெற்குகளத்தில் 420(1) எண் இல்லத்தில் வசிக்கும்
 திரு.ராமசாமி அவர்களின் மகன் திரு.R.ராமசாமி (ஆதார்
 அடையாள அட்டை எண் : 5973 6789 0663, கைபேசி எண்:
 9976186225) 1-வது நபராகவும்,

1-வது நபர்

2-வது நபர்

02.02

2023 ம் வருடம்
 சிவசுந்தரம் 12
 1-வது தளம்

507 P.சுமாய்

சுமாய்
 அண்ணலாள்

புதுக்கோட்டை மாவட்டம், இலண்டன் தாலுகா, சித்தம்பட்டி கிராமம், மாம்பட்டியில் 97-1 எண் துறைமுகத்தில் வசிப்பவர் திரு.பழனிபாண்டி அவர்களின் மகன் திரு. P. சம்பதி (வயது அடையாள அட்டை எண் : 4113 0133 0726, கைபேசி எண் 9443205617) 2-வது நபராகவும் அதிப நாம இலண்டன் தாலுகா, சித்தம்பட்டி எழுதிக்கொண்ட குத்தகை ஒப்பந்தப் பத்திரம்



1-வதுநபர் மற்றும் 2-வதுநபரின் பெயர் (கைபேசி எண் 9443205617) 52/2017 எண் ஆவணப்படி கிரையம்பெற்று அதன்பிறகு 1-வதுநபர் மற்றும் 2-வதுநபர் பெயரில் வீரப்பட்டி கிராமத்தில் கைபேசி எண் 9443205617 3578 ஏற்பட்டு அதுநாள் முதல் 1-வதுநபர் மற்றும் 2-வதுநபரால் கூட்டாக அரத்தீர்வை செலுத்தி அதுபயன்படுத்தப்படும் சொத்துக்களில் 1-வதுநபருக்கு சொந்தமான கீழ்க்கண்ட சொத்து விபரத்தில் கண்ட சொத்தான இரண்டில் ஒரு பங்கை மாட்டம் (1/2) மாவட்ட ஆட்சியர் அனுமதிபுடன் மேற்படி நிலத்தில் தொழில் செய்துவர குத்தகை ஒப்பந்தம் செய்வது கொள்ளப்பட்டுள்ளது.

மேற்படி குத்தகை காலம் முடிந்தவுடன் நிலத்தை 1-வது நபர் வசம் 2-வது நபர் குத்தகை சொத்துக்களை திரும்பவும் ஒப்படைத்துவிட வேண்டியது. சொத்து விபரத்தில் கண்ட குத்தகை சொத்தை மேற்படி குத்தகை வாய்தா காலம் முடியும் வரையில் நம்மில் 2-வது நபர் எந்தவித வில்லங்கத்திற்கும் உட்படுத்தவில்லை என்றும் இதன் மூலம் ஒப்புக்கொண்டுள்ளார். குத்தகை ஒப்பந்த பத்திரத்தை பிற நிபந்தனைகளுக்கும் நாம் இருவரும் கட்டுப்பட்டவர்கள் எனவும் நம்முன்சம்மதித்து எழுதிக்கொண்ட குத்தகை ஒப்பந்தப் பத்திரம். இதன் பதிவு பெற்ற அசல் காப்பி நம்மில் 2-வது நபரிடமும் இதன் நகல் காப்பி (Xerox) நம்மில் 1-வது நபரிடமும் இருந்துவர வேண்டியது.

1-வது நபர்

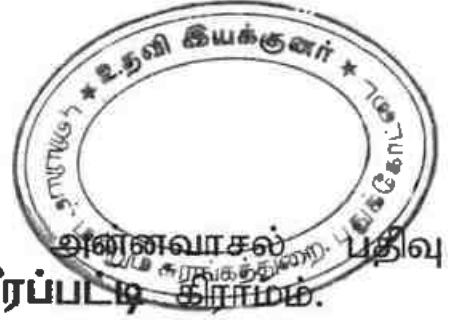
2-வது நபர்

2.02

P. S. S.

புத்தகம்	2023	பக்கம்	507
ஆவணம்	12	தாள்கள்கொண்ட	
2-வது தாள			

சம்பதி
சாப்பிதவரன்
விண்ணப்பம்



சொத்துவிபரம் :-

புதுக்கோட்டை பதிவு மாவட்டம், அன்னவாசல் பதிவு
துணை மாவட்டம், இலுப்பூர் தாலுகா, வீரப்பட்டி கிராமம்.

சர்வே எண்கள்:

1. 153-2 புன்செய் ஹெ.0.02.5-ல் ஹெ.0.01.25-க்கு ஏ.0.03
2. 153-3 புன்செய் ஹெ.0.79.0-ல் ஹெ.0.39.5-க்கு ஏ.0.98
3. 153-4A புன்செய் ஹெ.0.10.5-ல் ஹெ.0.05.25-க்கு ஏ.0.13
4. 153-4B புன்செய் ஹெ.0.06.0-ல் ஹெ.0.03.0-க்கு ஏ.0.07
5. 153-4C புன்செய் ஹெ.0.05.5-ல் ஹெ.0.02.75-க்கு ஏ.0.07
6. 153-5 புன்செய் ஹெ.0.15.0-ல் ஹெ.0.07.5-க்கு ஏ.0.19

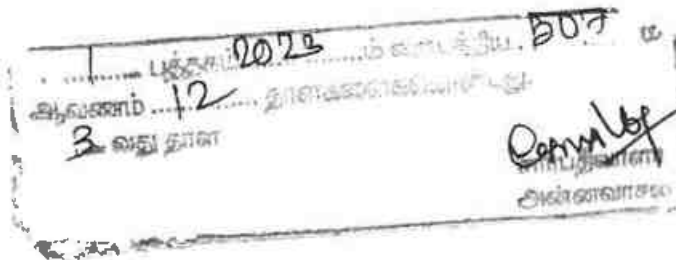
ஆகக்கூடுதல் ஹெ.0.59.25-க்கு ஏ.1.46 (ஒரு ஏக்கர்
நாற்பத்தி ஆறு செண்ட்) புன்செய் நிலங்கள் மட்டும்
இந்த குத்தகை ஒப்பந்தப் பத்திரத்தில் கட்டுப்பட்டது.

1-வது நபர்

R. R.

2-வது நபர்

P. J.



மேற்படி சொத்து அன்னவாசல் ஊராட்சி ஒன்றியத்தின் இயக்குநர் ஊராட்சி எல்லைக்கு உட்பட்டதாகும்.

சாட்சிகள் :-

1. R.6 ஈன் லீம் மொன் கார்த்திக்குமார் த/பெ. ராமதாமி
முகவரி. 420(1), தெற்குகளம், வீரப்பாடி கிராமம்,
இலுப்பூர் தாலுகா, புதுக்கோட்டை மாவட்டம். 622103.
(ஆதார் அடையாள அட்டை எண் : 2142 3094 4552)

2. சிதம்பரம் த/பெ. ராமையா
முகவரி. 52, மண்ணவேளாம்பட்டி, மாங்குடி கிராமம்,
இலுப்பூர் தாலுகா, புதுக்கோட்டை மாவட்டம். 622101.
(ஆதார் அடையாள அட்டை எண் : 9340 3313 2121)

1-வது நபர்

R. R.

2-வது நபர்

P. S.

வரைவு தயார் செய்தவர் :-



மு.கிருஷ்ணன் பி.ஏ.,
த/பெ.முத்துக்கருப்பன்,
மாநில ஆவண எழுத்தர்
உரிமம் எண் : A/10/PKT/2009
16, மேட்டுத்தெரு, அன்னவாசல்,
622101, புதுக்கோட்டை (D.t),
கைபேசி எண்: 9688699445.

புத்தகம் 2023 ஈன் லீம் 507 ம
ஆவணம் 12
4 வது தரம்
சாப்பிடுவதற்கு
பின்னவரை





சொத்தானது நீர்நிலை பகுதிகளில் அமைப்புப் பெறவில்லை
என்பதற்கான சான்று/உறுதிமொழி (Declaration) (நீதி
பேராணை எண் : 22163/2018-ல் வழங்கப்பட்ட தீர்ப்புரையை
காண்க)

இந்த ஆவணத்தில் கண்ட சொத்தானது .

நீர்நிலைகள், நீர்வழிப்பாதைகள், நீர்ப்பிடிப்பு பகுதிகளில் கட்டுப்படவில்லை என சான்றளிக்கின்றோம். மேலும் இதனில் தங்களுக்கு தவறான தகவல் அல்லது சான்று அளிக்கப்பட்டதாக பின்னாளில் கண்டுபிடிக்கப்பட்டால் அதனால் நான்/நாங்கள் சட்ட பூர்வ நடவடிக்கைகளுக்கு உட்படுத்தப்படுவோம் என்பதையும் அறிவேன்/அறிவோம்.

ஆவணத்தை
எழுதிப்பெறுபவர்களின்
கையொப்பம்

P. S. S.

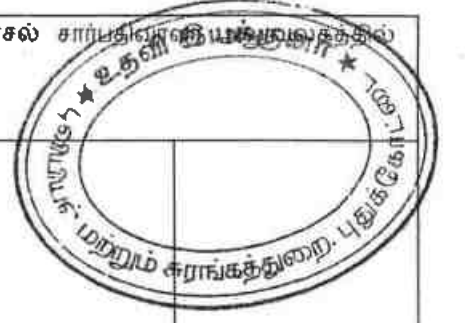
ஆவணத்தை
எழுதிக்கொடுப்பவர்களின்
கையொப்பம்

R. R.

1	பத்திரம் 2023	507
சுயவணம் 12	5 வது தாள்	
சுயவணம்		சுயவணம்

R/அன்னவாசல்/புத்தகம்-1/507/2023

2023 ஆம் ஆண்டு பிப்ரவரி மாதம் 28ம் தேதி பிப 1241 மணியளவில் அன்னவாசல் சார்பதிவாளர் அலுவலகத்தில் தாக்கல் செய்து கட்டணம் ₹ 575/- செலுத்தியவர்



இடது பெருவிரல்



P. Jeyaraj

கூடுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி

எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர்
இடது ஆள்காட்டி விரல்



R. R.

“சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்” என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது ஒப்பீட்டு எண் : UKC:928612de2a1196228e4c1681bf3c1cf5e579fe (Details from UIDAI : Ramasamy R S/O Ramasamy, 10-07-1969, xxxxxxxx0663)



எழுதி வாங்கியதாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்



P. Jeyaraj

“சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்” என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது ஒப்பீட்டு எண் : UKC:57635009446a623e3e404aa8dc5d6f71ceaa3 (Details from UIDAI : Sabapathi P S/O Palaniyandi, 22-06-1971, xxxxxxxx0726)



2023 ஆம் ஆண்டு பிப்ரவரி மாதம் 28ம் நாள்

சாப்பதிவாளர்
அன்னவாசல்

12 2023 507



R/அன்னவாசல்/புத்தகம்-1/507/2023

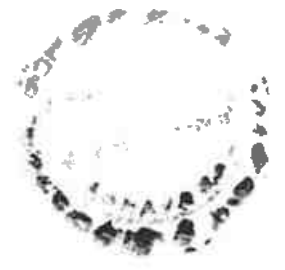
R/அன்னவாசல்/புத்தகம்-1/507/2023 எண்ணாகப் பதிவு செய்யப்பட்டது

நாள்: 28/02/2023
அன்னவாசல்

Cemilay 28/02/2023
ஜாஜிதாபேகம் மீ
சார்பதிவாளர்



1 2023 வ.வ.ப.த. 507
அ.வ.ப. 12
7 வது தரம்
Cemilay
அன்னவாசல்







Government of India

ராமசாமி ரா
Ramasamy R
பிறந்த நாள்/DOB: 10/07/1969
ஆண்/ MALE

5973 6789 0663
VID : 9132 1200 2438 3115

எனது ஐதார். எனது அடையாளம்

Unique Identification Authority of India

முதலாளி:
S/O Ramasamy, எண் 420(1), தெற்கு காலம்,
வேரப்பட்டு, வேரப்பட்டு, புதுக்கோட்டை,
தமிழ்நாடு - 622103

Address:
S/O Ramasamy, 420-1, SOUTH KALAM,
VEERAPATTI, Veerapatti, Pudukottai,
Tamil Nadu - 622103

5973 6789 0663
VID : 9132 1200 2438 3115

1047 | help@uidai.gov.in | www.uidai.gov.in

R. R.

12/07/2023
பிறந்தநாள் 12
9 வது தாள்
Comptroller
பி.என்.என்.சி



சபபதி ப
Sabapathi P
 பிறந்த நாள்/DOB: 22/06/1971
 ஆண் / MALE

4413 0133 0726
 VID: 8198 5645 2492 5955

எனது ஆதார். எனது அடையாளம்

உதவி இயக்குனர்
மற்றும் சுரங்கத்துறை, புதுக்கோட்டை

Unique Identification Authority of India

முகவரி:
 S/O Palaniyandi, 97 1, SEETHAPPATI,
 ILUPPUR TALUKA, Mambatti,
 Pudukkottai,
 Tamil Nadu - 622102

4413 0133 0726
 VID: 8198 5645 2492 5955

P. J. Sanyal

12/06/2023

10

சபபதி ப

சுரங்கத்துறை

புதுக்கோட்டை





இந்திய அரசாங்கம்
Government of India

கர்நீசுமர ரா
Karnikumar R
பிதா: ராமசாமி
Father: RAMASAMY

பிறப்பு: 05/04/1980
ஆண்: Male

2142 3094 4552

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

Unique Identification Authority of India

முனை: 30 ராமசாமி கர்நீசுமர
பெருக்கு கலை, வீரபட்டி, வீரபட்டி
வீரபட்டி, பூக்கோட்டை, தருமகோட்டை
622103

Address: S/O Ramasamy,
420/1, SOUTH KALAM,
VEERAPATTI, Veerapatti,
Veerapatti, Pudukkottai,
Tamil Nadu, 622103

2142 3094 4552

1847
1800 300 1847

help@uidai.gov.in

www.uidai.gov.in

R.கர்நீசுமர ராமசாமி

12/2023
12/2023
14/12/2023
507
Cm/12

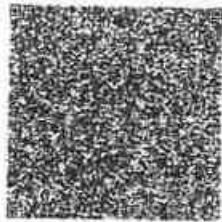




Government of India

பதிவேட்டு எண்/ Enrolment No.: 2007/30094/35817

Signature valid



VID : 9125 5632 7854 8449

எனது ஆதரவு எனது அடைபட்டியலும்

Abstract



VID : 9125 5632 7854 8449

எனது ஆதார், எனது அடையாளம்



- குதாஹ் அண்டயாளத்திற்கான சான்று குடியறிமைக்கு அல்ல
- பாதுகாப்பான QR குறியீடு ஆய்வலன் XML, ஆய்வலன் அங்கீகரித்ததை பயன்படுத்தி அண்டயாளத்தை சரிபார்க்கவும்
- இது எலக்ட்ரானிக் செயல்முறை மூலம் தயாரிக்கப்பட்ட கடிதமாகும்.

- Aadhaar is a proof of identity, not of citizenship.
- Verify identity using Secure QR Code/ Offline XML/ Online Authentication.
- This is electronically generated letter.

- ஆதார நாடு முழுவதிலும் செல்லுபடியாகும்
- பல்வேறு அரசு மற்றும் அரசு சாரா சேவைகளை எளிதில் பெற ஆதார உதவுகிறது
- உங்களுடைய மொபைல் எண் மற்றும் மின்னஞ்சல் ஐடியை ஆதாரில் பூர்த்திப்படுத்துங்கள்
- ஆதார செயலின்படி பயன்படுத்தி உங்கள் ஸமூகப் பொருள் ஆதார எடுத்துச் செல்லுங்கள்

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Unique Identification Authority of India

Address:



This micrograph shows a dense network of carbon nanotubes (CNTs) dispersed within a polymer matrix. The CNTs appear as dark, elongated, and somewhat tangled structures against a lighter, textured background representing the polymer. The distribution is relatively uniform across the field of view.

VID : 9125 5632 7854 8449

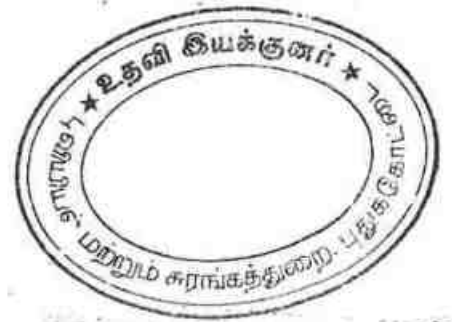
1947 | help@uidai.gov.in | www.uidai.gov.in

1983.05.05

12/12/2023

509

~~Accepted~~



இந்திய அரசாங்கம்
Government of India

பாபதி ப
Sabapathi P
பிறந்த நாள்/DOB: 22/06/1971
ஆண்/ MALE

4413 0133 0726
VID: 9198 5649 2491 5955

எனது உடலில். எனது அடையாளம்

Unique Identification Authority of India

பெயர்:
S/O Palaniyandi, 97 1, SEETHAPPATI,
ILUPPUR TALUKA, Mambatti,
Pudukkottai, Tamil Nadu - 622102

4413 0133 0726
VID: 9198 5649 2491 5955

20.04.2010



S. P. Subramanian
Regional Controller of Mines
INDIAN BUREAU OF MINES



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

Shri V. Radhakrishnan resident
of *Madurai Village, Nalliyarpet, Fort, Salem District, PIN-636163*
of *D. Vengal* 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 *SLP / MAS / 119 / 98 / A*

This recognition is valid for a period of two years
ending *20.04.2010*.

Place : Chennai-20.
Date : 21.04.1998

M. R. A. Murugan
Regional Controller of Mines
Indian Bureau of Mines
Chennai. 21.4.98

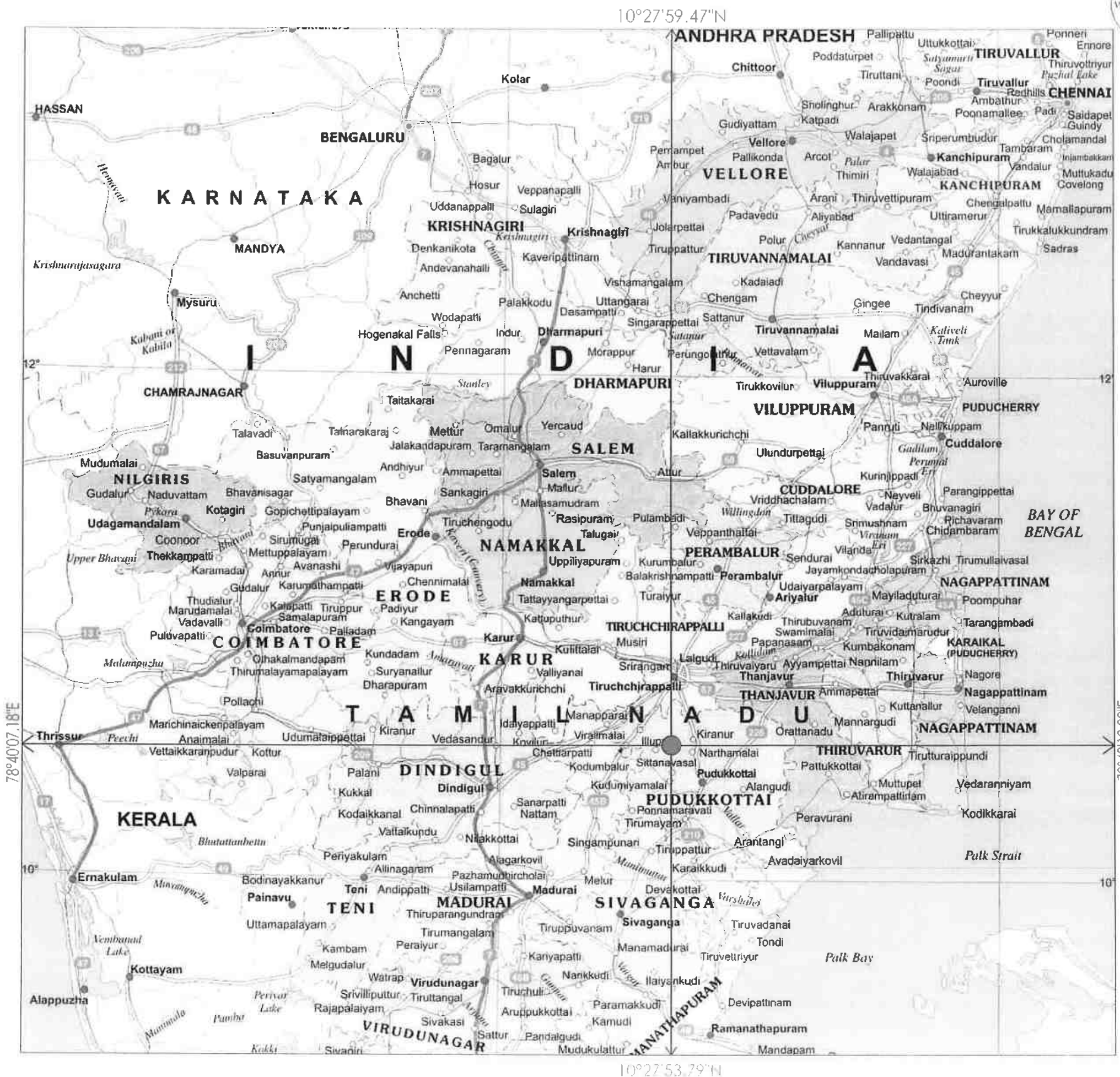


PLATE NO-1

HIRU P. SABAPATHI,

S/o. PALANIYANDI,

No. 971, SEETHAPPATTY,

ILUPPUR TALUK, PUDUKKOTTAI - 622 102

Q. L. A. AREA :

S.F. Nos : 153/2, 3, 4A, 4B, 4C & 5

EXTENT : 1.18.5 Ha

VILLAGE : VEERAPATTI

TALUK : ILUPPUR

DISTRICT : PUDUKKOTTAI

Q. L. A. AREA :

TOPO SHEET NO: 58 - J / 11

LATITUDE : 10°27'53.79"N to 10°27'59.47"N

LONGITUDE: 78°40'07.18"E to 78°40'12.02"E

LOCATION PLAN

Not To Scale

PREPARED BY:

I DO HEREBY CERTIFY THAT THE PLATE
HAS BEEN CHECKED BY ME AND IS
CORRECT TO THE BEST OF MY KNOWLEDGE

V. MADHAKRISHNAN, M.Sc.,
RECOGNISED QUALIFIED PERSON
Reg. No. RQP/MAS/119/98/4

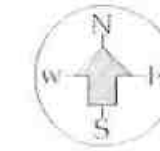
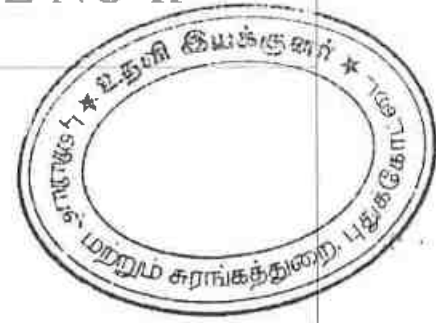


PLATE NO-II



APPLICANT:

THIRU. P.SABAPATHI,

S/o. PALANIYANDI,

No. 971, SEETHAPPATTY, MAMPATTY,

ILUPPUR TALUK, PUDUKKOTTAI - 622 102

QUARRY LEASE APPLIED AREA:

S.F.Nos : 153/2, 3, 4A, 4B, 4C & 5

EXTENT : 1.18.5 Ha

VILLAGE : VEERAPATTI

TALUK : ILUPPUR

DISTRICT : PUDUKKOTTAI

INDEX

Q.L.APPLIED AREA



STATE HIGHWAYS



APPROACH ROAD



HABITATIONS



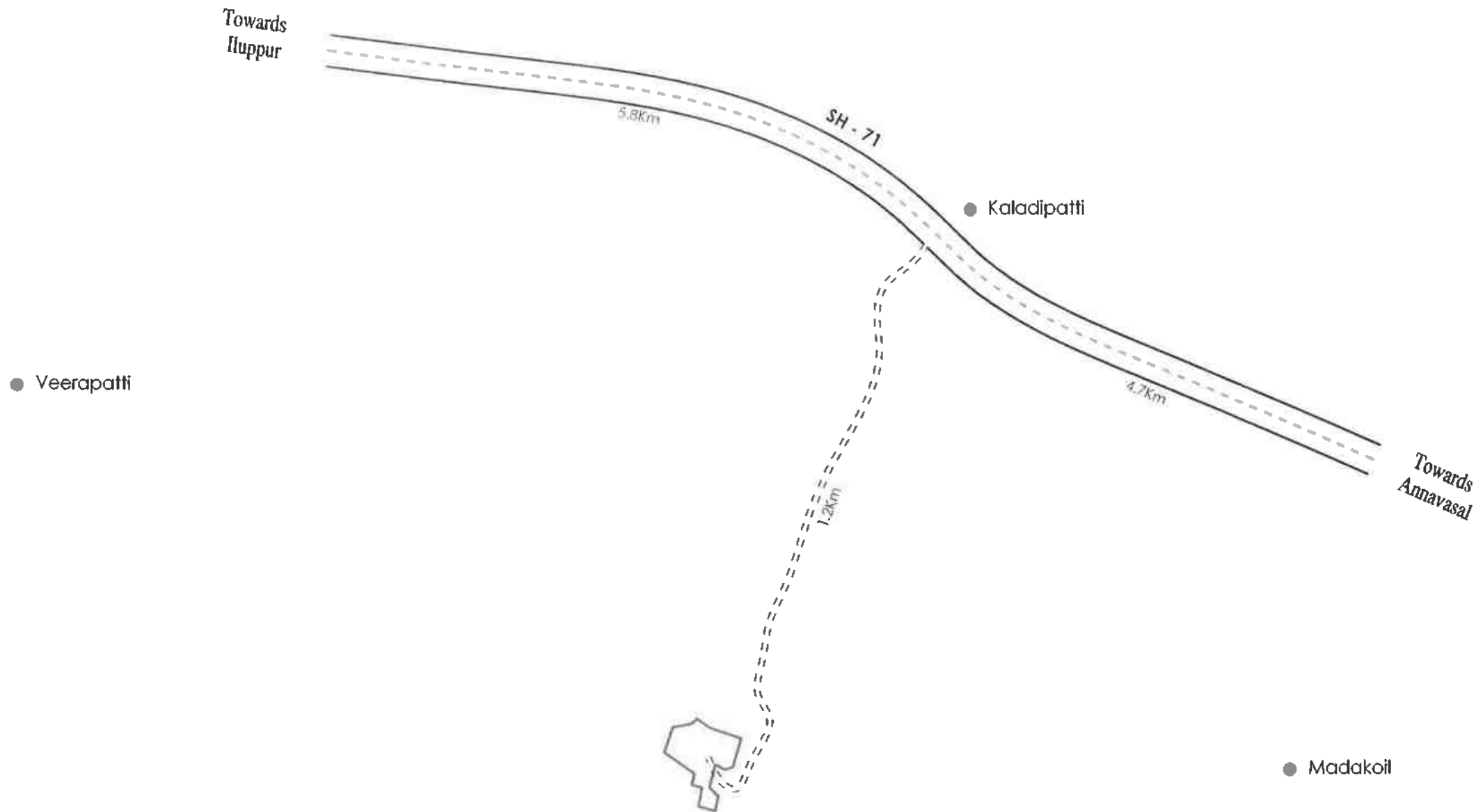
KEY PLAN

No o Scc e

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V. RADHAKRISHNAN, M.Sc.,
RECOGNISED QUALIFIED PERSON
Reg. No. RDP/MAS/119/98/A



78°39'33.64"E

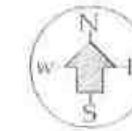


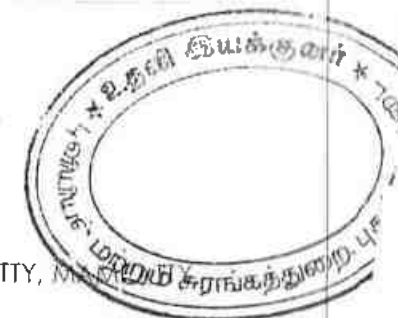
PLATE NO-IV

THIRU. P.SABAPATHI

S/o. PALANIYANDI

No. 971, SEETHAPPATTY, MA

ILUPPUR TALUK, PUDUKKOTTAI - 622 102



QUARRY LEASE APPLIED AREA

S.F.Nos : 153/2, 3, 4A, 4B, 4C & 5

EXTENT : 1.18.5 Ha

VILLAGE : VEERAPATTI

TALUK : ILUPPUR

DISTRICT : PUDUKKOTTAI

INDEX

TOPO SHEET NO : 58 - J / 11

LATITUDE : 10°27'53.79"N to 10°27'59.47"N

LONGITUDE: 78°40'07.18"E to 78°40'12.02"E

Q.LEASE APPLIED AREA



300m RADIUS



500m RADIUS



1Km RADIUS



APPROACH ROAD



SATELLITE IMAGERY

SCALE 1 : 10000

PREPARED BY:

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CORRECT TO THE BEST OF MY KNOWLEDGE


V. P. S. SABAPATHI, M.Sc.,
RECOGNISED QUALIFIED PERSON
Reg.No.RQP/MAS/119/98/A

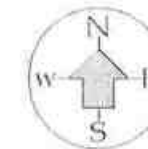


PLATE NO-V.

THIRU. P.SABAPATHI
S/o. PALANIYANDI
No. 971, SEETHAPATHI MAMPATTY,
ILUPPUR TALUK, PUDUCHOTTAI - 622 102

PLANTING AND GROWING MEDIA

S.F.Nos : 153/2, 3, 4A, 4B, 4C & 5

EXTENT : 1.18.5 Ha

VILLAGE : VEERAPATTI

TALUK : ILUPPUR

DISTRICT : PUDUKKOTTAI

INDEX

TOPO SHEET NO: 58 - J / 11

LATITUDE :10°27'53.79"N to 10°27'59.47"N

LONGITUDE: 78°40'07.18"E to 78°40'12.02"E

Q.L.APPLIED AREA



300m RADIUS



500m RADIUS



1 Km RADIUS



APPROACH ROAD



BARREN LAND



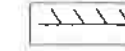
TREES



AGRICULTURAL LAND



QUARRY PIT



HABITATIONS



KANMOI



ENVIRONMENTAL PLAN

SCALE 1:10000

PREPARED BY:

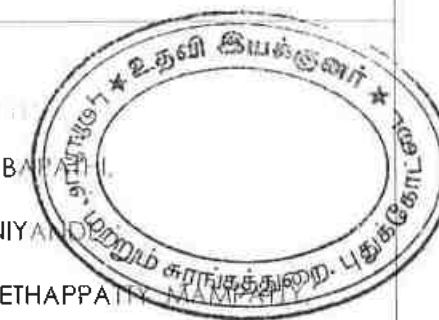
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CORRECT TO THE BEST OF MY KNOWLEDGE

V. RADHAKRISHNAN, M.Sc.,
RECOGNISED QUALIFIED PERSON
Reg.No. RQP/MAS/119/98/A

LAND USE PATTERN	
ROAD	{05%}
TREES	{10%}
SEASONAL AGRICULTURAL LAND	{10%}
BARREN LAND	{50%}
KANMOI	{25%}

Description	Distance	Direction
1.Approach Road	1.0 km	S
2.HT Line	---	---
3.Habitation	312m	NW
4.Kanmoi	303m	NE

PLATE NO-VI



THIRU. P.SABAR

S/o. PALANIYAND

No. 971, SEETHAPATTI

ILUPPUR TALUK, PUDUKKOTTAI - 622 102

QUARRY LEASE APPLIED AREA:

S.F.Nos : 153/2, 3, 4A, 4B, 4C & 5

EXTENT : 1.18.5 Ha

VILLAGE : VEERAPATTI

TALUK : ILUPPUR

DISTRICT : PUDUKKOTTAI

INDEX

Q.L.APPLIED BOUNDARY

7.5m & 10m SAFETY AREA

TEMPORARY BENCH MARK

APPROACH ROAD

CONTOUR

EXISTING QUARRY PIT

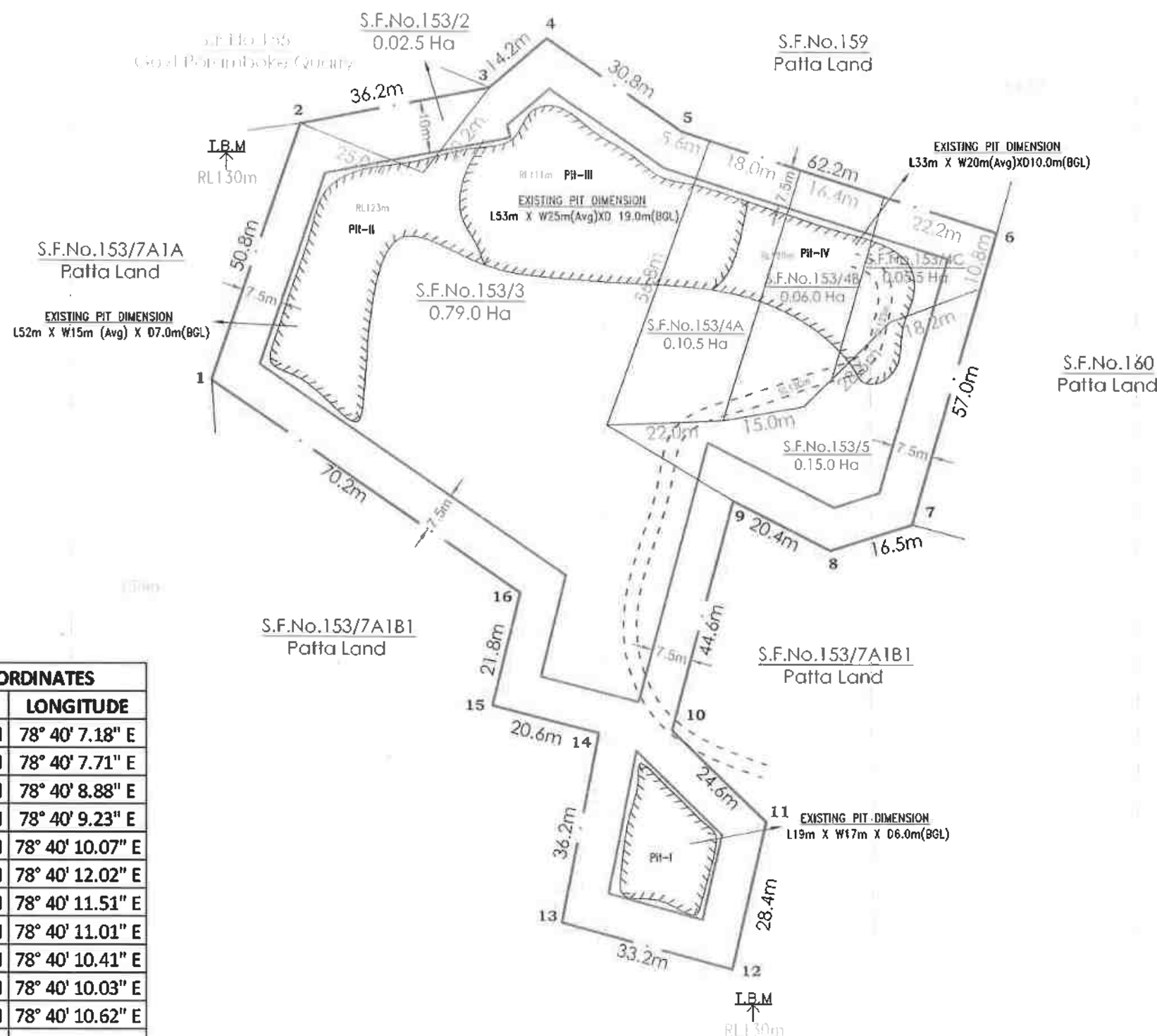
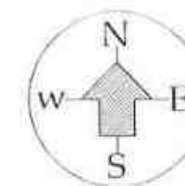
QUARRY LEASE & SURFACE PLAN

SCALE 1 : 1000

PREPARED BY:

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[Signature]
V. ARUN KRISHNAN, M.Sc.,
RECOGNISED QUALIFIED PERSON
Reg No. RQP/MAS/119/98/A



BOUNDARY CO-ORDINATES		
LABEL	LATITUDE	LONGITUDE
1	10° 27' 57.37" N	78° 40' 7.18" E
2	10° 27' 58.94" N	78° 40' 7.71" E
3	10° 27' 59.16" N	78° 40' 8.88" E
4	10° 27' 59.47" N	78° 40' 9.23" E
5	10° 27' 58.90" N	78° 40' 10.07" E
6	10° 27' 58.30" N	78° 40' 12.02" E
7	10° 27' 56.51" N	78° 40' 11.51" E
8	10° 27' 56.35" N	78° 40' 11.01" E
9	10° 27' 56.65" N	78° 40' 10.41" E
10	10° 27' 55.25" N	78° 40' 10.03" E
11	10° 27' 54.69" N	78° 40' 10.62" E
12	10° 27' 53.79" N	78° 40' 10.41" E
13	10° 27' 54.07" N	78° 40' 09.36" E
14	10° 27' 55.23" N	78° 40' 09.58" E
15	10° 27' 55.39" N	78° 40' 08.92" E
16	10° 27' 56.08" N	78° 40' 09.09" E
WGS - 84 DATUM		

PLATE NO-VII

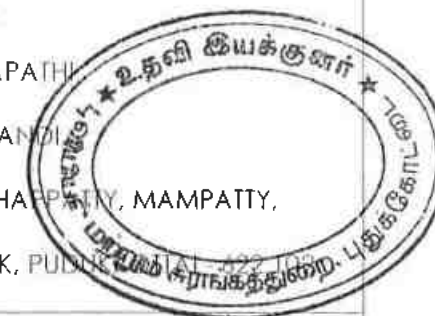
APPLICANT SITE

THIRU. P.SABAPATHI

S/o. PALANIYANDI

No. 971, SEETHAPATTY, MAMPATTY,

ILUPPUR TALUK, PUDUKKOTTAI DISTRICT



QUARRY LEASE APPLIED AREA:

S.F.Nos : 153/2, 3, 4A, 4B, 4C & 5

EXTENT : 1.18.5 Ha

VILLAGE : VEERAPATTI

TALUK : ILUPPUR

DISTRICT : PUDUKKOTTAI

INDEX

Q.L.APPLIED BOUNDARY

7.5m & 10m SAFETY AREA

TEMPORARY BENCH MARK

APPROACH ROAD

CONTOUR

EXISTING QUARRY PIT

STRIKE & DIP

ROUGH STONE

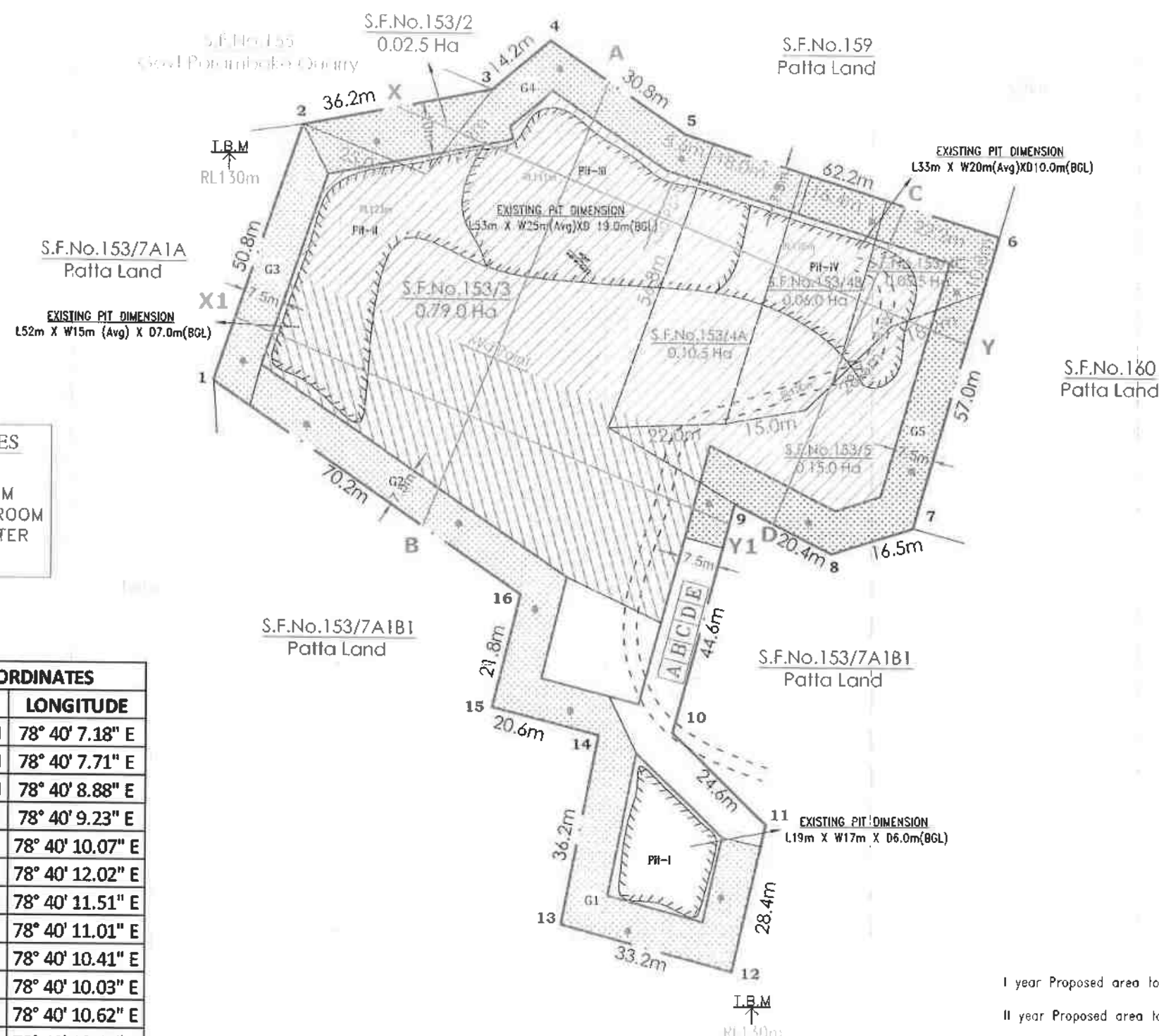
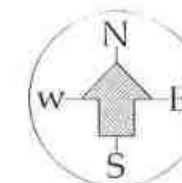
GRAVEL

TOPOGRAPHY, GEOLOGICAL,
YEAR WISE DEVELOPMENT &
PRODUCTION PLAN & SECTION
SCALE 1 : 1000

PREPARED BY:

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CORRECT TO THE BEST OF MY KNOWLEDGE

V. RADHAKRISHNAN, M.Sc.,
RECOGNISED QUALIFIED PERSON
Reg No RDP/MAS/119/98/A



- I year Proposed area to be Plantation
- II year Proposed area to be Plantation
- III year Proposed area to be Plantation
- IV year Proposed area to be Plantation
- V year Proposed area to be Plantation

SITE SERVICES

- A - OFFICE
- B - STORE ROOM
- C - FIRST AID ROOM
- D - REST SHELTER
- E - TOILET

BOUNDARY CO-ORDINATES

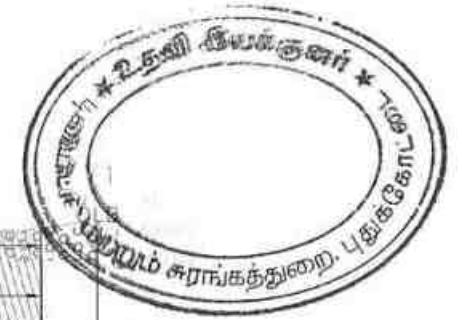
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3	10° 27' 59.16" N	78° 40' 8.88" E
4	10° 27' 59.47" N	78° 40' 9.23" E
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15	10° 27' 55.39" N	78° 40' 08.92" E
16	10° 27' 56.08" N	78° 40' 09.09" E

WGS - 84 DATUM

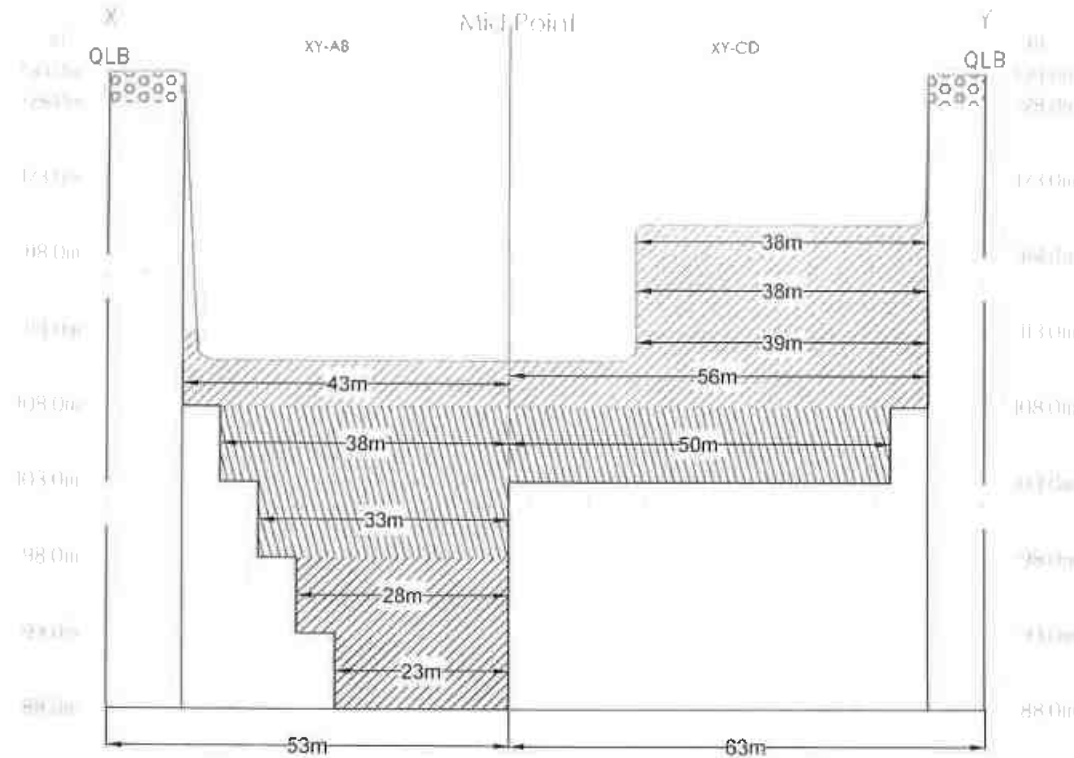
PLATE NO-VII-A

TOPOGRAPHY, GEOLOGICAL, YEAR WISE DEVELOPMENT & PRODUCTION PLAN & SECTION

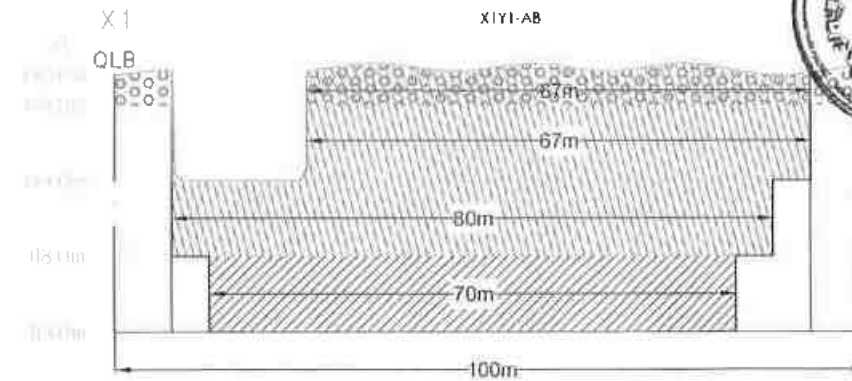
SCALE: SECTION:
HOR-1:1000
VER-1:500



SECTION ALONG X-Y



SECTION ALONG X1-Y1



I year Proposed area to be Quarried



II year Proposed area to be Quarried



III year Proposed area to be Quarried



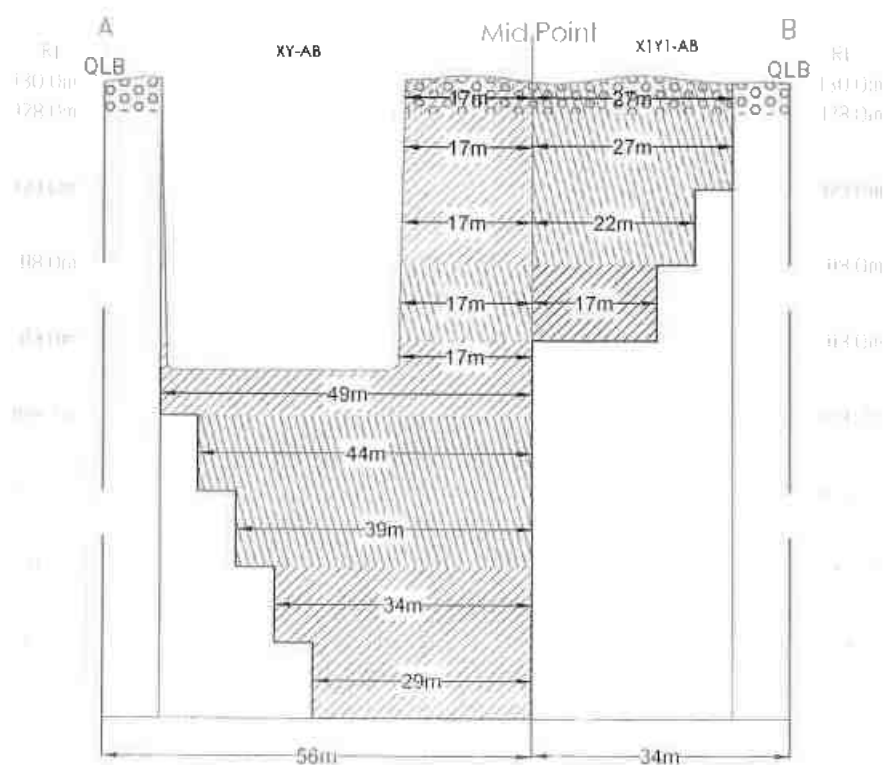
IV year Proposed area to be Quarried



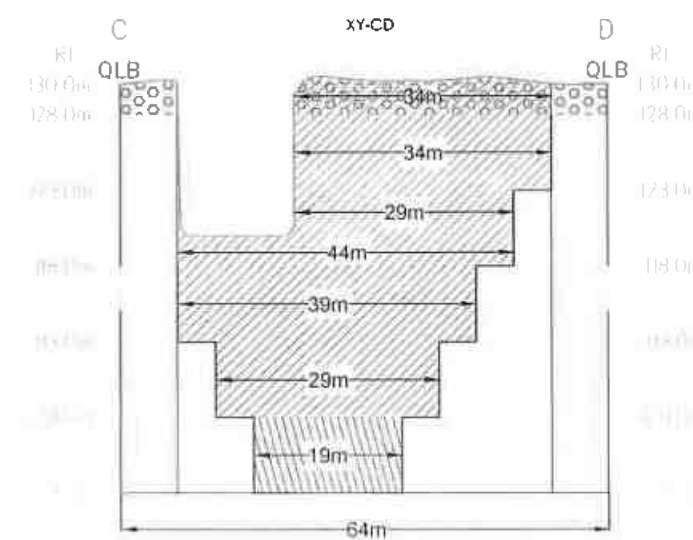
V year Proposed area to be Quarried



SECTION ALONG A-B



SECTION ALONG C-D

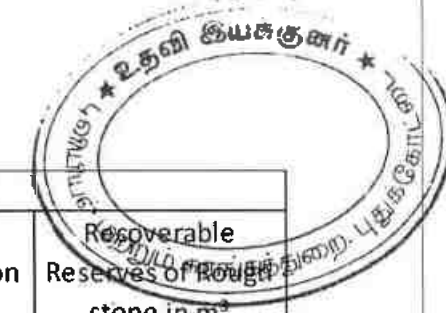


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[Signature]
RADHA KRISHNAN, M.Sc.,
RECOGNISED QUALIFIED PERSON
Reg.No. RPF/MAS/119/98/A

PLATE NO-VII-B
RESERVES ESTIMATION



GEOLOGICAL RESOURCES						
Section	Length in (m)	Width in (m)	Depth in (m)	Volume m ³	Geological Resources of Gravel in m ³	Geological Resources of Roughstone in m ³
XY-AB	53	24	2	2544	2544	
	53	56	65	192920		192920
XY-CD	45	49	2	4410	4410	
	63	64	65	262080		262080
X1Y1-AB	82	34	2	5576	5576	
	100	34	65	221000		221000
TOTAL					12530	676000

MINEABLE RESERVES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Gravel Formation in m ³	Mineable Reserves of Rough stone in m ³
XY-AB	130-128	43	17	2	1462	1462	
	128-123	43	17	5	3655		3655
	123-118	43	17	5	3655		3655
	118-113	43	17	5	3655		3655
	113-108	43	17	2	1462		1462
	113-108	43	49	3	6321		6321
	108-103	38	44	5	8360		8360
	103-98	33	39	5	6435		6435
	98-93	28	34	5	4760		4760
	93-88	23	29	5	3335		3335
TOTAL						1462	41638
XY-CD	130-128	55	34	2	3740	3740	
	128-123	55	34	5	9350		9350
	123-118	38	29	3	3306		3306
	123-118	38	44	2	3344		3344
	118-113	38	39	5	7410		7410
	113-108	39	29	2	2262		2262
	113-108	56	29	3	4872		4872
	108-103	50	19	5	4750		4750
TOTAL						3740	35294
X1Y1-AB	130-128	67	27	2	3618	3618	
	128-123	67	27	5	9045		9045
	123-118	80	22	5	8800		8800
	118-113	70	17	5	5950		5950
TOTAL						3618	23795
GRAND TOTAL						8820	100727

YEARWISE DEVELOPMENT & PRODUCTION RESERVES								
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m³	Gravel Formation in m³	Recoverable Reserves of Rough stone in m³
I	XY-AB	130-128	43	17	2	1462	1462	
		128-123	43	17	5	3655		3655
		123-118	43	17	5	3655		3655
	XY-CD	130-128	55	34	2	3740	3740	
		128-123	55	34	5	9350		9350
		123-118	38	29	3	3306		3306
		123-118	38	44	2	3344		3344
TOTAL							5202	23310
II	X1Y1-AB	130-128	67	27	2	3618	3618	
		128-123	67	27	5	9045		9045
		123-118	80	22	5	8800		8800
	XY-AB	118-113	43	17	5	3655		3655
TOTAL							3618	21500
III	XY-AB	113-108	43	17	2	1462		1462
		113-108	43	49	3	6321		6321
	XY-CD	118-113	38	39	5	7410		7410
		113-108	39	29	2	2262		2262
		113-108	56	29	3	4872		4872
TOTAL								22327
IV	XY-AB	108-103	38	44	5	8360		8360
		103-98	33	39	5	6435		6435
	XY-CD	108-103	50	19	5	4750		4750
TOTAL								19545
V	XY-AB	98-93	28	34	5	4760		4760
		93-88	23	29	5	3335		3335
	X1Y1-AB	118-113	70	17	5	5950		5950
TOTAL								14045
GRAND TOTAL							8820	100727

PREPARED BY:

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 V. ADHIKRISHNAN, M.Sc.,
 RECOGNISED QUALIFIED PERSON
 Reg.No.RDP/MAS/119/98/A

PLATE NO-VIII

THIRU. P.SABAPATHI

S/o. PALANIYANDI

No. 971, SEETHAPATTY, MAMPATTY,

ILUPPUR TALUK, PUDUCHOTTAI DISTRICT

QUARRY LEASE APPLIED AREA

S.F.Nos : 153/2, 3, 4A, 4B, 4C & 5

EXTENT : 1.18.5 Ha

VILLAGE : VEERAPATTI

TALUK : ILUPPUR

DISTRICT : PUDUKKOTTAI

INDEX

Q.L.APPLIED BOUNDARY

7.5m & 10m SAFETY AREA

TEMPORARY BENCH MARK

APPROACH ROAD

CONTOUR

EXISTING QUARRY PIT

STRIKE & DIP

ROUGH STONE

GRAVEL

S1 FENCING

CONCEPTUAL AFFORESTATION

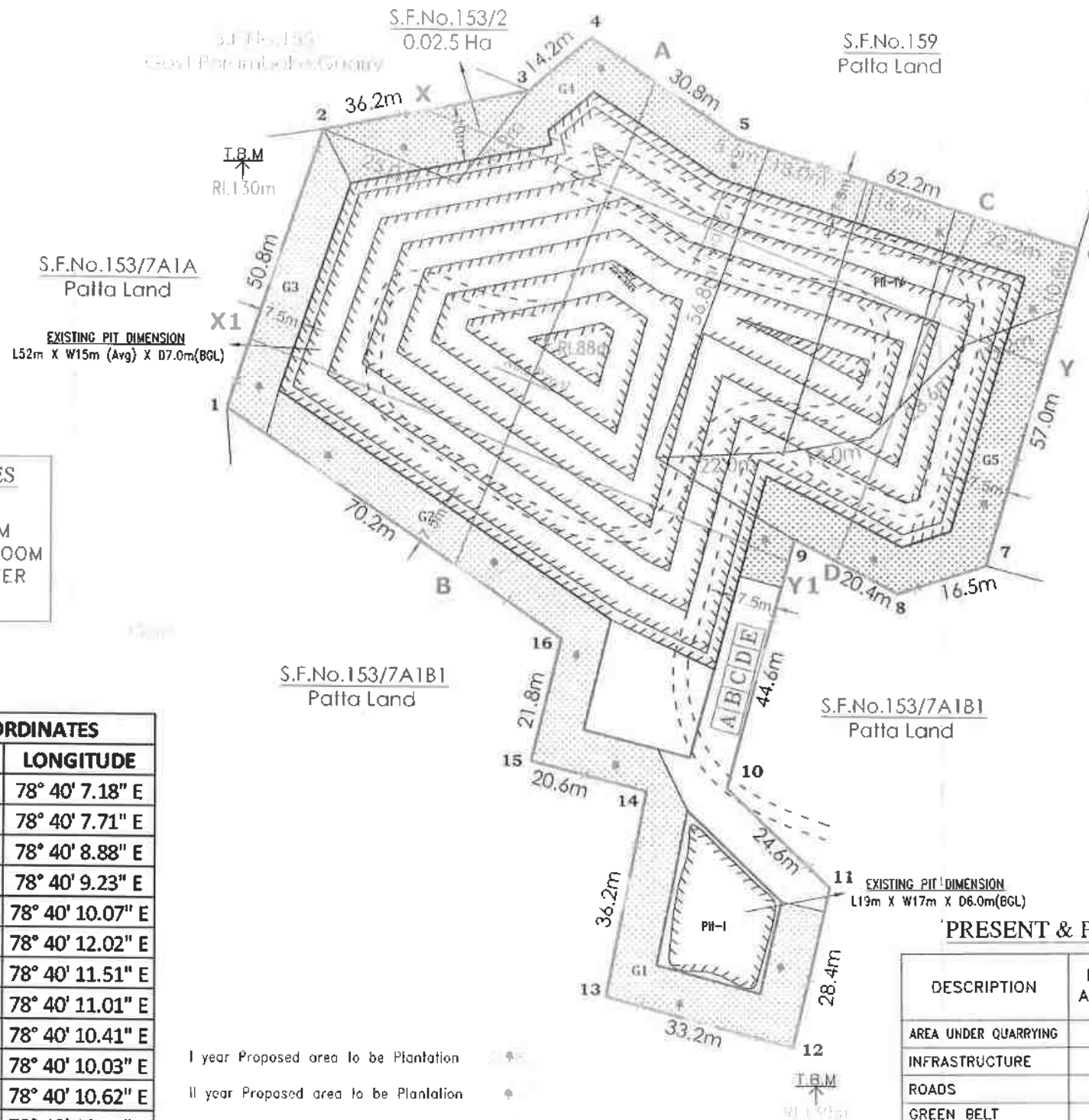
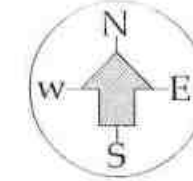
MINE CLOSURE PLAN & SECTION

Scale 1 : 1000

PREPARED BY:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

(Signature)
K. RADHAKRISHNAN, M.Sc.,
RECOGNISED QUALIFIED PERSON
Reg. No. RDP/MAS/119/98/A



S.F.No.160
Patta Land

GREEN BELT YEAR	LENGTH (M)	WIDTH (M)	TOTAL (Ha)
G1	148.0M	7.5M	0.11.1
G2	60.0M	7.5M	0.04.5
G3	46.0M	7.5M	0.03.4
G4	100.0M	7.5M	0.07.5
G5	125.0M	7.5M	0.09.3
I-V YEAR TOTAL (Ha)			0.35.8

PRESENT & POST LAND USE PATTERN

DESCRIPTION	PRESENT AREA (Ha)	AREA IN USE DURING THE QUARRYING PERIOD (Ha)	COLOR CODE
AREA UNDER QUARRYING	0.31.8	0.60.7	
INFRASTRUCTURE	0.01.0	0.03.0	
ROADS	0.01.0	0.02.0	
GREEN BELT	0.02.0	0.35.8	
UN-UTILIZED AREA	0.82.7	0.17.0	
GRAND TOTAL	1.18.5	1.18.5	

SITE SERVICES

- A - OFFICE
- B - STORE ROOM
- C - FIRST AID ROOM
- D - REST SHELTER
- E - TOILET

BOUNDARY CO-ORDINATES

LABEL	LATITUDE	LONGITUDE
1	10° 27' 57.37" N	78° 40' 7.18" E
2	10° 27' 58.94" N	78° 40' 7.71" E
3	10° 27' 59.16" N	78° 40' 8.88" E
4	10° 27' 59.47" N	78° 40' 9.23" E
5	10° 27' 58.90" N	78° 40' 10.07" E
6	10° 27' 58.30" N	78° 40' 12.02" E
7	10° 27' 56.51" N	78° 40' 11.51" E
8	10° 27' 56.35" N	78° 40' 11.01" E
9	10° 27' 56.65" N	78° 40' 10.41" E
10	10° 27' 55.25" N	78° 40' 10.03" E
11	10° 27' 54.69" N	78° 40' 10.62" E
12	10° 27' 53.79" N	78° 40' 10.41" E
13	10° 27' 54.07" N	78° 40' 09.36" E
14	10° 27' 55.23" N	78° 40' 09.58" E
15	10° 27' 55.39" N	78° 40' 08.92" E
16	10° 27' 56.08" N	78° 40' 09.09" E

WGS - 84 DATUM

I year Proposed area to be Plantation

II year Proposed area to be Plantation

III year Proposed area to be Plantation

IV year Proposed area to be Plantation

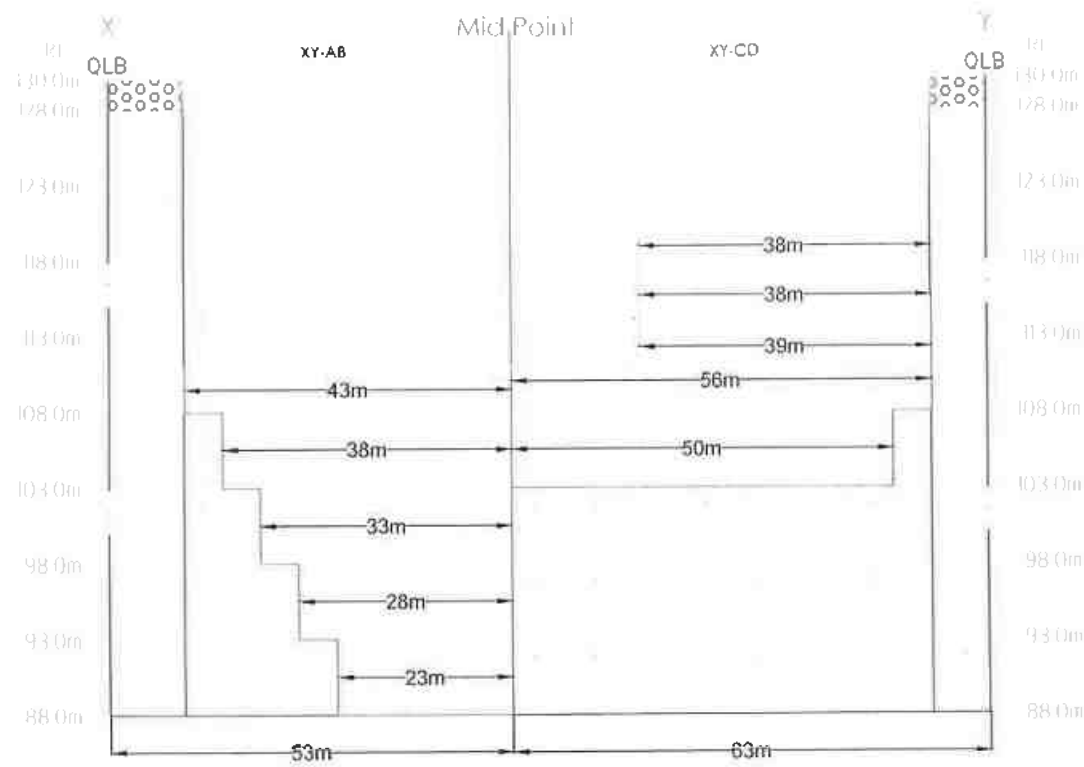
V year Proposed area to be Plantation

PLATE NO-VIII-A CONCEPTUAL PLAN & SECTION

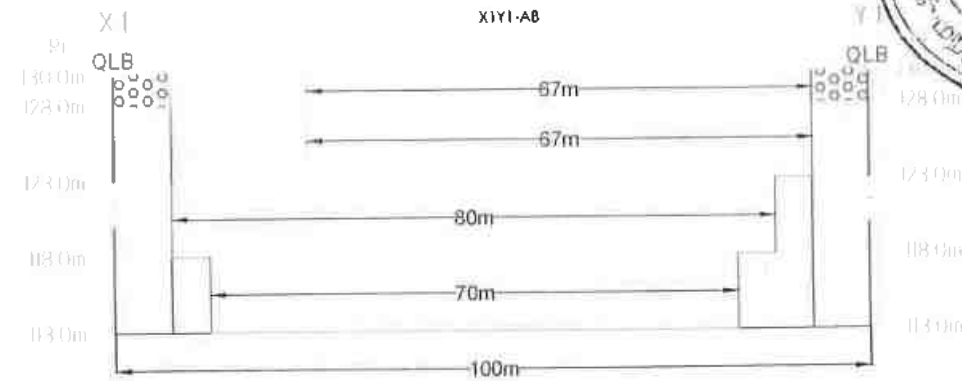
SCALE: SECTION:
HOR-1:1000
VER-1:500



SECTION ALONG X-Y



SECTION ALONG X1-Y1

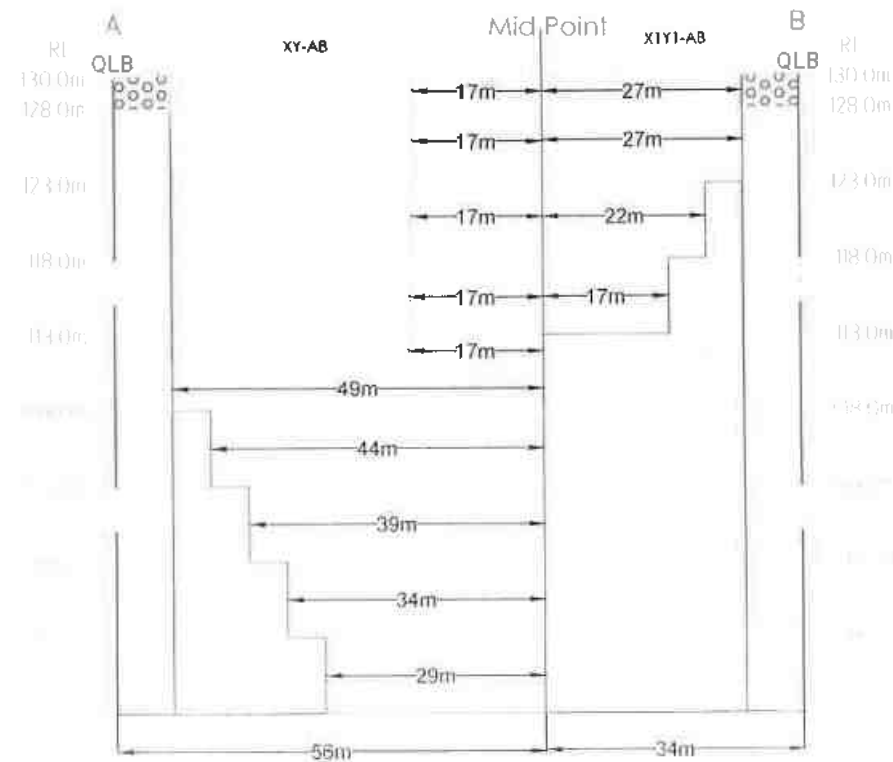


ULTIMATE PIT DIMENSION

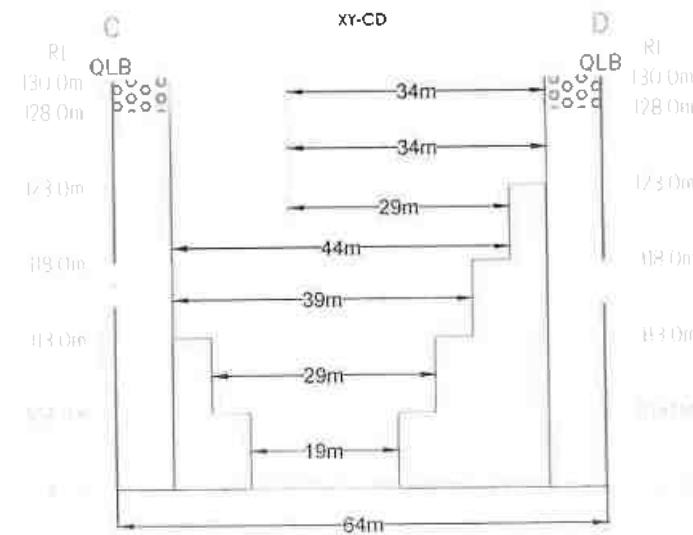
PIT I - L98m X W62m (Avg) X D42.0m (BGL)



SECTION ALONG A-B



SECTION ALONG C-D



PREPARED BY:

I DO HEREBY CERTIFY THAT THE PLATE
HAS BEEN CHECKED BY ME AND IS
CORRECT TO THE BEST OF MY KNOWLEDGE

[Signature]
VRADHA RISHNAN, M.Sc.,
RECOGNISED QUALIFIED PERSON
Reg.No.RQP/MAS/119/98/A

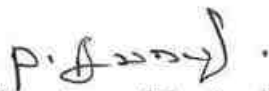
ANNEXURE-VII
VAO CERTIFICATE

Topographical view of Veerapatti Rough stone & Gravel Quarry lease area



Applicant: **Thiru. P.Sabapathi**, S/o. Palaniyandi, residing at No. 971, Seethappatty, Mampatty, Iluppur Taluk, Pudukkottai - 622 102. The Rough stone & Gravel quarry over an extent of 1.18.5 hectares of Own / Consent Patta Land in S.F.Nos. 153/2 (0.02.5), 153/3 (0.79.0), 153/4A (0.10.5), 153/4B (0.06.0), 153/4C (0.05.5), 153/5 (0.15.0) of Veerapatti Village, Iluppur Taluk, Pudukkottai District.


Attestation of the Village
Administrative office
15/3/2023
வீரப்பட்டி கிராமம்
இலுப்பூர் தாலுக்கா
புதுக்கோட்டை மாவட்டம்


Signature of the Applicant
(P.Sabapathi)

சான்று

புத்தலைய மாவட்டம், இலங்கை, கிராம நிர்வாக அலுவலர் அளக்கும் சான்று.

கிராம நிர்வாக அலுவலர் அளக்கும் சான்று.

புத்தலைய மாவட்டம், இலங்கை, கிராம நிர்வாக அலுவலர் அளக்கும் சான்று.

என்ற முகவரியில் வசிக்கும் திரு. பழனிசாமி என்பவரின் மகன் திரு. சிவசாமி என்பவர்,

புத்தலைய மாவட்டம், இலங்கை, கிராம நிர்வாக அலுவலர் அளக்கும் சான்று.

சர்வேஎண்: 153/2, 3, 4A, 4B, 4C, 5 பட்டா நிலத்தில், மொத்தபரப்பு 1.18.5 ஹெக்டர் பரப்பளவில் கட்டி வெட்டியெடுக்க குவாரி குத்தகை அனுமதி கோரியுள்ளார்.

மேற்கண்ட குவாரி குத்தகை அனுமதி கோரியுள்ள இடத்தை சுற்றி சுமார் 300மீட்டர் சுற்றளவில் கிராம நத்த குடியிருப்பு பகுதிகள், அங்கீகரிக்கப்பட்ட வீட்டு மனைகள், கோயில்கள், புராதான வரலாற்று சின்னங்கள் மற்றும் மின்மயானங்கள் எதுவும் இல்லை குவாரி அனுமதி கோரி விண்ணப்பித்துள்ள புலத்திற்கு வண்டிகள் சென்று வரும் கிராம சாலைகளுக்கு இடையூறுகள் எதுவும் இல்லை, மேலும் பொதுமக்களுக்கோ, அருகில் உள்ள அரசு புறம்போக்கு மற்றும் பட்டாதாரர்களுக்கோ எந்தவித இடையூறுகள் இல்லை என தெரிவித்து கொள்கிறேன்.

கிராம நிர்வாக அலுவலர் கையொப்பம்.

கிராம நிர்வாக அலுவலர்
விரப்படி கிராமம்
இலங்கை
புத்தலைய மாவட்டம்

ANNEXURE-VIII
BLASTING DOCUMENT



தமிழ்நாடு தமிழ்நாடு TAMIL NADU

தமிழ்நாடு எண் : 5.9.2022
 நாள் :
 வாங்குபவர் பெயர் : Hவன சந்திரா
 உள் :
 தொகை : 20/- கிராமியர்

05AC 669303

S. அக்ஷா

முத்திரைத்தாள் விருப்பனாயா:
 உரிமம் எண்: 8/2011,
 கடைவிதி, இலுப்பூர்-அஞ்சல்,
 புதுக்கோட்டை, மாவட்டம்.

BLASTING WORK CONTRACT AGREEMENT

THE Day Of 13TH MARCH 2023

R.Bhuvanasundari M/S BHUVANA Explosives, Illuppur having explosive
 License No:E10423 and Explosives Magazine situated at Edayapatty Village
 Illuppur Taluk hereinafter referred as Part-1 entered into an Blasting Contract
 agreement with P.Sabapathi, S/O.Palaniyandi, NO:971/,Seethappatti ,Mambatti,
 Illuppur Taluk, Pudukkottai district Having their Mines/Quarry in S.F. No
 153/2, 153/3, 153/4A, 153/4B, 153/4C & 153/5,over on extent of 1.18.5 hecets
 Veerappatti village, Illuppur Taluk, Pudukkottai district Hereinafter referred as
 Party 2 on and both the parties agreed for the following.

For BHUVANA EXPLOSIVES

R. Buvana Sundari

P. Sabapathi

- a. Party 2 has to place his order for requirement of explosive to Party -1 and Party -1 has to transport the Explosives as per the Order, from his Explosive Magazine to Mines / Quarry Worksite of the Party-2
- b. Party 2 has to use his explosives and he has to do the Blasting work, in the Mines Quarry with an authorized short firer permit holder which is issued by the Explosive Department, Madras.
- c. Party -2 has to pay for the cost of the Explosives, transport charges and other expenses incidental to blasting to party - 1 as agreed by both the parties 1 and 2.
- d. Party -2 has make his own arrangement to remove all the broken materials at his own cost.
- e. This agreement is valid from the date signing by both Parties till the completion of Blasting Contract work from Party - 2 by giving in writing for clearing the agreement.

Signature

For BUVANA EXPLOSIVES
R. Buvana Sundari

[Handwritten Signature]

R. Bhuvanasundari,
M/S Buvana Explosives,
Explosives Dealers & Blasting Contractors.
Illuppur Post, Illuppur Taluk,
Pudukkottai District

Witness

1. *[Signature]* RAGOMANAL SO Ganesamy needa
Needa Illuppur

2. *[Signature]* M. S. SINGARAO SIVUZZI POST PUDUKKOTTAI (DIST)
So/ Illuppur Illuppur Taluk



वाणिज्य और उद्योग मंत्रालय Ministry of Commerce & Industry

26. 8850135 ரோட் மும்பைக்கன ரென்னை 26/8850135 Road, Mumbakkann Chennai 600016

फोन (Phone): 98281023 फैक्स (Fax): 98281849
ई-मेल (Email): jeechemnug@explosives.gov.in

03-27-2011 15:07:18/22/195(E:10423)

444 2010年10月

[illegible]

RESEARCH AND DEVELOPMENT: NEW MATERIALS FOR EXPLOSIVES

1900-1901, 1901-1902, 1902-1903, 1903-1904, 1904-1905, 1905-1906, 1906-1907, 1907-1908, 1908-1909, 1909-1910, 1910-1911, 1911-1912, 1912-1913, 1913-1914, 1914-1915, 1915-1916, 1916-1917, 1917-1918, 1918-1919, 1919-1920, 1920-1921, 1921-1922, 1922-1923, 1923-1924, 1924-1925, 1925-1926, 1926-1927, 1927-1928, 1928-1929, 1929-1930, 1930-1931, 1931-1932, 1932-1933, 1933-1934, 1934-1935, 1935-1936, 1936-1937, 1937-1938, 1938-1939, 1939-1940, 1940-1941, 1941-1942, 1942-1943, 1943-1944, 1944-1945, 1945-1946, 1946-1947, 1947-1948, 1948-1949, 1949-1950, 1950-1951, 1951-1952, 1952-1953, 1953-1954, 1954-1955, 1955-1956, 1956-1957, 1957-1958, 1958-1959, 1959-1960, 1960-1961, 1961-1962, 1962-1963, 1963-1964, 1964-1965, 1965-1966, 1966-1967, 1967-1968, 1968-1969, 1969-1970, 1970-1971, 1971-1972, 1972-1973, 1973-1974, 1974-1975, 1975-1976, 1976-1977, 1977-1978, 1978-1979, 1979-1980, 1980-1981, 1981-1982, 1982-1983, 1983-1984, 1984-1985, 1985-1986, 1986-1987, 1987-1988, 1988-1989, 1989-1990, 1990-1991, 1991-1992, 1992-1993, 1993-1994, 1994-1995, 1995-1996, 1996-1997, 1997-1998, 1998-1999, 1999-2000, 2000-2001, 2001-2002, 2002-2003, 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, 2017-2018, 2018-2019, 2019-2020, 2020-2021, 2021-2022, 2022-2023, 2023-2024, 2024-2025, 2025-2026, 2026-2027, 2027-2028, 2028-2029, 2029-2030, 2030-2031, 2031-2032, 2032-2033, 2033-2034, 2034-2035, 2035-2036, 2036-2037, 2037-2038, 2038-2039, 2039-2040, 2040-2041, 2041-2042, 2042-2043, 2043-2044, 2044-2045, 2045-2046, 2046-2047, 2047-2048, 2048-2049, 2049-2050, 2050-2051, 2051-2052, 2052-2053, 2053-2054, 2054-2055, 2055-2056, 2056-2057, 2057-2058, 2058-2059, 2059-2060, 2060-2061, 2061-2062, 2062-2063, 2063-2064, 2064-2065, 2065-2066, 2066-2067, 2067-2068, 2068-2069, 2069-2070, 2070-2071, 2071-2072, 2072-2073, 2073-2074, 2074-2075, 2075-2076, 2076-2077, 2077-2078, 2078-2079, 2079-2080, 2080-2081, 2081-2082, 2082-2083, 2083-2084, 2084-2085, 2085-2086, 2086-2087, 2087-2088, 2088-2089, 2089-2090, 2090-2091, 2091-2092, 2092-2093, 2093-2094, 2094-2095, 2095-2096, 2096-2097, 2097-2098, 2098-2099, 2099-2100, 2100-2101, 2101-2102, 2102-2103, 2103-2104, 2104-2105, 2105-2106, 2106-2107, 2107-2108, 2108-2109, 2109-2110, 2110-2111, 2111-2112, 2112-2113, 2113-2114, 2114-2115, 2115-2116, 2116-2117, 2117-2118, 2118-2119, 2119-2120, 2120-2121, 2121-2122, 2122-2123, 2123-2124, 2124-2125, 2125-2126, 2126-2127, 2127-2128, 2128-2129, 2129-2130, 2130-2131, 2131-2132, 2132-2133, 2133-2134, 2134-2135, 2135-2136, 2136-2137, 2137-2138, 2138-2139, 2139-2140, 2140-2141, 2141-2142, 2142-2143, 2143-2144, 2144-2145, 2145-2146, 2146-2147, 2147-2148, 2148-2149, 2149-2150, 2150-2151, 2151-2152, 2152-2153, 2153-2154, 2154-2155, 2155-2156, 2156-2157, 2157-2158, 2158-2159, 2159-2160, 2160-2161, 2161-2162, 2162-2163, 2163-2164, 2164-2165, 2165-2166, 2166-2167, 2167-2168, 2168-2169, 2169-2170, 2170-2171, 2171-2172, 2172-2173, 2173-2174, 2174-2175, 2175-2176, 2176-2177, 2177-2178, 2178-2179, 2179-2180, 2180-2181, 2181-2182, 2182-2183, 2183-2184, 2184-2185, 2185-2186, 2186-2187, 2187-2188, 2188-2189, 2189-2190, 2190-2191, 2191-2192, 2192-2193, 2193-2194, 2194-2195, 2195-2196, 2196-2197, 2197-2198, 2198-2199, 2199-2200, 2200-2201, 2201-2202, 2202-2203, 2203-2204, 2204-2205, 2205-2206, 2206-2207, 2207-2208, 2208-2209, 2209-2210, 2210-2211, 2211-2212, 2212-2213, 2213-2214, 2214-2215, 2215-2216, 2216-2217, 2217-2218, 2218-2219, 2219-2220, 2220-2221, 2221-2222, 2222-2223, 2223-2224, 2224-2225, 2225-2226, 2226-2227, 2227-2228, 2228-2229, 2229-2230, 2230-2231, 2231-2232, 2232-2233, 2233-2234, 2234-2235, 2235-2236, 2236-2237, 2237-2238, 2238-2239, 2239-2240, 2240-2241, 2241-2242, 2242-2243, 2243-2244, 2244-2245, 2245-2246, 2246-2247, 2247-2248, 2248-2249, 2249-2250, 2250-2251, 2251-2252, 2252-2253, 2253-2254, 2254-2255, 2255-2256, 2256-2257, 2257-2258, 2258-2259, 2259-2260, 2260-2261, 2261-2262, 2262-2263, 2263-2264, 2264-2265, 2265-2266, 2266-2267, 2267-2268, 2268-2269, 2269-2270, 2270-2271, 2271-2272, 22

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ANDHRA PRADESH GOVT. GAMMA PUDURKOTTAI EDVAPATTI VILLAGE जिला PUDURKOTTAI राज्य Andhra Pradesh में विस्फोटक के उपयोग के लिए कक्षा है। विस्फोटक नियम 2008 के अंतर्गत 19.03.2011 में जारी अनुज्ञप्ति सं. SC 19.12.14(1) 194331 के नवीनीकरण सट्ट में।

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साथ ही आदेशों के विषय में पत्र सहायक सचिव दिनांक 13/03/2019 का सदृश ग्रहण करें। विम्पोटक नियम 2008 के अन्तर्गत प्ररूप 1 में जारी अनुमति दिनांक 31/3/2024 तक।

For the purpose of the letter No. 31 dated 31/03/2019, the subject licence duly renewed upto 31/3/2024 and issued in Form F-1 of Explosives Rules, 2008 is forwarded.

आवेदनकर्ता को समझाई दी जायेगी। हस्तु कृपया निम्नलिखित दस्तावेज दिनांक 31/03/2024 से पहले इस कार्यालय को भेजे जाए।
 Please forward the following documents to reach this office on or before 31/3/2024

- बैंक संचित रूप में प्रमाणित आवेदन।
Bank savings form duly filled in and signed
- एक संचित रूप के मांगपत्र शुल्क का बैंक ड्राफ्ट। बैंक ड्राफ्ट जिसी भी राष्ट्रीयकृत बैंक के नाम अंकित, समुक्त मुख्य विस्फोटक नियंत्रक चेन्नई व पदा से
Demand draft for one to five years in the form of demand draft drawn on any Nationalized Bank in favour of Jt. Chief Controller of Explosives, Chennai
- अनुमोदित प्लान के साथ मूल अनुमति।
Approved plan with approved plan
- कृपया इस शब्द में विस्फोटक नियम 2008 के नियम 112 का भी संदर्भ ग्रहण करें।
In this connection, please also refer to Rule 112 of Explosives Rules, 2008
- विस्फोटकों के बचत हेतु, ब्लॉक 11 में सम्बंधित डिपॉजिट अर्पितकों को दिया जाए और इसी की एक प्रति इस कार्यालय को भेजी जाए। आवेदनकर्ता को सूचित किया जाता है।
Explosives shall be deposited in Block 11 with the supplier and copy of the same shall be sent to this office. Not applicable for fireworks.
- क्षमता विस्फोटकों की वार्षिक खेपणी हर तिमाही के अंत में भारत में परतुत की जाए। ध्वस्तों इस संबंध में कार्यलय में प्रमाणित तिमाही अंकों के साथ
से पहले प्रेषण जारी चाहिए। आवेदनकर्ता को सूचित किया जाता है। Please submit quarterly returns of explosives in Block 11 at the end of every quarter with the
relevant authority for the preceding quarter. (Not applicable for fireworks store holder)
- सारा इलास्टिक अपरेशन एक सक्षम दायरा की जाएगी जो उपरोक्त नियमों के तहत एक वैध शॉट फायर पलायन ध्वस्त हो। हालांकि खान प्रतिनिधियों को
अनुमति प्रदान करने के लिए इलास्टिक अपरेशन करने वाले ब्लास्टर की योग्यता इसी अधिनियम से निर्धारित है।
On existing operations shall be carried out by a competent person holding a valid shot fire's permit granted under above rules. However blasting operations
carried out under the purview of the Mines Act, 1952, the blaster shall have qualifications prescribed in the regulations framed under the said act.

~~संसाधनों को उपलब्ध कराने के लिए संसाधनों की कमी को पूरा करने हेतु प्रविष्टि के माध्यम से समाधानों को ढूँढना है।~~

STAY Your's faithfully

विरफोटक नियंत्रक

कृते सयुक्त मुख्य विस्फोटक निष्पन्नक For Joint Chief Controller of Explosives
दक्षिण भारत तेलंगी South Circle Chennai

संलग्नक संख्या Copy forwarded to

जिला मजिस्ट्रेट, District Magistrate, PUDUCHOTTAI, Tamil Nadu सूचना के लिए की जानकारी

कृते सयुक्त मुख्य निष्पाटक नियंत्रक For Joint Chief Controller of Explosives
दशैणांचल चेन्नै South India Office

अनुमति प्रारूप एन.ई.-3 LICENCE FORM E-3

विस्फोटक निधम, भाग-1 की अनुसूची 1 के भाग 1 के विस्फोटक से प्राप्त है।
(See article 1(a) in Part 1 of Schedule IV of Explosives Rules, 2008.)

यह उपयोग के लिए एक समय पर वर्ग 1, 2, 3, 4, 5 या वर्ग 7 के विस्फोटक या किसी मिस्रण में वर्ग 6 के विस्फोटक रखने
Licence to possess for use explosives of class 1, 2, 3, 4, 5 or 7 (as applicable)

अनुमति No. (Licence No.): FSI/TN/22/145(F.10423)
अधिकार क्षेत्र (Area): Rs. 9,900/-

Licence is hereby granted to

R.BHUVANASUNDARI/M/S BUVANA EXPLOSIVES (अभिनी / Occupier: R BUVANA), (112, GURUSAMY NAGAR)
PUDUKKOTTAI, PUDUKKOTTAI Town/Village - PUDUKKOTTAI, District-PUDUKKOTTAI, State-Tamil Nadu, Pincode-605 001

यह अनुमति अद्वयता की जाती है।

अनुमतिधारक की प्रकृति Status of licensee: Individual

अनुमति निम्नलिखित प्रयोजनों के लिए विधिवान्वित है।

Licence is valid only for the following purpose:

process for use of Nitrate Mixture, Safety Fuse, Detonating Fuse, Detonators, etc.

अनुमति विस्फोटक के निम्नलिखित किस्मों, प्रकार और मात्रा के लिए विधिवान्वित है।

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

क्र. सं.	नाम और विवरण Name and Description	ग्रेड और प्रकार Class & Division	उप-प्रमाण Sub-division	मात्रा किसी एक बार में Quantity at any one time
1	Nitrate Mixture	2	A	1500 Kgs
2	Safety Fuse	6	B	20000 Mtrs
3	Detonating Fuse	6	C	20000 Mtrs
4	Detonators	6	D	20000 Nos

यदि किसी एक कैलेंडर साल में छवि बनाते विस्फोटक की मात्रा अनुसूची 1 के भाग 1 के अधीन अनुमति के लिए

is the quantity of explosives to be purchased in a calendar month applicable for licence under article 3(a) and (c)

20 tonnes

निम्नलिखित रेखाचित्र, रेखाचित्रों में अनुमति परिसर की बुद्धि होती है।

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

रेखाचित्र No. (Drawing No.): 1/2/2014/2014
दिनांक (Date): 1/2/2014

अनुमति परिसर निम्नलिखित पते पर स्थित है। The licensed premises are situated at following address

Survey No. 79/2B, ग्राम (Town/Village) PUDUKKOTTAI EDYAPATTI VILLAGE

जिला (District)

दूरभाष (Phone)

राज्य (State)
ई.मैस (E-Mail)

Tamil Nadu

पुलिस थाना (Police Station): H.I.P.P.S
पिनकोड (Pincode)
कॉडर (Code)

अनुमति परिसर में निम्नलिखित सुविधाएं अनिवार्य हैं।

The licensed premises shall of following facilities

MAIN MAGAZINE, LOBBY AND DETONATOR ROOM

अनुमति समय समय पर ध्यातशील विस्फोटक अधिनियम 1884 और उसके अधीन विरचित विस्फोटक निधम 2008 के उपबंधों शर्तों और अतिरिक्त शर्तों और
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, additional conditions and the following Annexures.

उपबंध कम से कम में ध्यातशील रेखाचित्र (स्थान, संनिर्माण संबंधी और अन्य विवरण दर्शाते हुए)
Drawings (showing site, constructional and other details) as stated in serial No. 3 above

अनुमति अधिकारी द्वारा हस्ताक्षरित इस अनुमति की शर्तें और अतिरिक्त शर्तें
Conditions and Additional Conditions in this licence signed by the licensing authority

दूरी प्रारूप (D.F. 2) Distance Form Df-2

यह अनुमति तारीख 31 मार्च 1999 तक विधिवान्वित रहेगी। This licence shall remain valid till 31st day of March 1999.

यदि अनुमति अधिनियम या उसके अधीन विरचित निधम या अनुसूची 1 के भाग 1 के प्रति निर्दिष्ट सेट-VII के अधीन तथा उपबंधित इस अनुमति की शर्तों के
अधिकारण करने या यदि अनुमति परिसर योजना या उससे सम्बन्धित उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाते पर निम्नलिखित या प्रतिबंधित की जा सकती है।

This licence may be suspended or revoked for any violation of the Act or Rules framed thereunder or the conditions of this licence as set forth under Act, 1884
as amended or applicable, referred to in Part 1 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and drawings attached to
the licence.

तारीख The Date: 27/01/1998

संयुक्त मुख्य विस्फोटक नियंत्रक Joint Chief Controller of Explosives
South Circle, Chennai.

Amendments:

- Amendment of Quantity of Explosives Monthly Purchase Limit dated: 19/10/2011
- Amendment of Quantity of Explosives Monthly Purchase Limit dated: 05/11/2015

नवीनीकरण के पृष्ठानक के लिए स्थान
Space for Indorsement of Renewal

नवीनीकरण की तारीख
Date of Renewal

समाप्ति की तारीख
Date of Expiry

03/04/2019

31/03/2024

अनुमति अधिकारी के हस्ताक्षर और स्टाम्प
Signature of licensing authority and stamp

Joint Chief Controller of Explosives, South Circle, Chennai

Form DE-2
(Sec rule 113 of the Explosives Rules, 2008)
(Distance Form to be attached to the licence)

Safety distances required to be kept clear around magazine for high explosives or fire works or factory licence number E/SC/TN/22/145(E10423) in form LE-3 granted to R.BHUVANASUNDARI M/S BUVANA EXPLOSIVES, 112/2.GURUSAMY NAIDU ST. ILUPPUR POST. PUDUKKOTTAI, Tamil Nadu.

Type of Structure(s)	Safety distances meters	
	M	U.M
Inside Safety Distances(ISD)		
1 Room or Workshop used in Connection with the Magazine	38	57
2 Any other Explosives Magazine or store House or Factory of the Applicant		
3 Magazine Office		
Middle Safety Distances(MSD)		
4 Magazine Keeper's or Chowkidar's Dwelling house		
5 Railway including Minerals and Private Railways		
6 Canal (in active use) or other navigable water		
7 Dock or Pier or Jetty		
8 Public Highway or Public Road		165
9 Private Road which is PRINCIPAL means of access to a Temple, Mosque, Church, Gurudwara or other places of worships, Hospital, College, School or Factory		
10 River Embankment or Sea Embankment or Public Well		
11 Reservoir or Bounded tank/rope way		
12 Windmillor or Solar panel for Power Generation		
Outside Safety Distances(OSD)		
13 Dwelling House		
14 Govt. and Public Building		
15 Temple, Mosque, Church or Gurudwara or other Places of Worships		
16 Shops, Market place, Public recreation and Sports Ground, College, School, Hospital, Theater, Cinema or other Building where the public are accustomed to assemble		
17 Factory		
18 Buildings or Works used for the Storage in Bulk of Petroleum, Spirit, gas, or other inflammable or hazardous substances		225
19 Building or Works used for Storage and Manufacture of Explosives or of articles which contain Explosives		
20 Aerodrome		
21 Furnace, Kiln or Chimney		
22 Quarry or mine pit head		
23 Power House or Electric Substation		
24 Wireless Station		
25 Warehouse or other Storage Building		
26 Any other Protected works		
Overhead Electric lines		
27 Electric Power over head Transmission Lines above 440V		90
28 Electric Power over head Transmission Lines upto 440V		15

The Date : 27/01/1998

For Joint Chief Controller of Explosives
South Circle, Chennai

Amendments :

- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 19/10/2011

<http://10.0.1.11/IntExp/Form18.asp?LetterGeneratedYN=Y>

4/2/2019

ANNEXURE-IX

AFFIDAVIT AND CER DETAILS



தமிழ்நாடு தமிழ்நாடு TAMILNADU

தமிழ்நாடு எண்

நாள்

வாங்குபவர் பெயர்

மூர்

தொகை

13.3.2023

சுந்தி
இச்சிபு

100/-

CU 841939

சுந்தி அப்துல் ரகுமான்

முத்திரைத்தாள் விற்பனையாளர்,

உரிமம் எண்: 2/2008

கடை வீதி, அன்னவாசல்.

AFFIDAVIT TO SEIAA – TAMIL NADU

I Thiru P.Sabapathi,S/o. Palaniyandi residing at No.971, Seethapatty, Mampatty, Iluppur Taluk, Pudukkottai District – 622 102 Solemnly declare and sincerely affirm that:

I have applied for Prior Environment Clearance to SEIAA, Tamil Nadu State for quarry lease for quarrying of Rough stone and Gravel Quarry over an extent of 1.18.5 hectares of Own / Consent Patta Land in S.F.Nos. 153/2 (0.02.5), 153/3 (0.79.0), 153/4A (0.10.5), 153/4B (0.06.0), 153/4C (0.05.5), 153/5 (0.15.0) of Veerapatti Village, Iluppur Taluk, Pudukkottai District, Tamil Nadu State.



BEFORE ME
N. CRADHAKRISHNAN, S. B. D. I. L.,
ADVOCATE & NOTARY PUBLIC
G.O. Ms. No: 290, Law Dept. Dt: 02.11.2020
No: 27, Charles Nagar 2nd Street,
Collectorate Post Office,
PUDUKKOTTAI-622006. TAMILNADU, S. INDIA

P. S. Sabapathi

1. I swear to state and confirm that within 10 Km area of the quarry site, I have applied for environment clearance, none of the following is situated.
 - a. Protected areas notified under the wild life (Protection) Act, 1972.
 - b. Critically polluted areas notified by central pollution control board constituted under water. (Prevention and control of pollution) Act, 1974.
 - c. Eco sensitive areas as notified.
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 Lakhs)	CER Cost 2.0% of project cost (Rs in Lakhs)
1. Planting and maintaining Native species of Neem and Pungan trees periphery of the village haul road, or any other recommendations by SEAC	35.95	0.71
Total Cost Allocation	35.95	0.71

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

i) Existing Other Quarries

S. No.	Name of the Lessee / Permit Holder	Village & Taluk	S.F.No.	Extent (in Hects)	Lease Pertiod
	Thiru K.Manicam, S/o. Krishnan, Agarappatti, Vayalogam Po, Illuppur Taluk, Pudukkottai	Veerapatti Illuppur	153/7A1B1	0.73.5	28.02.2022 To 27.02.2027

ii) Proposed Area

S. No.	Name and Address of the applicant	Village & Taluk	S.F.No.	Extent (in Hects)
1	Thiru. Dineshwaran S/o. Devadass, No.54/B, Periyasengapatti Annavaasal, Illuppur Taluk, Pudukkottai District.	Veerapatti Illuppur	145/3A 154/4A	0.87.5
2	Thiru.Selvaraj, S/o. Cokkalingam, No.34/D, Sengappatti, Annavaasal, Illuppur Taluk, Pudukkottai District.	Veerapatti Illuppur	159/5B2, 160, 161/1, 159/3A, 159/3B, 159/3C, 159/4A, 159/4B, 159/5A & 159/5B1	2.17.0
3	Thiru.M.Karuppaiya, S/o. Maduraiveeran, No.252, West Street, Mannavelampatti, Mangudi, Illuppur Taluk, Pudukkottai District.	Veerapatti Illuppur	153/11, 153/9A2 & 153/7A1B2A	1.62.5



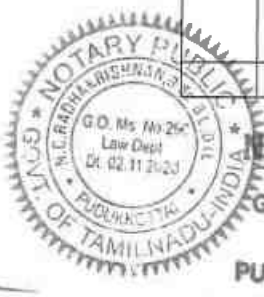
N.C. RADHAKRISHNAN, B.Sc., B.L., D.L.L.,
ADVOCATE & NOTARY PUBLIC
G.O. Ms. No. 290, Law Dept. Dt: 02.11.2020
No. 27, Charles Nagar 2nd Street,
Collectorate Post Office,
PUDUKKOTTAI-622005, TAMILNADU, INDIA

P. Manoj

4	Thiru.P.Sabapathi, S/o. Palaniyandi, Seethapatty, Kilikudi Post, Illuppur Taluk, Pudukkottai District.	Veerapatti Illuppur	153/2 & etc	1.18.5
			Total	5.85.5

iii) Lease expired

S. No.	Name of the Lessee / Permit Holder	Village & Taluk	S.F.No.	Extent (in Hects)	Lease Period
1	Thiru.C.Shanmugam, S/o. Chidambaram, Sivankoil Theru, Illuppur Taluk, Pudukkottai District.	Veerapatti Illuppur	532/3J	0.60.5	19.01.2017 to 18.01.2022
2	Thiru.A.Alagupandian, S/o. Alaguperumal Poikadipatti, Illuppur Taluk, Pudukkottai District.	Veerapatti Illuppur	148/3A	0.33.0	31.12.2016 to 29.12.2021
3	Thiru.A.Alagupandian, S/o. Alaguperumal Poikadipatti, Illuppur Taluk, Pudukkottai District.	Veerapatti Illuppur	145/3A 145/4A	0.87.5	01.03.2016 to 28.02.2021
4	Thiru C.Chelladurai S/o. Chinnaiah, Veerappatti Village & Post Illuppur Taluk, Pudukkottai District.	Veerapatti Illuppur	145/1	0.88.0	30.07.2016 to 29.07.2021
5	Thiru.U.Vanasamoorthy, S/o.Umayan Seky, Puginipatti, Irundhirapatti	Veerapatti Illuppur	153/1 & etc	0.41.0	23.06.2016 to 22.06.2021
6	Thiru.P.Sabapathi, S/o. Palaniyandi, Seethapatty, Kilikudi Post, Illuppur Taluk, Pudukkottai District.	Veerapatti Illuppur	152/2 & etc	1.18.5	23.08.2017 to 22.08.2022
7	Thiru D.Ramu Servai S/o.Duraisamy Servai, Mannavelampatti, Illuppur Taluk, Pudukkottai District.	Veerapatti Illuppur	153/6B	0.46.0	29.09.2017 to 28.09.2022
			Total	4.74.5	



E.C. RADHAKRISHNAN, B.Sc., B.L., D.L.L.,
ADVOCATE & NOTARY PUBLIC
G.O. Ms. No: 290, Law Dept. Dt: 02.11.2020
No: 27, Charles Nagar 2nd Street,
Collectorate Post Office,
PUDUKKOTTAI-622006, TAMILNADU, S.INDIA

P-22222

4. There will not be any hindrance or disturbance to the people during transportation. No village are en routed during transportation.
5. There is no approved habitation within 300 m radius from the periphery of my 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 labours working in my quarry site.
8. I will not engage any child labour in my quarry provided to all the laborers working in my quarry.
9. I will not engage any child labour for any kind or quarry works.
10. All types of safety / Personal protective equipment will be provided to all the laborers working in my quarry.
11. There is no permanent structures, located within 300m radius from the periphery of my quarry.

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

P.Sabapathi

P. Sabapathi
(Deponent)



N.E. Radhakrishnan
N.E. RADHAKRISHNAN, S.Sc., B.L., D.L.L.,
ADVOCATE & NOTARY PUBLIC
S.O. Ms. No: 290, Law Dept. Dt: 02.11.2020
No: 27, Charles Nagar 2nd Street,
Collectorate Post Office,
PUDUKKOTTAI-622005, TAMILNADU, S.INDIA

Solemnly affirmed and
signed before me at
Pudukkottai on 13/3/23

Notary Register st. No 7/23

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

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website.