

April 2024

Application Form (Draft EIA Report)

For

Proposed Rough stone and Gravel Quarry –
1.53.5 Ha

at

S. F Nos. 210/7C1 and 210/8A1B of Melur Village of
Kulathur Taluk, Pudukkottai District,
Tamil Nadu State

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

Category of the Project: B1 Cluster Mining

Baseline Period: January, February & March 2024

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



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

Proponent details:

**Thiru.M.Nallaiyah,
S/o.Marikonar,
No: 8668/4,
Chola Real Estate,
Thiruvappur,
Pudukkottai Taluk,
Pudukkottai District
622 002**

Date:

From

Thiru.M.Nallaiyah,
S/o. Marikonar,
No.8668/4, Chola Real Estate,
Thiruvappur, Pudukkottai Taluk,
Pudukkottai District – 622 002.

To

The District Environmental Engineer

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

Sir,

Sub: Request to conduct Public Hearing – “Thiru.M.Nallaiyah Rough Stone and Gravel Quarry” over a total extent of 1.53.5 Ha at S. F. Nos. 210/7C1 & 210/8A1B Melur Village, Kulathur Taluk, Pudukkottai District, Tamil Nadu – Regarding.

Ref: Letter No. SEIAA-TN/F. No. 9742/SEAC/ ToR-1536/2023 Dated: 22.08.2023

Please find enclosed herewith the application of Draft EIA Report along with necessary enclosures towards seeking environmental clearance for the “Thiru.M.Nallaiyah Rough Stone and Gravel Quarry” over a total extent of 1.53.5 Ha at S. F. Nos. 210/7C1 & 210/8A1B Melur Village, Kulathur Taluk, Pudukkottai District, Tamil Nadu. 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.M. Nallaiyah,
S/o. Marikonar,
No.8668/4, Chola Real Estate,
Thiruvappur, Pudukkottai Taluk,
Pudukkottai District – 622 002.

UNDERTAKING

I, Thiru.M. Nallaiyah, undertaking that the Draft Environmental Impact Assessment (EIA) Report for Rough Stone and Gravel Quarry over an extent of 1.53.5 Ha at S.F.No. 210/7C1 & 210/8A1B Melur Village, Kulathur Taluk, Pudukkottai District, Tamil Nadu State under project category B1 and Schedule S.No.1(a)

TOR issued by the State Expert Appraisal Committee, TN vide Letter No. SEIAA-TN/F. No. 9742/ ToR-1536/2022 Dated: 22.08.2023.

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.M.Nallaiyah

Plot No.48A, 2nd Main Road,
Ram Nagar, South Extension,
Pallikarznai, 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
GIN : U74900TN2014PTC094895

UNDERTAKING

I, Dr. A. Dhamodharan, Managing Director confirms that this Draft EIA Report of Rough Stone and Gravel Quarry over an extent of 1.53.5 Ha at S.F.No. 210/7C1 & 210/8A1B Melur Village, Kulathur Taluk, Pudukkottai District, Tamil Nadu State has been prepared at M/s. Ecotech Labs Pvt. Ltd., Chennai.

I also confirm that I shall be fully accountable for any 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/2124/SA 0147



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.M.Nallaiyah Rough Stone and Gravel Quarry over a total extent of 1.53.5 Ha at S.F.No. 210/7C1 & 210/8A1B of Melur Village, Kulathur 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.


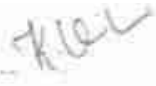

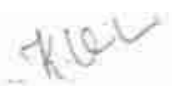
Project	New Rough Stone and Gravel Quarry – 1.53.5 Ha
Type & Category	1 (a) Mining of Minerals
Project Proponent	Thiru.M.Nallaiyah
Environment Consultant with their Accreditation Status	M/s. Eco Tech Labs Pvt. Ltd., QCI Accredited
NABET Certificate No.	NABET/ EIA/2124/ SA 0147
EIA Coordinator Name Signature	Dr. A. Dhamodharan (Mining of Minerals)  
Period of Involvement	January to March 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	<p>1. Selection of Baseline Monitoring stations based on the wind direction</p> <p>2. Interpretation of Baseline data by comparing it with standards prescribed by CPCB against the type of area</p> <p>3. Identification of sources of air pollution and suggesting mitigation measures to minimize impact</p> <p><i>Period: March 2022 – Till now</i></p>	
2	WP	Dr. A. Dhamodharan	<p>1. Selection of baseline Monitoring Locations for Ground water analysis and also identifying nearest surface water to be studied.</p> <p>2. Interpretation of baseline data collected</p> <p>3. Identification of impacts based on the baseline study conducted and also to the ground water and nearby surface water due to the proposed project</p> <p>4. Preparation of suitable and appropriate mitigation plan.</p> <p><i>Period: March 2022 – Till now</i></p>	
3	SHW	Dr. A. Dhamodharan	<p>1. Identification of nature of solid waste generated</p> <p>2. Categorization of the generated waste and estimating the quantity of waste to be generated based on the per capita basis. Identification of impacts of SHW on Environment</p> <p>3. Suggesting suitable mitigation measures by recommending appropriate disposal method for each category of waste generated</p> <p>4. Top soil and refuse management</p> <p><i>Period: March 2022 – Till now</i></p>	

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

9	AQ	Mrs. K. Vijayalakshmi	<ol style="list-style-type: none"> 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. <p>Period: March 2022 – Till now</p>	
10	NV	Mrs. K. Vijayalakshmi	<ol style="list-style-type: none"> 1. Selection of monitoring locations 2. Interpretation of baseline data 3. Prediction of impacts due to noise pollution and suggestion of appropriate mitigation measures <p>Period: May 2022 – Till now</p>	
11	LU	Dr. T. P. Natesan	<ol style="list-style-type: none"> 1. Collection of Remote sensing satellite data to study the land use pattern. 2. Primary field survey and limited field verification for land categorization in the study area 3. Preparation of Land use map using Satellite data for 10km radius around the project site. <p>Period: March 2022 – Till now</p>	
12	RH	Mrs. K. Vijayalakshmi	<ol style="list-style-type: none"> 1. Identification of the risk 2. Interpreting consequence contours 3. Suggesting risk mitigation measures <p>Period: March 2022 – Till now</p>	

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. 210/7C1 & 210/8A1B of Melur Village, Kulathur 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/2124/ SA 0147

Project	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.M.Nallaiyah</i>	
Project Location	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

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<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

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>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>	
<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

EXECUTIVE SUMMARY

1. Project Background:

The New Rough Stone Quarry over an extent of 1.53.5 Ha, Own Patta land S.F. No: 210/7C1 & 210/8A1B of Melur Village, Kulathur Taluk, Pudukkottai District. The category of the project is B1 (cluster), the lease area exhibits plain terrain covered by massive charnockite rough stone formation.

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

The quarry operation is proposed up to depth for 33.0m (Gravel 2m + 1m Weathered Rock & 30m Rough stone). The Total Geological reserve is about 26,592m³ of Gravel and 13,296m³ of Weathered Rock and 4,97,220m³ of Rough Stone. The Mineable Reserves are 17,278m³ of Gravel and 7,705m³ of Weathered Rock and 1,25,720m³ of Rough stone. Production schedule is proposed an average production of 17,728m³ of Gravel and 7,705m³ Weathered Rock and 1,25,720m³ of Rough stone for (Sixty months) Five years only.

The mining plan was approved by Geology and Mining department of Pudukkottai district letter vide no. Rc.No.368/2022 (G&M) dated 24.11.2022 from the date of execution lease dead. 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 and Gravel Quarry over an extent of 1.53.5 Hectares land is located Melur Village of Kulathur Taluk, Pudukkottai District.

Mineral intends to quarry : Rough stone and Gravel.

District : Pudukkottai

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Project Proponent	Thiru.M.Nallaiyah	
Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	

Taluk : Kulathur
Village : Melur
S. F. Nos. : 210/7C1 and 210/8A1B
Extent : 1.53.5 Hectares

Table 1: Brief Description of the Project

S. No	Particulars	Details
1	Latitude	10°26'41.1998" N to 10°26'36.3638" N
2	Longitude	78°46'03.0733" E to 78°45'57.3908" E
3	Site Elevation above MSL	110.0m above MSL.
4	Topography	Plain terrain
5	Land use of the site	Patta land
6	Extent of lease area	1.53.5 Ha
7	Nearest highway	NH 336 – Trichy to Pudukkottai Road – 1.91 Km - E SH 71 – Pudukkottai to Alangudi Road – 2.88 Km - SW
8	Nearest railway station	Vellanur Railway Station – 4.20 km - NE
9	Nearest airport	Tiruchirapalli International Airport – 35.83 km - N
10	Nearest town / city	Town - Pudukkottai – 5.68 km - SE City - Pudukkottai – 5.68 km - SE District - Pudukkottai – 5.68 km - SE
11	Rivers / Canal	Nil within 15km radius
12	Lake/Pond	❖ Keel Kulam - 1.24 Km - NE ❖ Vellanur local Pond – 2.65 Km - E ❖ Thiruvengainathar Lake – 2.99 Km – S ❖ Kili Kulam – 3.26 Km – NE ❖ Temple Pond – 1.34 Km – NW ❖ Perunjunai Lake – 2.31 Km – SW ❖ Melakulam – 3.01 Km – SW ❖ Kavinadu Kanmai – 7.03 Km – S

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		❖ Annavasal Periyakulam Lake–7.56 Km - W
13	Hills / valleys	Nil in 15 km radius
14	Archaeologically places	<ul style="list-style-type: none"> ❖ Sundaresvara temple with sub-shrine, Thirukkattalai – 12.41Km – SE ❖ Jain image and the inscription to the south of it on the summit of the sadayapparai, Nathampannai – 4.73km – SSE ❖ Cave & Jain image, Ammachathiram – 8.97km – N ❖ Jain image, Annavasal – 4.70 km – W ❖ Siva temple. Ariyur – 4.47 km – SW ❖ Siva and Pillayar temple, Mangudi – 7.70 km – SE ❖ Jain Tirthankara idol and relics of old Jain Temple – 1.77km – N ❖ Amman koil, Rock-cut Siva temple, Vijayalaya Cholisvaram and the group of subshrines around it, Rock-cut Vishnu shrine – Narthamalai – 6.73 km – N ❖ Rock-cut Jain temple, Natural Cavern with stone beds – Eladipattam – Sittannavasal – 4.61 km – W ❖ Siva Temple, Thodaiyur – 7.64 km – NE ❖ Kailasanatha temple, Agastisvara temple – Vellanur – 3.29 km – E
15	National parks / Wildlife Sanctuaries	Nil in 15 km radius
16	Reserved / Protected Forests	<ul style="list-style-type: none"> ❖ Narthamalai RF – 5.49 Km – N ❖ Aladukkadu RF – 9.39 Km – NNE ❖ Perungudipatti RF – 9.45 Km – NNW ❖ Pudukkottai RF – 5.32 Km - SE
17	Seismicity	Proposed Lease area come under Seismic zone-II (Moderate risk area)

3. Need for the Project

<i>Project</i>	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>	
<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

- ❖ 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 extracted will be transported to be Stone crusher of district Pudukkottai.
- ❖ The raw Rough stone as well as the crushed material of stone is in high demand in real estate, construction projects as well as in building construction projects.
- ❖ Rough stone is quarried for producing crusher aggregates to the nearby building contractors, road contractors and nearby villagers.
- ❖ After quarrying the entire reserves mined out, the area will be used as water reservoir to have an artificial recharge to the nearby wells.
- ❖ No damage to the land is caused, no reclamation or back filling is required.

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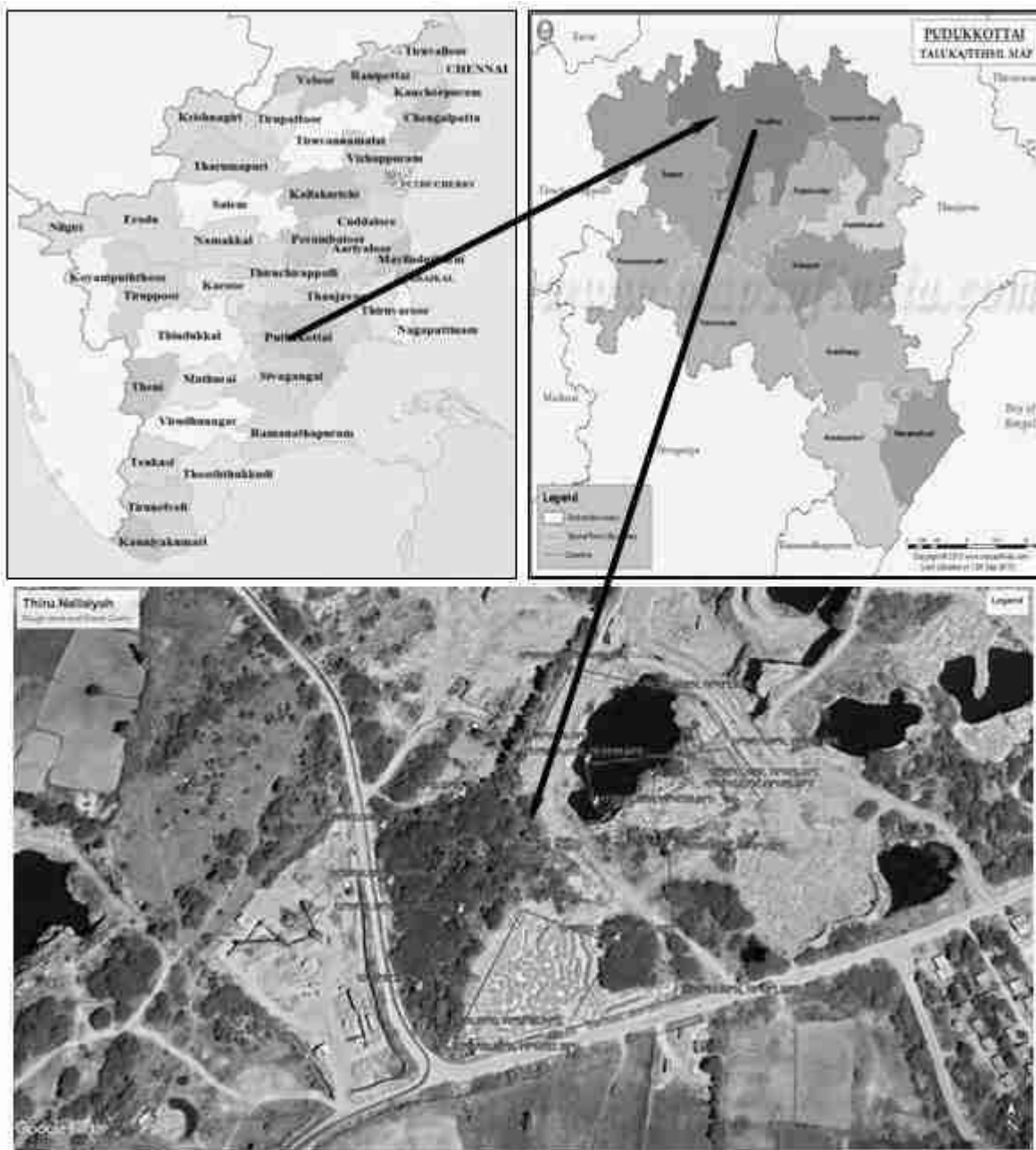


Figure 1: Location Map of the Project Site

Project	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.M.Nallaiyah</i>	
Project Location	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	



Figure 2: Google Image of the Project Site

4. Charnockite

Generally, the Charnockite is grey to greenish colored, coarse to medium grained, greasy nature with or without garnet. Because of the limited outcrops, the quarry sections are studied to infer the various interrelationships between the litho units. Charnockite is interbanded nature with crystalline carbonate rocks are observed in most of the quarry in the areas of Kunnandavarkoil, Thirumayam, Kulathur, Weathering of the Charnockite on the surface gives a deceptive look of gneiss and in the quarry sections at depth the fresh charnockite is exposed, which are well exemplified in almost all the Charnockite quarry sections.

5. Geological Resources

Gravel:

The Thickness of Gravel in this area is 2.0m and the total volume of Gravel will be 26592m³.

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Rough Stone:

The Available Geological Reserve is estimated as 4,97,220m³ respectively at the rate of 100% recovery upto the permissible depth. Gravel is calculated up to a depth of 2m, weathered rock is calculated upto a depth of 1m & Rough stone at a depth of 30m. Total Depth – 33.0m

Table 2. Geological resources

GEOLOGICAL RESERVES								
Section	Bench	L (m)	W (m)	D (m)	Volume In M³	Geological Reserves in m³ @ 100%	Weathered Rock in m³	Gravel in m³
XY-AB	I	2	14	2				56
	II	2	14	1			28	
	III	2	45	5	450	450		
	IV	2	45	5	450	450		
	V	54	91	5	24570	24570		
	VI	54	91	5	24570	24570		
	VII	54	91	5	24570	24570		
	VIII	54	91	5	24570	24570		
	TOTAL					99180	99180	28
X1Y1-CD	I	77	85	2				13090
	II	77	85	1			6545	
	III	77	85	5	32725	32725		
	IV	77	85	5	32725	32725		
	V	77	85	5	32725	32725		
	VI	77	85	5	32725	32725		
	VII	77	85	5	32725	32725		
	VIII	77	85	5	32725	32725		
	TOTAL					196350	196350	6545
	I	67	29	2				3886

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<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>						
<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>						

X1Y1- EF	II	67	29	1			1943	
	III	67	29	5	9715	9715		
	IV	67	29	5	9715	9715		
	V	67	29	5	9715	9715		
	VI	67	29	5	9715	9715		
	VII	67	29	5	9715	9715		
	VIII	67	29	5	9715	9715		
	TOTAL					58290	58290	1943
X2Y2- CD	I	49	58	2				5684
	II	49	58	1			2842	
	III	49	58	5	14210	14210		
	IV	49	58	5	14210	14210		
	V	49	58	5	14210	14210		
	VI	49	58	5	14210	14210		
	VII	49	58	5	14210	14210		
	VIII	49	58	5	14210	14210		
	TOTAL					85260	85260	2842
X2Y2- GH	I	38	51	2				3876
	II	38	51	1			1938	
	III	38	51	5	9690	9690		
	IV	38	51	5	9690	9690		
	V	38	51	5	9690	9690		
	VI	38	51	5	9690	9690		
	VII	38	51	5	9690	9690		
	VIII	38	51	5	9690	9690		
	TOTAL					58140	58140	1938
GRAND TOTAL					497220	497220	13296	26592

Table 2.1 Mineable Resources

<i>Project</i>	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>	
<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

MINEABLE RESERVES								
Section	Bench	L (m)	W (m)	D (m)	Volume In M³	Mineable Reserves in m³ @ 100%	Weathered Rock in m³	Gravel in m³
XY-AB	I	39	4	2				312
	II	39	2	1			78	
	III	39	26	5	5070	5070		
	IV	39	16	5	3120	3120		
	V	39	52	5	10140	10140		
	VI	29	42	5	6090	6090		
	VII	19	32	5	3040	3040		
	TOTAL					27460	27460	78
X1Y1-CD	I	67	71	2				9514
	II	65	69	1			4485	
	III	64	68	5	21760	21760		
	IV	54	63	5	17010	17010		
	V	44	58	5	12760	12760		
	VI	34	53	5	9010	9010		
	VII	24	48	5	5760	5760		
	VIII	14	38	5	2660	2660		
	TOTAL					68960	68960	4485
X1Y1-EF	I	54	14	2				1512
	II	52	10	1			520	
	TOTAL							520
X2Y2-CD	I	42	50	2				4200
	II	40	48	1			1920	
	III	39	47	5	9165	9165		
	IV	34	42	5	7140	7140		
	V	29	37	5	5365	5365		
	VI	19	32	5	3040	3040		

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	TOTAL				24710	24710	1920	4200
X2Y2-GH	I	29	30	2				1740
	II	27	26	1			702	
	III	26	24	5	3120	3120		
	IV	21	14	5	1470	1470		
	TOTAL				4590	4590	702	1740
GRAND TOTAL					125720	125720	7705	17278

Table 3. Year wise Production Plan

YEARWISE DEVELOPMENT AND PRODUCTION									
YEAR	Section	Bench	L (m)	W (m)	D (m)	Volume In m³	Recoverable Reserves in m³ @ 100%	Weathered Rock in m³	Gravel in m³
I- YEAR	XY-AB	I	39	4	2				312
		II	39	2	1			78	
		III	39	26	5	5070	5070		
	X1Y1-CD	I	67	71	2				9514
		II	65	69	1			4485	
		III	64	68	5	21760	21760		
	X1Y1-EF	I	54	14	2				1512
		II	52	10	1			520	
	X2Y2-CD	I	42	50	2				4200
		II	40	48	1			1920	
		III	39	47	5	9165	9165		
	X2Y2-GH	I	29	30	2				1740
		II	27	26	1			702	
		III	26	24	5	3120	3120		
	TOTAL						39115	39115	7705

Project	New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah							Draft EIA Report
Project Proponent	Thiru.M.Nallaiyah							
Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.							

II- YEAR	XY-AB	IV	39	16	5	3120	3120		
	X1Y1-CD	IV	54	63	5	17010	17010		
	X2Y2-CD	IV	34	42	5	7140	7140		
	X2Y2-GH	IV	21	14	5	1470	1470		
	TOTAL						28740	28740	
III- YEAR	XY-AB	V	39	52	5	10140	10140		
	X1Y1-CD	V	44	58	5	12760	12760		
	X2Y2-CD	V	29	37	5	5365	5365		
	TOTAL						28265	28265	
IV- YEAR	XY-AB	VI	29	42	5	6090	6090		
	X1Y1-CD	VI	34	53	5	9010	9010		
	X2Y2-CD	VI	19	32	5	3040	3040		
	TOTAL						18140	18140	
V- YEAR	XY-AB	VII	19	32	5	3040	3040		
	X1Y1-CD	VII	24	48	5	5760	5760		
		VIII	14	38	5	2660	2660		
	TOTAL						11460	11460	
GRAND TOTAL						125720	125720	7705	17278

6. Mining

Opencast mining

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

Process Description

- The reserves and resources 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 25.5mm Dia.

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- Minimum Blasting With Class 3 Explosives.
- Loading of Rough Stone By Excavators Into Tippers.

7. Water Requirement

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

Table 4. Water Balance

Purpose	Quantity	Source
Drinking Water	1.0 KLD	Packaged Drinking water vendors available in Melur village which is about 2.02 km NE 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	2.0 KLD	

8. Manpower

Total manpower required for the project is approximately 27 persons. Workers will be from nearby villages.

Table 5. Man Power

1.	Skilled	Operators	2 Nos
		Mechanic	1 No
		Blaster/Mat	1 No
2.	Semi – skilled	Drivers	2 Nos
3.	Unskilled	Musdoor/Labours	7 Nos
		Cleaners	2 Nos
		Office Boy	1 No
4.	Management & Supervisory staff		2 Nos
Total			18 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	4.86 kg/day	Municipal bin including food waste
2	Inorganic	3.24 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 lessee / Permit Holder	Village & Taluk	S. F. No.	Extent	Lease Period
1.	Thiru.M.Rajamohemed, S/o.Mohamed Ibrahim, No.9884, Kalif Nagar, 4 th Street, Pudukottai	Melur & Kulathur	210/21	0.91.0	21.01.2019 to 20.01.2024
2.	Thiru.Ramesh Babu, S/o. Jayaraman, T.S.No.7166/2 of Maharajapuram, Thirukokarnam, Pudukottai District.	Melur & Kulathur	210/19 & 210/9B1B	1.50.5	06.11.2019 to 05.11.2024
2) Proposed Area:					
S. No.	Name of the applicant	Village & Taluk	S. F. No.	Extent	
1.	Thiru.M.Nallaiyah, S/o.Marikonar, No.8668/4, Chola Real Estate,	Melur & Kulathur	210/7C1 & 210/8A1B	1.53.5	

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Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	

	Thiruvappur, Pudukottai Taluk, Pudukottai District.			
2.	Thiru.P.Arumugam, S/o.Palanivel, No.3/625, Melamuthudaiyanpatti, Vellanur, Kulathur Taluk, Pudukottai District.	Melur & Kulathur	210/12C1A etc.,	2.13.0
3	Thiru.Arockiya Raj, S/o.Rethinam pillai, No.297/7, Sathiyamoorthi Nagra, Pudukottai.	Melur & Kulathur	210/7A	1.68.0

3) Lease Expired

S. No.	Name of the lessee / Permit Holder	Village & Taluk	S. F. No.	Extent	Lease Period
1.	Thiru.A.Palanivel, S/o.Arumugam, 3/625, Melamuthudaiyanpatti, Vellanur Post, Pudukottai District	Melur & Kulathur	210/12B etc.,	1.73.0	29.05.2015 to 29.05.2020
2.	Thiru.R.Jaffer Ali, S/o. Raja Mohamed, T.S.No.9884, Kalif Nagar 4 th street, Pudukottai	Melur & Kulathur	211 (Q.No.1)	0.60.0	20.01.2017 to 19.01.2022
3.	Bagavathi Amman Magalir Ponvizha Grama Suya Velai Thitta Sangam, Melur, Kulathur Taluk, Pudukkottai District.	Melur & Kulathur	211 (Part)	1.00.0	15.11.2017 to 14.11.2022
4.	M.Nallaiyah, S/o.Marikonar, Vettanviduthi, Alangudi Taluk.	Melur & Kulathur	210/7C1 & 210/8a1B		05.02.2007 to 04.02.2012
Total				4.86.5	

The Total extent of the Existing / Lease expired / Proposed quarries is 7.76.0 Ha.

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Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	

10. Land Requirement

The total extent area of the project is 1.53.5 Ha, Own Patta land in Melur Village of Kulathur Taluk, Pudukkottai District.

Table 8 Land Use Breakup

S. No.	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)
1.	Area under quarrying	0.54.0	1.10.0
2.	Infrastructure	Nil	0.01.0
3.	Roads	0.01.0	0.01.0
4.	Green Belt & Dump	Nil	0.41.5
5.	Unutilized Area	0.98.5	Nil
	Total	1.53.5 Ha	1.53.5 Ha

11. Human Settlement

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

Table 9 Habitation

SL. NO.	DIRECTION	VILLAGE	DISTANCE	POPULATION
1	E	Muthudaiyanpatti	1.83 Km	260
2	SE	Vagaipatti	0.80 Km	150
3	W	Maruthanthalai	1.21 Km	280
4	NNE	Melur	2.02 Km	350

12. Power Requirement

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

16 Litre diesel per hour for excavator for mining and loading for Rough stone needed.

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<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

13. Scope of the Baseline Study

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

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

13.1 Micro – Meteorology

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

- i) Average Minimum Temperature : 33.7 °C
- ii) Average Maximum Temperature. : 24 °C
- iii) Average Annual Rainfall of the area : 922.8 mm

13.2 Air Environment

Ambient air monitoring was carried out on a monthly basis in the surrounding areas of the Mine Lease area to assess the ambient air quality at the source. To know the ambient air quality at a larger distance i.e., in the study area of 5 km. radius, an air quality survey has been conducted at 5 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 (61 – 35 µg/m³), PM_{2.5} (34 - 13 µg/m³), SO₂ (25 – 4 µg/m³), NO₂ (45 - 8 µg/m³), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from January to March 2024.

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<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

13.3 Noise Environment

Ambient noise levels were measured at 5 locations around the proposed project site. The maximum Day noise and Night noise were found to be 64 dB(A) and 50 dB(A) respectively in Rakkachi Amman Kovil, Pudukkottai. The minimum Day Noise and Night noise were 41 dB(A) and 36 dB(A) respectively which was observed in Project Site.

13.4 Water Environment

- The average pH ranges from 7.21 – 8.21.
- TDS value varied from 195 mg/l to 2095 mg/l
- Hardness varied from 95 to 555 mg/l
- Chloride varied from 36 to 699 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 6.87 to 8.69 with organic matter 0.09 % to 1.18 %. 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 private patta land. There are 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.

Project	New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah	Draft EIA Report
Project Proponent	Thiru.M.Nallaiyah	
Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	

15. Greenbelt Development

1. The development of greenbelt in the peripheral buffer zone of the mine area.
2. Green belt has been recommended as one of the major component 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 150 trees per annum with interval 5m.
4. The rate of survival expected to be 80% in this area

Table.10 Plantation/ Afforestation Program

Year	Name of species	Place of planted	No of species	Spacing	Survival
2024	Neem, Pungam, Poovarasu	North	150	5m	80%
2025	Naval, Mantharai, Arasa Maram	South	150	5m	80%
2026	Magizham, Vilvam, Vaagai, Marudha maram	East	150	5m	80%
2027	Usil, Aaththi, Panai	South	150	5m	80%
2028	Illuppai, Eachai, Vanni maram	West	150	5m	80%
Total			750		

16. Anticipated Environmental Impacts

16.1 Air Environment and Mitigation Measures

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

16.2 Noise Environment and Mitigation Measures

1. Periodical monitoring of ambient noise will be done as per CPCB guidelines.

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<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

2. No other equipment except the transportation vehicles and excavator for loading will be allowed.
3. Noise generated by these equipments shall be intermittent and does not cause much adverse impact

17. Responsibilities for Environmental Management Cell (EMC)

The responsibilities of the EMC include the following:

- i. Environmental Monitoring of the surrounding area
- ii. Developing the green belt/Plantation
- iii. Ensuring minimal use of water
- iv. Proper implementation of pollution control measures

18. Environmental Monitoring Program

A monitoring schedule with respect to Ambient Air Quality, Water & Wastewater Quality, Noise Quality as per Tamil Nadu State Pollution Control Board (TNPCCB), shall be maintained.

19. Project Cost

The total project cost is **Rs. 46,70,000/-** for deployment of machinery and creation of infrastructural facilities like approach road, Mine office / Workers Shed, First Aid Room etc., including electrifications and water supply.

Table .11 Project Cost details

S. No.	Description	Cost
1	Fixed Asset cost	16,70,000
2	Expenditure Cost	30,00,000
	Total	46,70,000

Environmental Management Plan Cost – 61,17,799/-

<i>Project</i>	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>	
<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

20. Corporate Environmental Responsibility

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

Table 12 CER Cost

S.No.	CER Activity	CER Cost (Rs.)
1.	Government High School, Melur - Provision of <ul style="list-style-type: none"> ➤ To provide necessary equipment to the school & Computer, ➤ Environmental books for library (in Tamil language), ➤ Greenbelt facilities and ➤ Basic amenities such as safe drinking water, furniture. 	5,00,000/-
Total		5,00,000/-

21. Benefits of the Project

- There is positive impact on socio-economics of people living in the villages. Mining operations in the subject area has positive impact by providing direct and indirect jobs opportunities.
- The project is environmentally compatible, financially viable and would be in the interest of construction industry thereby indirectly benefiting the masses.
- Quarrying in this area is not going to have any negative impact on the social or cultural life of the villagers in the near vicinity.

<i>Project</i>	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>	
<i>Project Location</i>	<i>Melur Village, Kulathur 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.

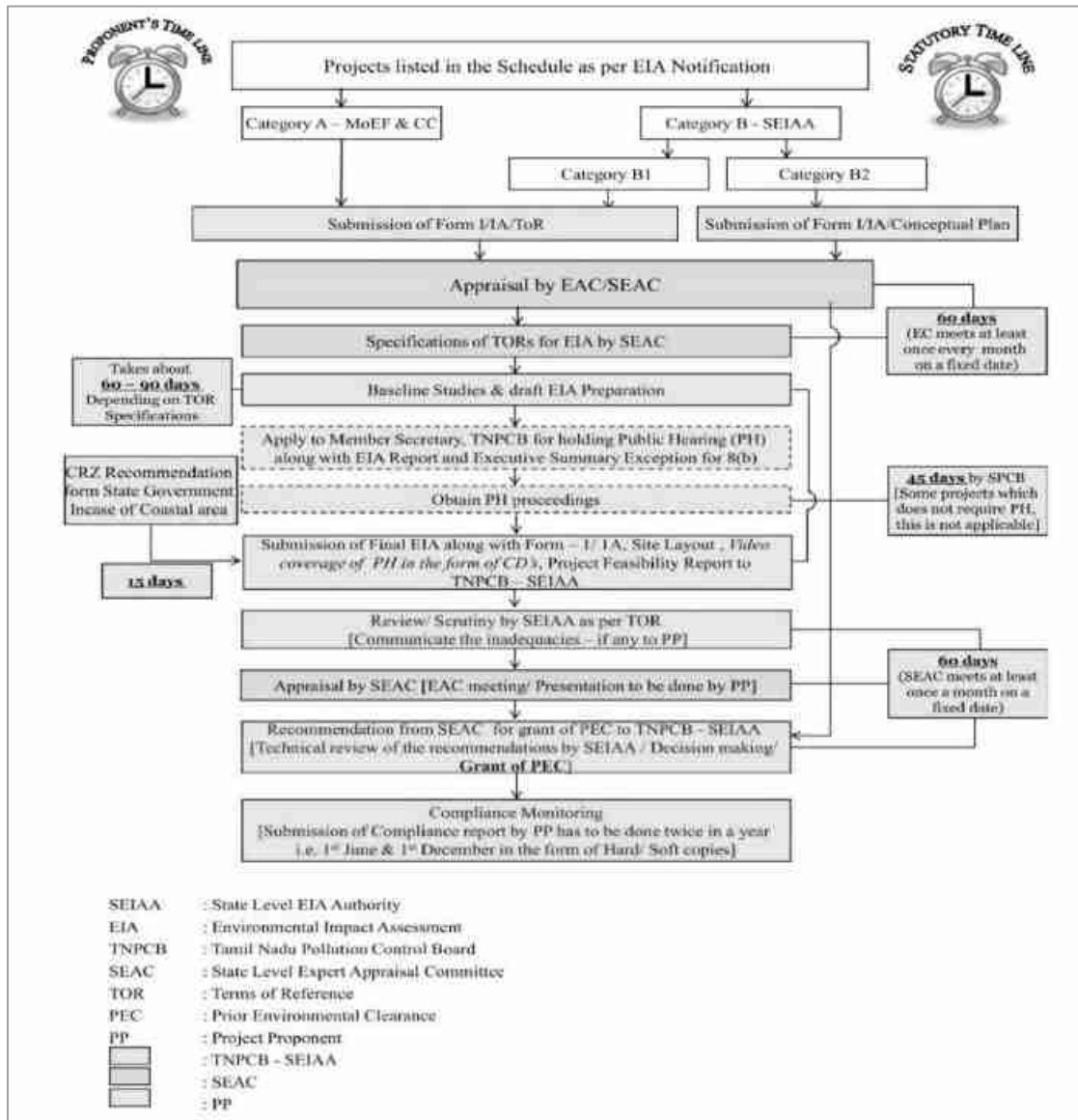
Gneiss rocks are found in the western part of Pudukkottai District. Charnockites and granites rocks are mostly found in the central part including the blocks of Kunnandarkoil, Thirumayam and the southern parts of Pudukkottai Block. The various types of Gneiss rocks are found in the western part of the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

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	New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah	Draft EIA Report
Project Proponent	Thiru.M.Nallaiyah	
Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	



1.4 Terms of Reference (ToR)

The terms of Reference have been issued by SEAC TN vide Letter No. SEIAA-TN/F. No. 9742/SEAC/ToR-1536/2023 Dated: 22.08.2023. 40 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.

Project	New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah	Draft EIA Report
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Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	

1.5 Post Environmental Clearance Monitoring

1.5.1 *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 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.

<i>Project</i>	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>	
<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

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

Chapter 5: Impact Analysis and mitigation measures. This chapter describes the anticipated impacts on the environment and mitigation measures. The method of assessment of impacts including studies carried out, modelling techniques adopted to assess the impacts where pertinent should be elaborated in this chapter. It should give 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, neighbourhood, 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 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.

<i>Project</i>	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>	
<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

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

1.7 Details of Project Proponent

Project Proponent : Thiru.M.Nallaiyah
Status of the Proponent : Private & Individual
Proponent's Name & Address : S/o. Marikoanar,
No. 8668/4, Chola Real Estate,
Thiruvappur, Pudukkottai Taluk,
Pudukkottai District – 622 002

1.7.1 Project Nature, Size & Location

As per EIA Notification, 2006 and its subsequent amendments (O.M vide No.F.No.L - 11011/175/2018-IA-II(M) 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 semi mechanized open cast method on allotted mine lease area at Melur Village, Kulathur Taluk of Pudukkottai District, Tamil Nadu. It is a plain terrain. The total allotted mine lease for the proposed project is 1.53.5 Ha with their maximum production capacity i.e., 1,25,720m³ of Rough stone and 17,728m³ of Gravel for (Sixty months) Five years only.

Project	New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah	Draft EIA Report
Project Proponent	Thiru.M.Nallaiyah	
Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	

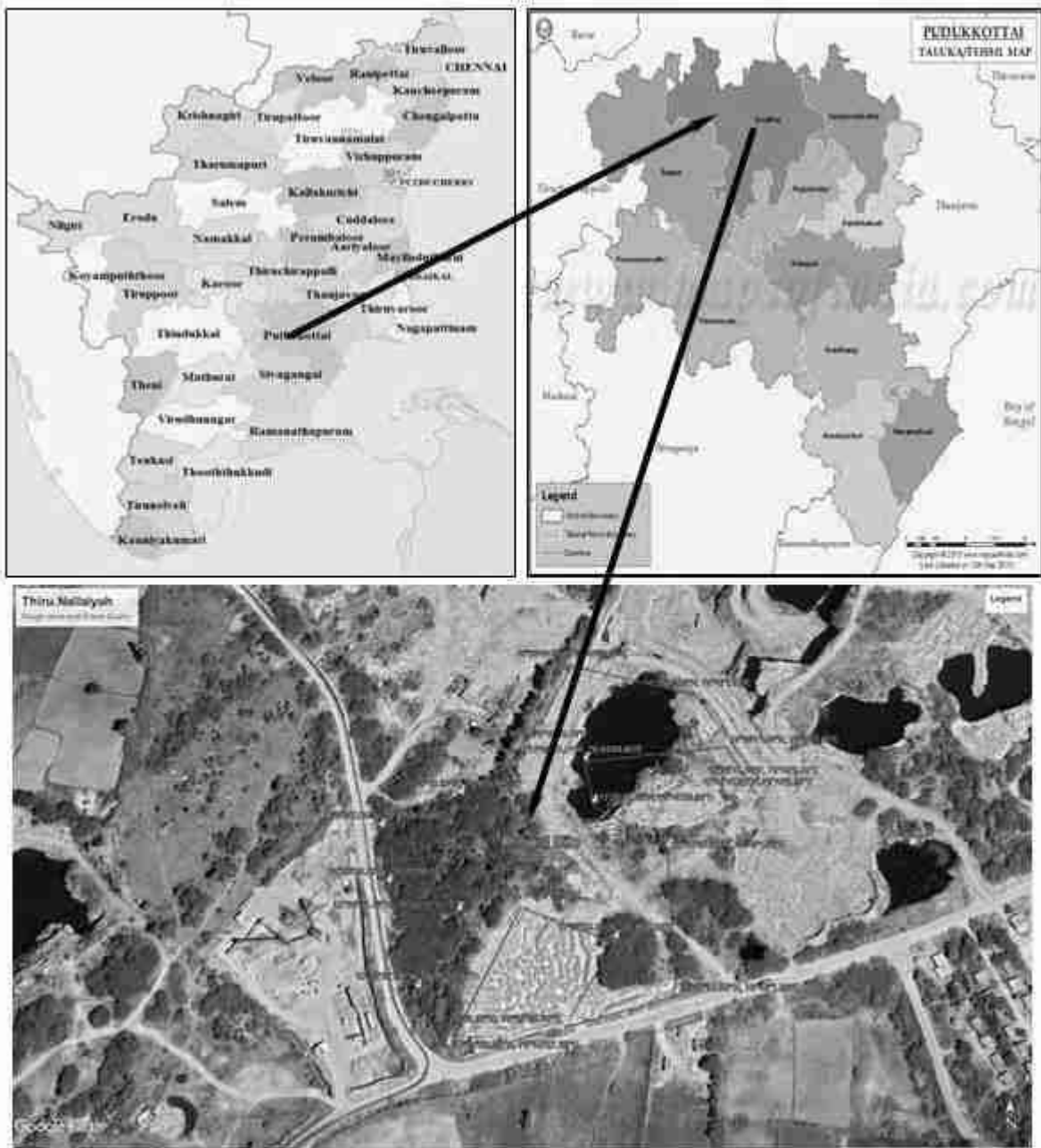


Figure 1-1: Location Map of the Project site

<i>Project</i>	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>	
<i>Project Location</i>	<i>Melur Village, Kulathur 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.

2.1 General

Proposed proposal pertains to rough stone and gravel mining project by open cast mechanized method on allotted mine lease area at Melur Village, Kulathur Taluk of Pudukkottai District, Tamil Nadu. It is a plain terrain. We have obtained fresh mining plan from 2022 to 2027 from Department of Geology and Mining, Pudukkottai District for 1.53.5 Ha land area in the S.F.Nos. 210/7C1 & 210/8A1B for a proposed mining depth of 8.0m below ground level and five years production of 1,25,720m³ of Rough Stone and 17,728m³ 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 are listed below.

Table 2-1: Quarry within 500m Radius

Project	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	Draft EIA Report
Project Proponent	<i>Thiru.M.Nallaiyah</i>	
Project Location	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

1) Existing other quarries:

S. No.	Name of the lessee / Permit Holder	Village & Taluk	S. F. No.	Extent	Lease Period
1.	Thiru.M.Rajamohemed, S/o.Mohamed Ibrahim, No.9884, Kalif Nagar, 4 th Street, Pudukkottai	Melur & Kulathur	210/21	0.91.0	21.01.2019 to 20.01.2024
2.	Thiru.Ramesh Babu, S/o. Jayaraman, T.S.No.7166/2 of Maharajapuram, Thirukokarnam, Pudukkottai District.	Melur & Kulathur	210/19 & 210/9B1B	1.50.5	06.11.2019 to 05.11.2024

2) Proposed Area:

S. No.	Name of the applicant	Village & Taluk	S. F. No.	Extent
1.	Thiru.M.Nallaiyah, S/o.Marikonar, No.8668/4, Chola Real Estate, Thiruvappur, Pudukkottai Taluk, Pudukkottai District.	Melur & Kulathur	210/7C1 & 210/8A1B	1.53.5
2.	Thiru.P.Arumugam, S/o.Palanivel, No.3/625, Melamuthudaiyanpatti, Vellanur, Kulathur Taluk, Pudukkottai District.	Melur & Kulathur	210/12C1A etc.,	2.13.0
3	Thiru.Arockiya Raj, S/o.Rethinam pillai, No.297/7, Sathiyamoorthi Nagra, Pudukkottai.	Melur & Kulathur	210/7A	1.68.0

3) Lease Expired

S. No.	Name of the lessee / Permit Holder	Village & Taluk	S. F. No.	Extent	Lease Period
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Project	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.M.Nallaiyah</i>	
Project Location	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

1.	Thiru.A.Palanivel, S/o.Arumugam, 3/625, Melamuthudaiyanpatti, Vellanur Post, Pudukkottai District	Melur & Kulathur	210/12B etc.,	1.73.0	29.05.2015 to 29.05.2020
2.	Thiru.R.Jaffer Ali, S/o. Raja Mohamed, T.S.No.9884, Kalif Nagar 4 th street, Pudukkottai	Melur & Kulathur	211 (Q.No.1)	0.60.0	20.01.2017 to 19.01.2022
3.	Bagavathi Amman Magalir Ponvizha Grama Suya Velai Thitta Sangam, Melur, Kulathur Taluk, Pudukkottai District.	Melur & Kulathur	211 (Part)	1.00.0	15.11.2017 to 14.11.2022
4.	M.Nallaiah, S/o.Marikonar, Vettanviduthi, Alangudi Taluk.	Melur & Kulathur	210/7C1 & 210/8a1B		05.02.2007 to 04.02.2012
Total				4.86.5	

The Total extent of the Existing / Lease expired / Proposed quarries is 7.76.0 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 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.

Project	New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah	Draft EIA Report
Project Proponent	Thiru.M.Nallaiyah	
Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	

Since Pudukkottai, a city known for its small-scale industries and also the soil in the area near the 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 minerals is vital. In addition to that, geological reserves of rough stone is abundant in the project area which is evident from the mine activities carried out in the nearby sites.

2.2 Brief Description of the project

Table 2-2 Salient Features of the Project

S. No.	Description	Details
1	Project Name	Existing Rough Stone and Gravel Quarry
2	Proponent	Thiru.M.Nallaiyah
3	Mining Lease Area Extent	1.53.5 Ha
4	Location	S.F. Nos. 210/7C1 & 210/8A1B Melur Village, Kulathur Taluk, Pudukkottai District.
5	Latitude	10°26'41.1998" N to 10°26'36.3638" N
6	Longitude	78°46'03.0733" E to 78°45'57.3908" E
7	Topography	Plain terrain
8	Site Elevation above MSL	≈110.0m above MSL.
9	Topo sheet No.	58-J/15
10	Minerals of Mine	Rough Stone and Gravel
11	Proposed production of Mine	Proposed capacity of Rough stone: 1,25,720 m ³ and Gravel:17,728m ³
12	Ultimate depth of Mining	33.0m (Gravel 2m + 1m Weathered Rock & 30m Rough stone).
13	Method of Mining	Open cast mechanized mining
14	Water demand	2.0 KLD
15	Source of water	Water will be supplied through tankers supply

Project	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.M.Nallaiyah</i>	
Project Location	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

16	Man power	Direct :10 nos, Indirect :8 nos
17	Mining Lease	Precise Area Communication Letter received from Assistant Director, Dept. Geology and Mining, Pudukkottai vide letter Rc.No.368/2022 (G&M) Mines dated 28.10.2022
18	Mining Plan Approval	Mining Plan was approved by the Assistant Director, Dept. of Geology & Mining, Pudukkottai vide letter Rc.No.368/2022 (G&M) dated 24.11.2022
19	Production details	Geological reserves of Rough Stone: 4,97,220m ³ and Gravel: 26,592m ³ . Proposed five-year production reserves of Rough Stone: 1,25,720m ³ and Gravel: 17,728m ³ .
20	Boundary Fencing	7.5m barrier all along the boundary Fencing will be provided.
21	Disposal of overburden	The over burden in the form of Gravel of the lease area is estimated as 17278m 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. The Weathered Rock of the lease area is estimated to be 7705m ³ . Weathered Rock formation will be removed and dumped in the Southwestern side boundary barrier of the lease area
22	Ground water	The ground Water Level is noticed at a depth of 57m below ground level in nearby open wells and bore wells of this area. Mining depth taken as 33m. Now, the proposed quarry depth is above the water table. Hence, quarrying may not affect the ground water.
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 Melur Village which is 2.02 km NNE from the project site.

Project	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	Draft EIA Report
Project Proponent	<i>Thiru.M.Nallaiyah</i>	
Project Location	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

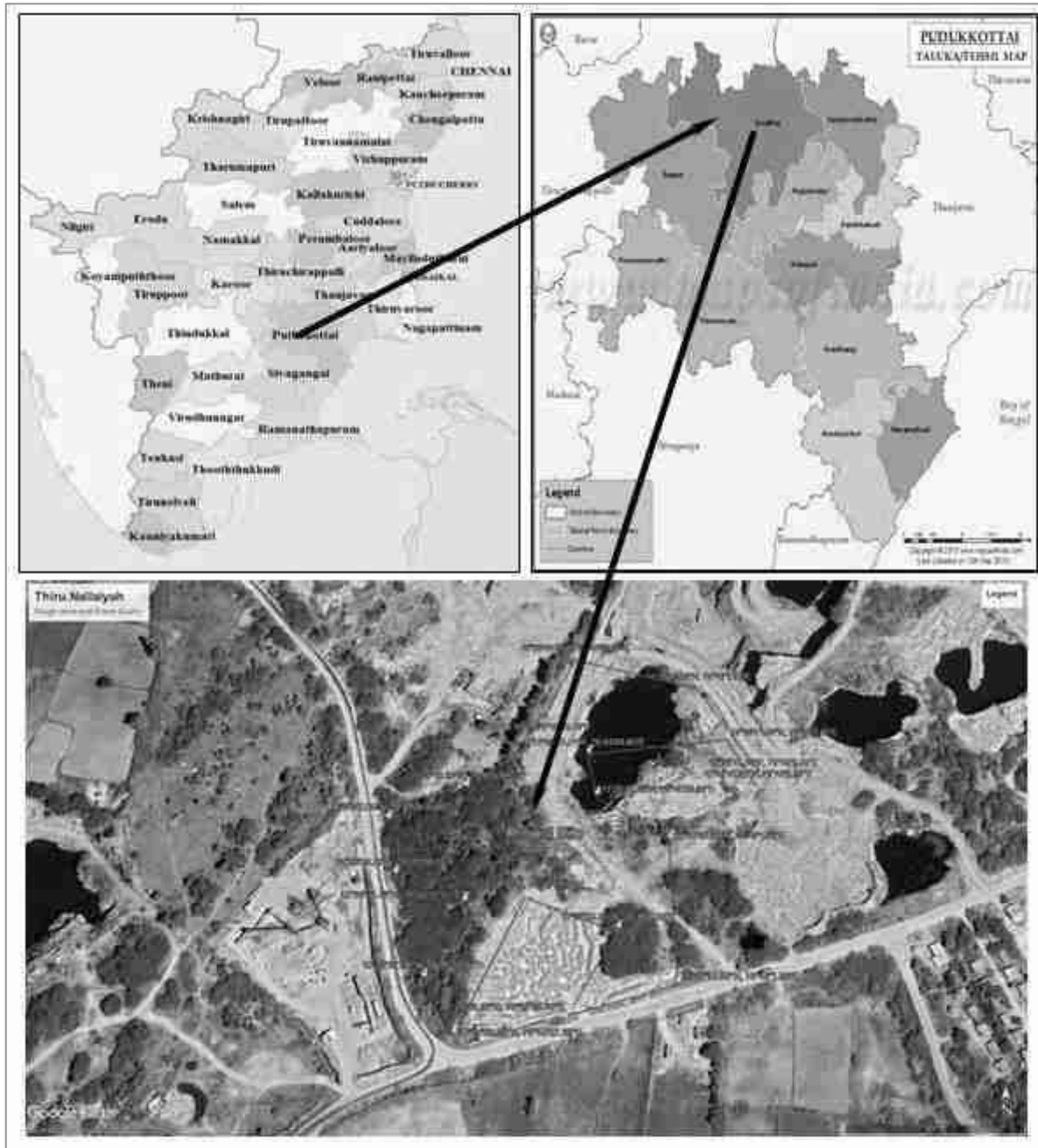


Figure 2-1: Location Map of the Project Site

Project	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	Draft EIA Report
Project Proponent	<i>Thiru.M.Nallaiyah</i>	
Project Location	<i>Melur Village, Kulathur 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 Sithannavasal Road – 540 m - SE side.



Figure 2-3: Site Connectivity

Project	New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah	Draft EIA Report
Project Proponent	Thiru.M.Nallaiyah	
Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	

2.3 Location Details:

Table 2-3: Location Details

S. No	Particulars	Details
1.	Latitude	10°26'41.1998" N to 10°26'36.3638" N
2.	Longitude	78°46'03.0733" E to 78°45'57.3908" E
3.	Site Elevation above MSL	110.0 m from MSL
4.	Topography	Plain terrain
5.	Land use of the site	Own Patta land
6.	Extent of lease area	1.53.5 Ha

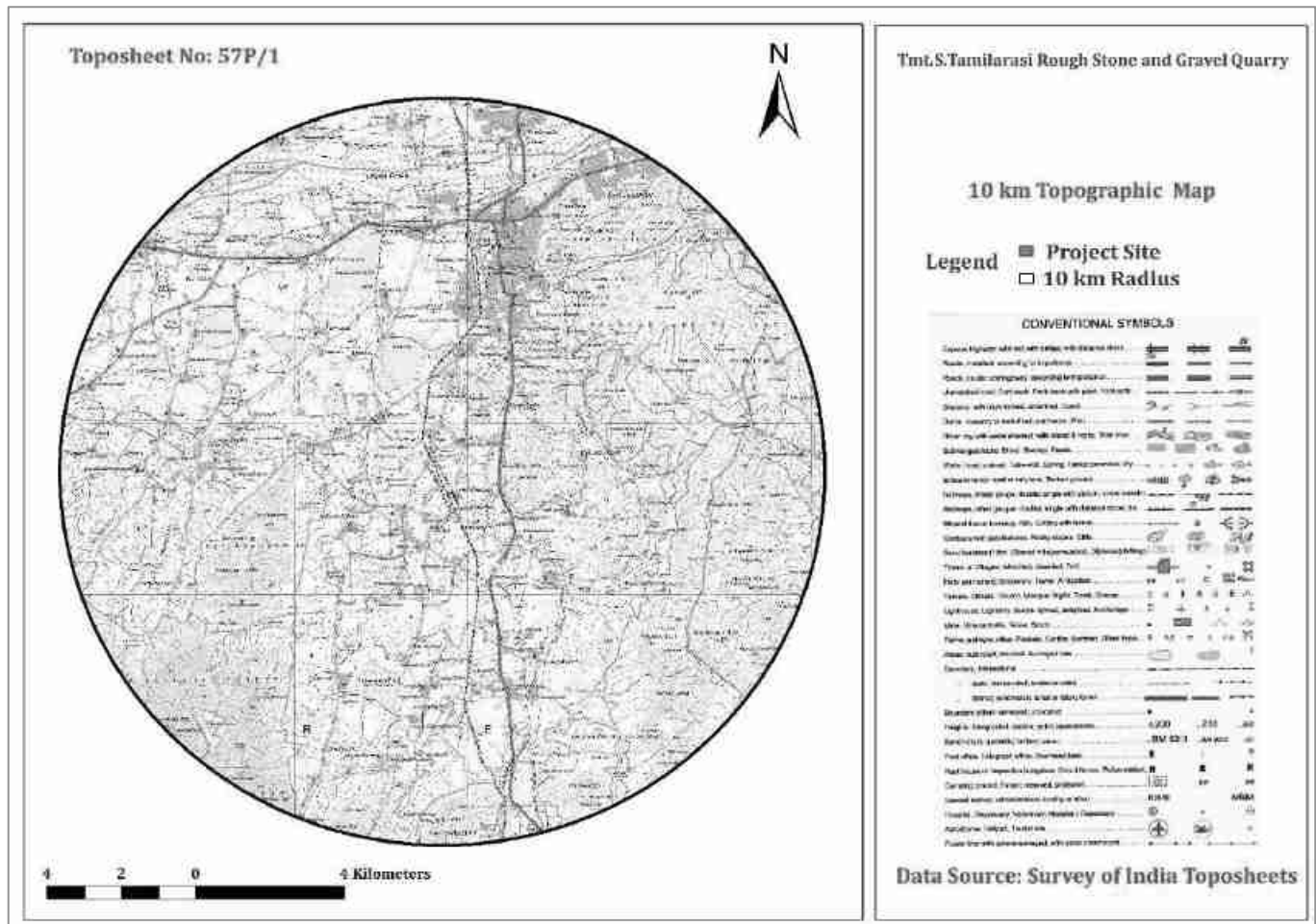


Figure 2-4: Topo Map of Project Site

Project	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	Draft EIA Report
Project Proponent	<i>Thiru.M.Nallaiyah</i>	
Project Location	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	



Figure 2-5: Environmental Sensitivity within 15km radius

2.1.3 Site Photographs

The site photographs of the project site are as follows.



Project	New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah	Draft EIA Report
Project Proponent	Thiru.M.Nallaiyah	
Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	

Figure 2-6: Site Photographs

2.1.4 Land Use Breakup of the Mine Lease Area

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

Table 2-4: Land use pattern

S. No.	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)
1.	Area under quarrying	0.54.0	1.10.0
2.	Infrastructure	Nil	0.01.0
3.	Roads	0.01.0	0.01.0
4.	Green Belt & Dump	Nil	0.41.5
5.	Unutilized Area	0.98.5	Nil
	Total	1.53.5 Ha	1.53.5 Ha

2.1.5 Human Settlement

There are no habitations within the radius of 500m. The nearby habitations are as follows.

Table 2-5: Habitation

SL. NO.	DIRECTION	VILLAGE	DISTANCE	POPULATION
1	E	Muthudaiyanpatti	1.83 Km	260
2	SE	Vagaipatti	0.80 Km	150
3	W	Maruthanthalai	1.21 Km	280
4	NNE	Melur	2.02 Km	350

2.4 Leasehold Area

The New Rough Stone Quarry mine of 1.53.5 Ha is the own Patta land of Thiru.M.Nallaiyah . The lease area falls in S.F No: 210/7C1 & 210/8A1B of Melur Village, Kulathur Taluk, Pudukkottai District.

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Project Location	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

There is no reserve forest or protected forest land within the lease area. There is neither human settlement within 500m radius from the lease area.

2.5 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.

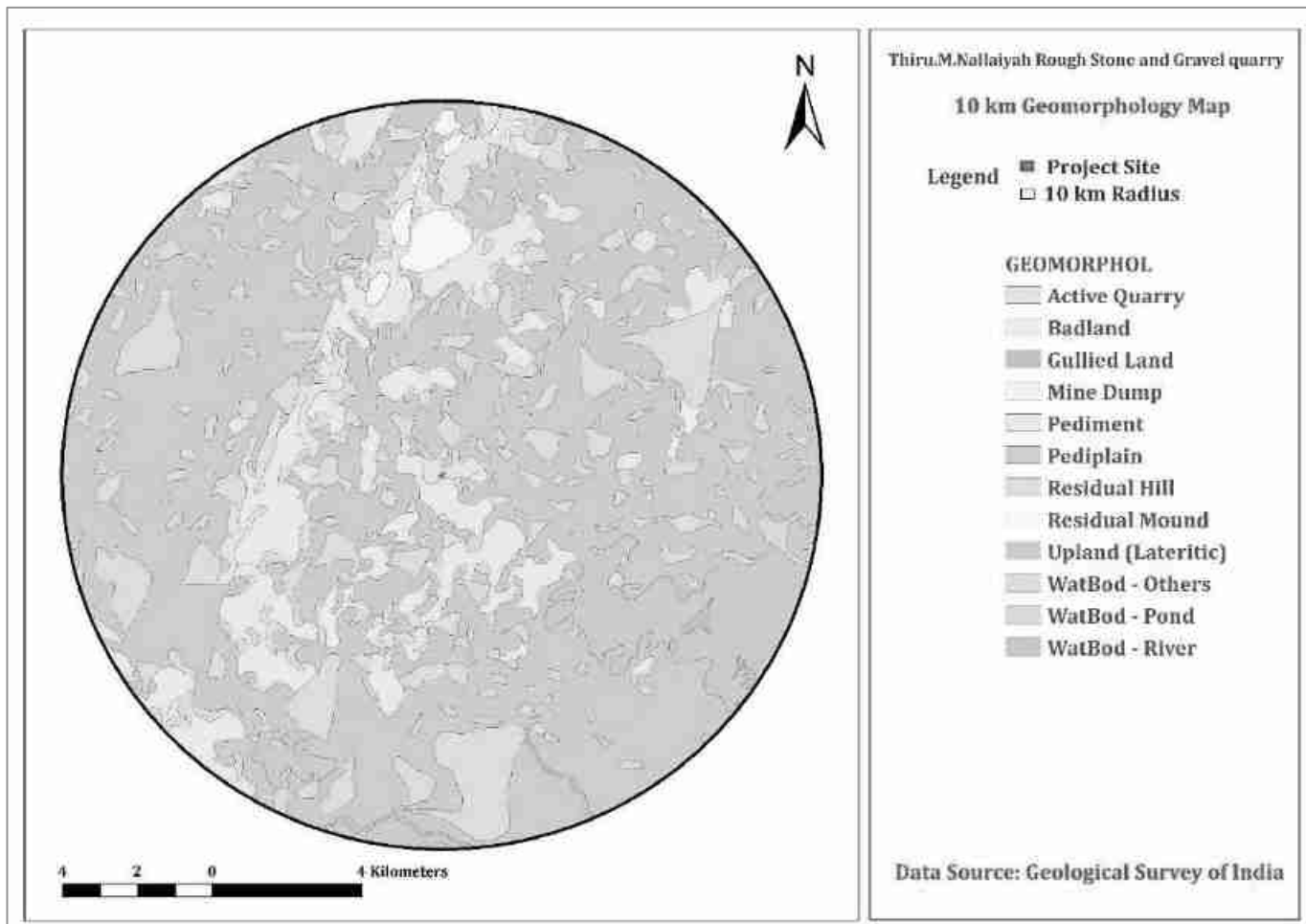


Figure 2-7: Geomorphology

The area applied for quarry lease is undulated terrain sloping towards Northwestern side covered with Rough stone which does not sustain any type of vegetation.

Pudukkottai District 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

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places. The geological formations found in the district are Archaean rocks like Gneisses, Granites, Charnockite basic granulites and calc-gneisses. The younger formations are Quartz veins and pegmatite.

The water table is found at a depth of 70m to 75m below ground level. Average annual rainfall is about 800mm to 900mm. Charnockite is part of peninsular Gneisses, a high-grade metamorphic rock. On regional scale the Charnockite formations trends along NE-SW with a dip of 80° towards NW.

The general geological sequences of the rocks in this area are given below.

AGE	FORMATION
Recent to Sub recent	- Soil, Alluvium
Archean	- Granites, basic granulites, Peninsular Gneiss, Calc Gneiss and Charnockites

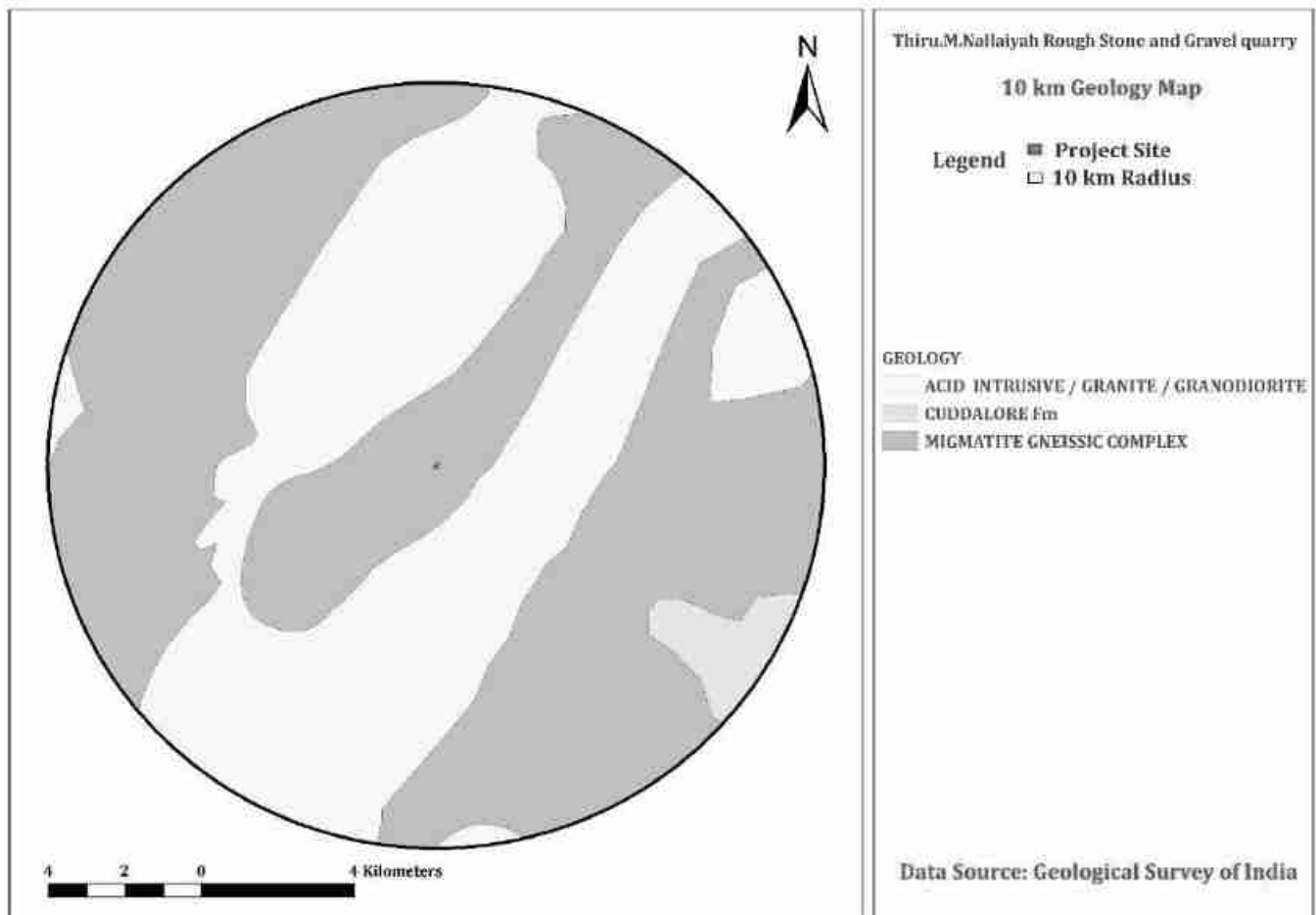


Figure 2-8 Lithology

2.6 Quality of Reserves:

Project	New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah	Draft EIA Report
Project Proponent	Thiru.M.Nallaiyah	
Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	

The mining lease area is of 1.53.5 Ha, with production capacity of **1,25,720m³** of Rough Stone, 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	Rough stone – 4,97,220 m ³ & Gravel – 26,592 m ³
3	Mineable Reserves	Rough stone – 1,25,720 m ³ & Gravel – 17,728 m ³
4	Proposed Production schedule for 5 years	Rough stone – 1,25,720 m ³ & Gravel – 17,728 m ³
5	Elevation Range of the Mine Site	110m MSL

2.6.1 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 497220 Cum of Rough Stone.

2.6.2 Geological Reserves

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

The Geological Resources is estimated as 497220m³ of Rough stone & 26592m³ Gravel up to a depth of 62.0m (2.0m Gravel & 60m Rough stone).

Table 2-7: Geological Reserves

GEOLOGICAL RESERVES								
Section	Bench	L (m)	W (m)	D (m)	Volume In M³	Geological Reserves in m³ @ 100%	Weathered Rock in m³	Gravel in m³
XY-AB	I	2	14	2				56
	II	2	14	1			28	

<i>Project</i>	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>					<i>Draft EIA Report</i>	
<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>						
<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>						

	III	2	45	5	450	450		
	IV	2	45	5	450	450		
	V	54	91	5	24570	24570		
	VI	54	91	5	24570	24570		
	VII	54	91	5	24570	24570		
	VIII	54	91	5	24570	24570		
	TOTAL				99180	99180	28	56
X1Y1- CD	I	77	85	2				13090
	II	77	85	1			6545	
	III	77	85	5	32725	32725		
	IV	77	85	5	32725	32725		
	V	77	85	5	32725	32725		
	VI	77	85	5	32725	32725		
	VII	77	85	5	32725	32725		
	VIII	77	85	5	32725	32725		
	TOTAL				196350	196350	6545	13090
X1Y1- EF	I	67	29	2				3886
	II	67	29	1			1943	
	III	67	29	5	9715	9715		
	IV	67	29	5	9715	9715		
	V	67	29	5	9715	9715		
	VI	67	29	5	9715	9715		
	VII	67	29	5	9715	9715		
	VIII	67	29	5	9715	9715		
	TOTAL				58290	58290	1943	3886
X2Y2- CD	I	49	58	2				5684
	II	49	58	1			2842	
	III	49	58	5	14210	14210		
	IV	49	58	5	14210	14210		

Project	New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah	Draft EIA Report
Project Proponent	Thiru.M.Nallaiyah	
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	V	49	58	5	14210	14210		
	VI	49	58	5	14210	14210		
	VII	49	58	5	14210	14210		
	VIII	49	58	5	14210	14210		
	TOTAL				85260	85260	2842	5684
X2Y2-GH	I	38	51	2				3876
	II	38	51	1			1938	
	III	38	51	5	9690	9690		
	IV	38	51	5	9690	9690		
	V	38	51	5	9690	9690		
	VI	38	51	5	9690	9690		
	VII	38	51	5	9690	9690		
	VIII	38	51	5	9690	9690		
		TOTAL				58140	58140	1938
GRAND TOTAL					497220	497220	13296	26592

2.6.3 Mineable Reserves

The Mineable reserves are calculated by deducting 7.5m & 10.0m Safety distance and bench loss.

Gravel:

The Thickness of Gravel in this area is 2.0m and the total volume of Gravel will be 17278m³.

Rough stone:

The mineable reserves and the Recoverable Reserves are 125720m³ respectively, at the rate of 100% recovery upto the permissible depth. Total Depth-33m (2m Gravel + 1m Weathered Rock + 30m Rough stone).

Table 2-8: Mineable Reserves

<i>Project</i>	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>	
<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

MINEABLE RESERVES								
Section	Bench	L (m)	W (m)	D (m)	Volume In M³	Mineable Reserves in m³ @ 100%	Weathered Rock in m³	Gravel in m³
XY-AB	I	39	4	2				312
	II	39	2	1			78	
	III	39	26	5	5070	5070		
	IV	39	16	5	3120	3120		
	V	39	52	5	10140	10140		
	VI	29	42	5	6090	6090		
	VII	19	32	5	3040	3040		
	TOTAL					27460	27460	78
X1Y1-CD	I	67	71	2				9514
	II	65	69	1			4485	
	III	64	68	5	21760	21760		
	IV	54	63	5	17010	17010		
	V	44	58	5	12760	12760		
	VI	34	53	5	9010	9010		
	VII	24	48	5	5760	5760		
	VIII	14	38	5	2660	2660		
	TOTAL					68960	68960	4485
X1Y1-EF	I	54	14	2				1512
	II	52	10	1			520	
	TOTAL							520
X2Y2-CD	I	42	50	2				4200
	II	40	48	1			1920	
	III	39	47	5	9165	9165		
	IV	34	42	5	7140	7140		
	V	29	37	5	5365	5365		
	VI	19	32	5	3040	3040		

Project	New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah	Draft EIA Report
Project Proponent	Thiru.M.Nallaiyah	
Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	

	TOTAL				24710	24710	1920	4200
X2Y2-GH	I	29	30	2				1740
	II	27	26	1			702	
	III	26	24	5	3120	3120		
	IV	21	14	5	1470	1470		
	TOTAL				4590	4590	702	1740
GRAND TOTAL					125720	125720	7705	17278

2.6.4 Year wise Production Plan

Rough stone and Gravel Production Details as follows:

The proposed rate of production of Rough stone is about 125720m³ & Gravel is about 17278m³ for Five years. The average proposed rate of production of Rough stone is about 25144m³ per year at the rate of 100% recovery upto the permissible depth. Total Depth – 33m (2m Gravel + 1m Weathered Rock + 30m Rough stone).

Table 2-9: Year wise Production Plan

YEARWISE DEVELOPMENT AND PRODUCTION									
YEAR	Section	Bench	L (m)	W (m)	D (m)	Volume In m³	Recoverable Reserves in m³ @ 100%	Weathered Rock in m³	Gravel in m³
I- YEAR	XY-AB	I	39	4	2				312
		II	39	2	1			78	
		III	39	26	5	5070	5070		
	X1Y1-CD	I	67	71	2				9514
		II	65	69	1			4485	
		III	64	68	5	21760	21760		
	X1Y1-EF	I	54	14	2				1512
		II	52	10	1			520	
	X2Y2-CD	I	42	50	2				4200
		II	40	48	1			1920	

<i>Project</i>	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>	
<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

		III	39	47	5	9165	9165		
	X2Y2-GH	I	29	30	2				1740
		II	27	26	1			702	
		III	26	24	5	3120	3120		
		TOTAL				39115	39115	7705	17278
II- YEAR	XY-AB	IV	39	16	5	3120	3120		
	X1Y1-CD	IV	54	63	5	17010	17010		
	X2Y2-CD	IV	34	42	5	7140	7140		
	X2Y2-GH	IV	21	14	5	1470	1470		
		TOTAL				28740	28740		
III- YEAR	XY-AB	V	39	52	5	10140	10140		
	X1Y1-CD	V	44	58	5	12760	12760		
	X2Y2-CD	V	29	37	5	5365	5365		
		TOTAL				28265	28265		
IV- YEAR	XY-AB	VI	29	42	5	6090	6090		
	X1Y1-CD	VI	34	53	5	9010	9010		
	X2Y2-CD	VI	19	32	5	3040	3040		
		TOTAL				18140	18140		
V- YEAR	XY-AB	VII	19	32	5	3040	3040		
	X1Y1-CD	VII	24	48	5	5760	5760		
		VIII	14	38	5	2660	2660		
		TOTAL				11460	11460		
GRAND TOTAL						125720	125720	7705	17278

Project	New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah	Chapter 2 Project Description
Project Proponent	Thiru.M.Nallaiyah	
Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	

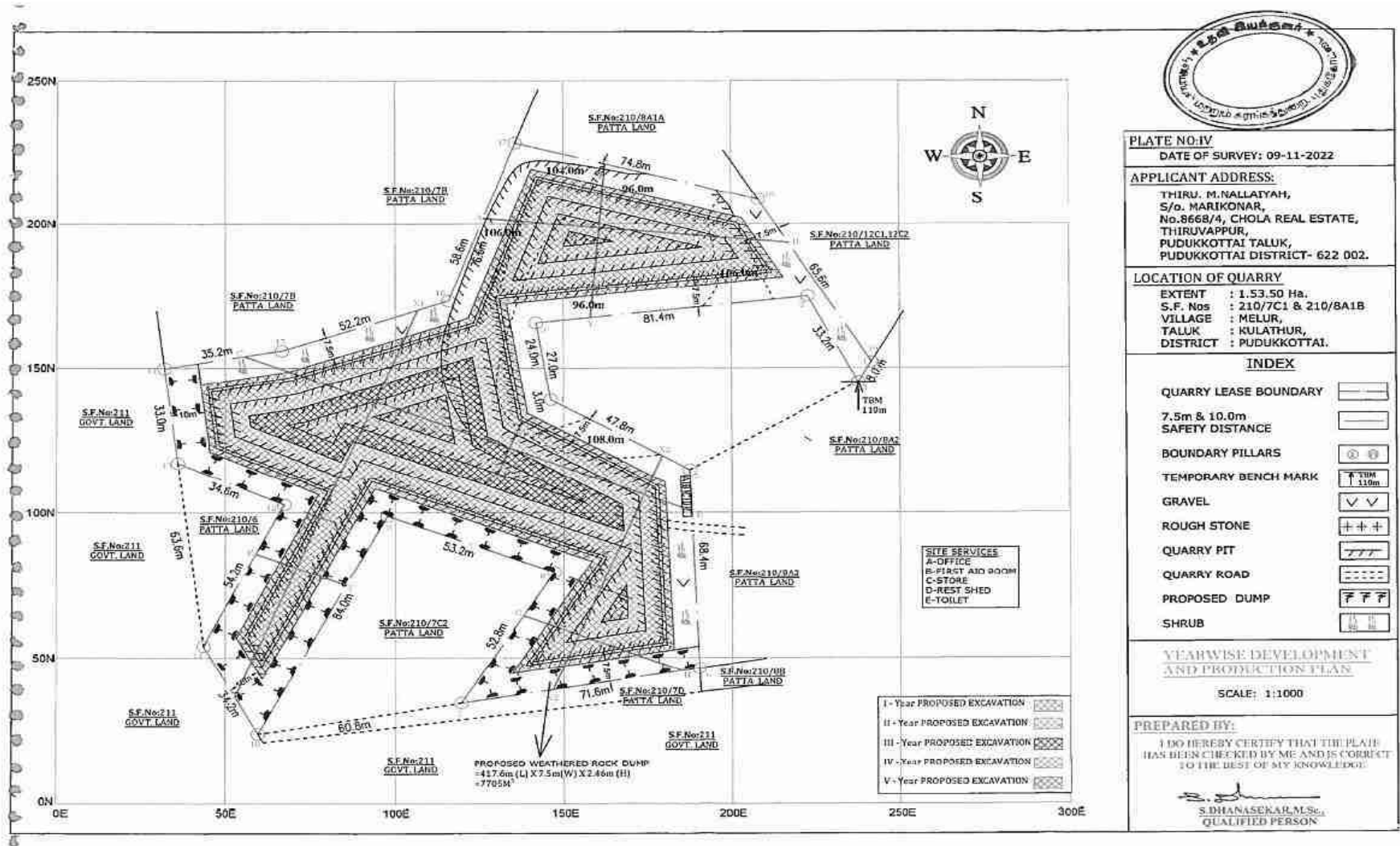


Figure 2-9 Year wise Production Plan

<i>Project</i>	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>	
<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

2.7 Type of Mining

The proposed project is an open cast semi mechanized mining with one 5.0 m bench for Topsoil & Gravel followed by a 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.

2.7.1 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.

2.7.2 Overburden

The Gravel of the lease area is estimated as 17278m³. Gravel formation will be removed and transported to the needy end user, only after obtaining permission and paying necessary seigniorage fees to the Government.

The Weathered Rock of the lease area is estimated as 7705m³. Weathered Rock formation will be removed and dumped in the Southwestern side boundary barrier of the lease area.

2.7.3 Machineries to be used

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

Table 2-10: List of Machineries used

<i>Project</i>	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>	
<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

Type	Nos	Dia of hole	Size / Capacity	Make	Motive power	H.P.
Jack Hammer	3	25.5 mm	Handheld	Atlas Copco 2 Nos	Diesel	60
Tipper	2	-	10 M. T	Ashok Leyland	Diesel	110
Hydraulic Excavator	1	-	1.2 m ³	L7T or Ex200	Diesel	120

2.7.4 Blasting:

2.7.4.1 Blasting 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.

2.7.4.2 Drilling & 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	60 Cms
3	Depth of each hole	1 to 1.5 m
4	Charge/Hole	D.Cord with water or 70 gms of gun powder or Gelatine
5	Pattern of hole	Zig Zag
6	Inclination of hole	70 ⁰ from the horizontal.
7	Quantity of rock broken	0.45 MT x 2.6 = 1.17 MT
8	Control Blasting efficiency @ 90%	1.17 x 90% = 1.05MT / hole
9	Charge per hole	140 gms of 25mm dia cartridge
10	Quantity of rock broken per day	83.81m ³

<i>Project</i>	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>	
<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

2.7.4.3 Types of Explosives to be used:

Small diameters of 32-36mm 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.

2.7.4.4 Measures to minimize ground vibration due to blasting:

The quarry is situated more than 0.65km from the nearby villages. Controlled blasting measures will be adopted for minimizing the ground vibration and flying 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	32-36 mm
Spacing	0.6m
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 day time	5.00 PM to 6.00 PM. (or whenever required)

2.7.4.5 Storage & Safety measures taken during blasting:

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

2.8 Man Power Requirements

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

Table 2-13: Man Power Requirements

<i>Project</i>	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>	
<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

1.	Skilled	Operators	2 Nos
		Mechanic	1 No
		Blaster/Mat	1 No
2.	Semi – skilled	Drivers	2 Nos
3.	Unskilled	Musdoor/Labours	7 Nos
		Cleaners	2 Nos
		Office Boy	1 No
4.	Management & Supervisory staff		2 Nos
Total			18 Nos

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

2.8.1 Water Requirement

Total water requirement for the mining project is 2.0 KLD. Domestic water will be sourced from nearby Melur Village and other water will be source from nearby road tankers supply.

Table 2-14: Water Requirement

Purpose	Quantity	Sources
Drinking Water	1.0KLD	Water will be supplied through tankers from Melur village which is about 2.02 Km NNE of the project area.
Green belt	0.5KLD	Other domestic activities through road tankers supply
Dust suppression	0.5KLD	From road tankers supply
Total	2.0 KLD	

2.9 Project Implementation Schedule

The implementation schedule of the proposed Mine Lease of Thiru.M.Nallaiyah (1.53.5 Ha) is as follows.

Project	New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah	Draft EIA Report
Project Proponent	Thiru.M.Nallaiyah	
Project Location	Melur Village, Kulathur 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 – 17278 Cum – Gravel & Rough Stone – 39115 Cum					
II Year Production – 28740 Cum Rough Stone					
III Year Production – Rough Stone – 28265 Cum					
IV Year Production - 18140 Cum - Rough Stone					
V Year Production - 11460 Cum - Rough Stone					

2.10 Solid Waste Management

Table 2-15: Solid Waste Management

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

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

2.11 Mine Drainage

The ground Water Level is noticed at the depth of 57m below ground level in nearby open wells and bore wells of this area. Mining depth taken as 33m. Now, proposed quarry depth is above the water table. Hence, quarrying may not affect the ground water.

2.12 Power Requirement

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

16 Litre diesel per hour for excavator for mining and loading for Rough Stone needed.

10 Litre diesel per hour for excavator for mining and loading for Gravel needed

<i>Project</i>	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>	
<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

2.13 Project Cost

a. Fixed Asset Cost:

Sl. No	DETAILS	Cost of lakhs
i)	Land cost	Rs.14,00,000/-
ii)	Labours Shed	Rs. 1,20,000/-
iii)	Refilling/Fencing cost	Rs. 70,000/-
iv)	Sanitary facility	Rs. 80,000/-
TOTAL		Rs. 16,70,000/-

b. Operation Cost:

Machinery cost: **Rs. 30,00,000/-**

c. EMP Cost

Total EMP Cost = **Rs. 61,17,799/-** (Sixty one lakhs seventeen thousands and seven hundreds ninety nine rupees only) for the period of five years.

A. Fixed Asset Cost = Rs. 16,70,000/-
 B. Machinery Cost = Rs. 30,00,000/-

Grand Total project Cost (A+B) = Rs. 46,70,000/-

2.14 Greenbelt

1. The development of greenbelt in the peripheral buffer zone of the mine area.
2. Greenbelt 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 150 trees per annum with interval 5m.
4. The rate of survival expected to be 80% in this area

<i>Project</i>	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>	
<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

Table. 2-17 Plantation/ Afforestation Program

Year	Name of species	Place of planted	No of species	Spacing	Survival
2023	Neem/Pungam	North	150	5m	80%
2024	Naval	South	150	5m	80%
2025	Poovarasu/Pungam	East	150	5m	80%
2026	Naval/Pungam	South	150	5m	80%
2027	Neem	West	150	5m	80%
Total			750		

<i>Project</i>	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
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3 Description of the Environment

3.1 General:

The method of mining for extracting rough stone 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 Lr.No. SEIAA–TN/F.No.9742/SEAC/ToR-1536/2022 dated 22.08.2023. The baseline monitoring is carried out in January to March 2024 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.

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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 January to March 2024.

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	5 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	5 locations	24 hourly Once in 5 locations
Water (Ground water) pH, Temperature, Turbidity, Magnesium Hardness, Total Alkalinity, Chloride, Sulphate, Fluoride, Nitrate, Sodium,	5 locations	Once in 5 locations

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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)	5 locations	Once in 5 locations
Ecology and biodiversity Study	Study area covering 10 km radius	One-time Sampling
Socio- Economic study (Population, Literacy Level, employment, Infrastructure like school, hospitals & commercial establishments)	Villages around 10 km radius	One-time Sampling

3.1.5 Secondary data Collection

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

- Flora & Faunal Study
- Land use study
- Demography and socio-economic analysis

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- 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	210/7C1 & 210/8A1B Ha, Melur Village, Kulathur Taluk, Pudukkottai District, TamilNadu State	Field Study
2.	Latitude & Longitude	Latitude: 10°26'41.1998" N to 10°26'36.3638" N Longitude: 78°46'03.0733" E to 78°45'57.3908" E	Topo Sheet
3.	Topo Sheet No.	58 J/15	Survey of India Toposheet
4.	Mine Lease Area	1.53.5 Ha	--
Demography in the study area (as per Census 2011)			
5.	Total Population	5931	Census Survey of India
6.	Total Number of Households	1602	
7.	Maximum Temperature (°C)	33.7	IMD
8.	Minimum Temperature (°C)	24	
9.	Ecological Sensitive Areas - Wetlands, watercourses or other waterbodies, coastal zone, biospheres, mountains, forests	<ul style="list-style-type: none"> ❖ Keel Kulam - 1.24 Km - NE ❖ Vellanur local Pond – 2.65 Km - E ❖ Thiruvengainathar Lake – 2.99 Km – S ❖ Kili Kulam – 3.26 Km – NE ❖ Temple Pond – 1.34 Km – NW ❖ Perunjunai Lake – 2.31 Km – SW ❖ Melakulam – 3.01 Km – SW ❖ Kavinadu Kanmai – 7.03 Km – S ❖ Annavasal Periyakulam Lake–7.56 Km - W 	Google Earth/Field Study

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10.	Densely Populated area	Pudukkottai (6.45km, SE)		Google Earth/ Field Study
11.	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	S. No	Places	
		Schools & Colleges		
		1	Government Higher Secondary School, Maruthanthalai	0.95Km - SW
		2	Melur Middle School	1.70Km - N
		3	Sudharsan Engineering College, Sathiyamangalam	3.76Km - NE
		Hospitals		
		1	Government Hospital, Pudukkottai	8.83 Km - SE
		2	ESI Hospital, Cauvery Nagar	4.31 Km - NE

3.1.7 Site Connectivity:

The site is connected to Sithannavasal Road in south direction.



Figure 3-1: Site Connectivity

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3.2 Land use Analysis

3.2.1 *Land Use Classification*

Land Use / Land Cover - Land Use refers to man's activity and the various uses, which are carried out 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 grasslands and forests, which not only hold water for longer periods on the surface, but at the same time allow it to percolate down.

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

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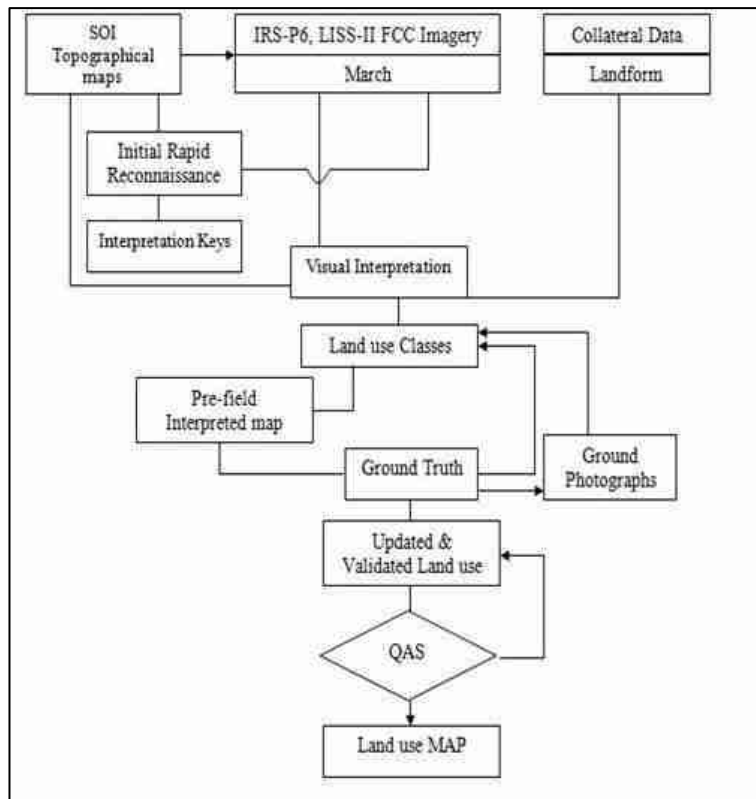


Figure 3-2 Flow Chart showing Methodology of Land use mapping.

3.2.3 Satellite Data

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 on 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 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

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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 Sentinel satellite image and SOI topo sheets of 58-J/15 and 58-N/02 have been procured and interpreted using the ERDAS imaging and ARC-GIS software adopting the necessary interpretation techniques.
3. Satellite data interpretation and vectorization of the resulting units
4. Adopting the available guidelines from manual of LULC mapping using Satellite imagery (NRSA, 1989)
5. Field checking and ground truth validation
6. Composition of final LULC map

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

3.2.6 Field Verification

Field verification involved collection, verification and record of the different surface features that create specific spectral signatures / image expressions on FCC. In the study area, doubtful areas identified in course of interpretation of imagery is systematically listed and transferred on to the corresponding SOI

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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 Built-up land

It is defined as an area of human settlements composed of houses, commercial complex, transport, communication lines, utilities, services, places of worships, recreational areas, industries etc. Depending upon the nature and type of utilities and size of habitations, residential areas can be aggregated into villages, towns and cities. All the man-made construction covering land belongs to this category. The built- up in 10 km radius from the proposed project site is as follows.

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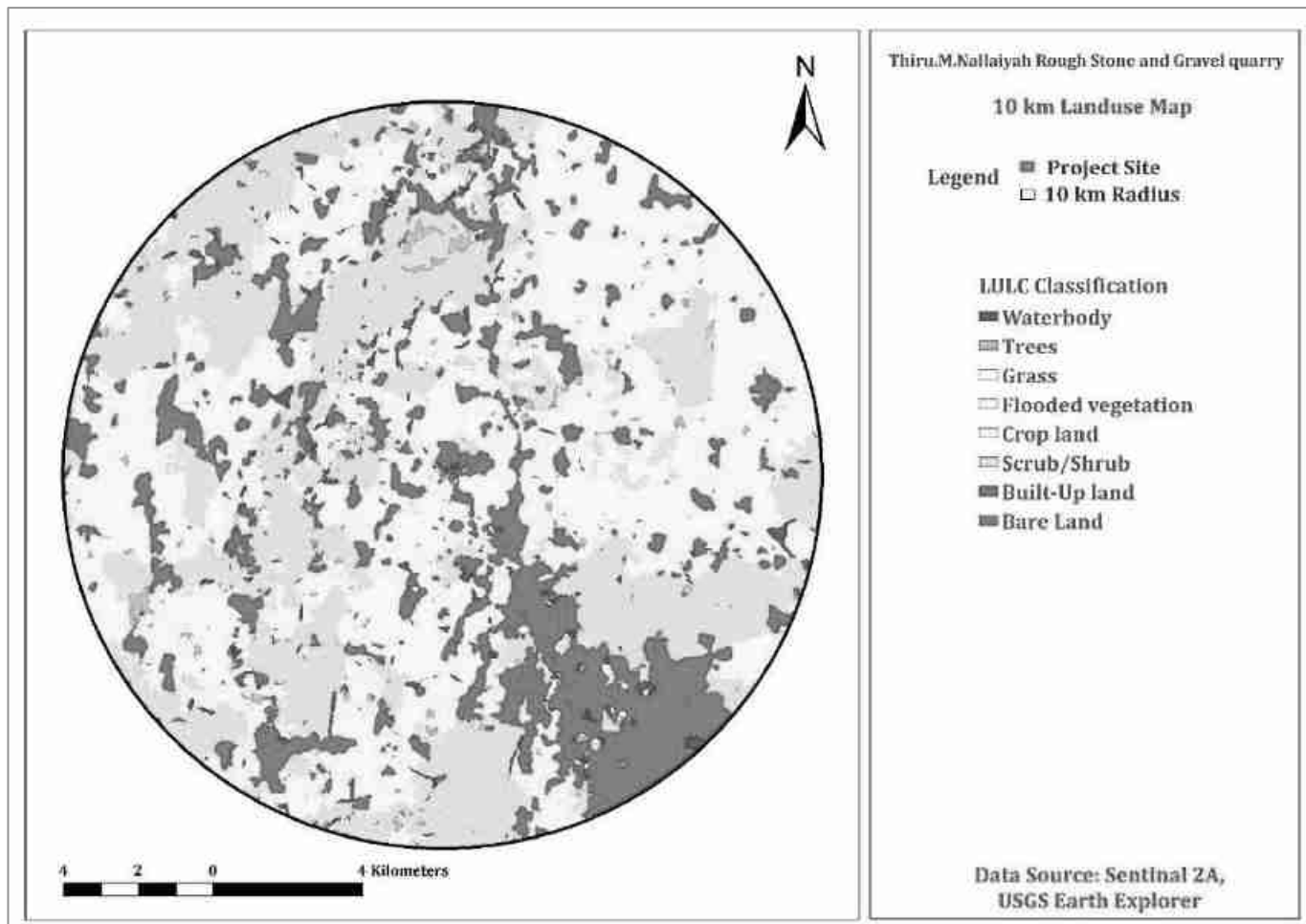


Figure 3-3 Land use classes around 10 km radius from the project site

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

Table 3-3 Land use pattern in Pudukkottai District

Sl.No	Categories	Area in Sq.Km
1	Water body	5.79
2	Trees	3.94
3	Grass	0.48
4	Flooded Vegetation	0.2
5	Crops	150.11
6	Scrub/Shrub	95.33
7	Built-up area	57.35
8	Barren Land	1.16

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3.2.8 Agricultural land

Agriculture is the primary occupation of Pudukkottai district. Pudukkottai district receives an average annual rainfall of 922.8 mm. Paddy and Groundnut is the important crops of Pudukkottai district. 9000 Ha of the area is covered under paddy and Groundnut is being cultivated in 36000 Ha. Major horticulture crops cultivated in this district are fruits crops like mango, guava, jack, sapota and banana, vegetables like brinjal, bhendi, pumpkin and tapioca, spices like chillies, tamarind and turmeric and plantation crops like cashew and cocoa and flowers like tuberose and marigold and rose.

3.2.9 Water bodies

3.3.1 Contour & Drainage

The project site is 110.0m AMSL. The drainage pattern within 10 km of the project site is dendritic.

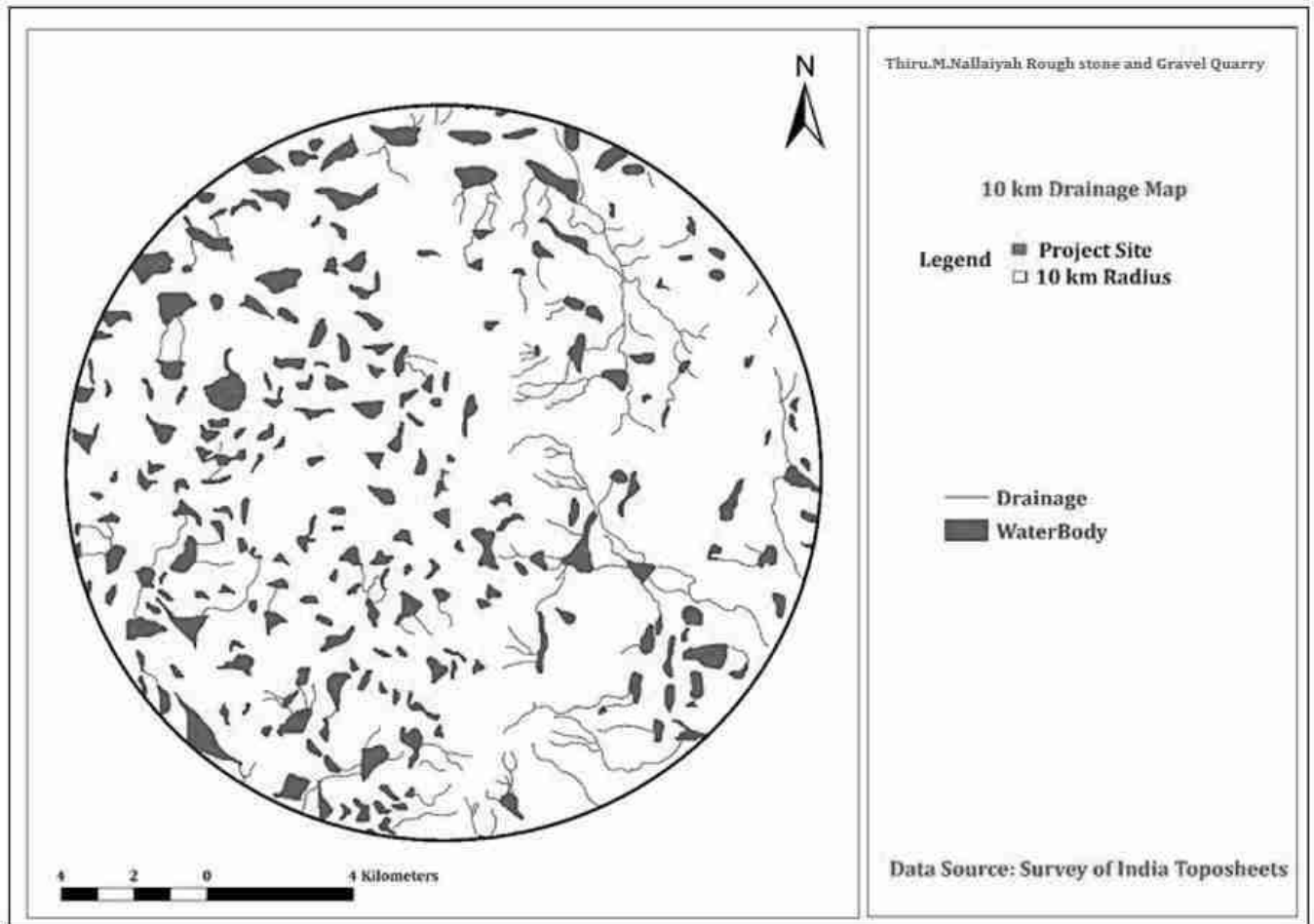


Figure 3-4 10 km Drainage Map

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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 plain. 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 soils are 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 as normal to poor.

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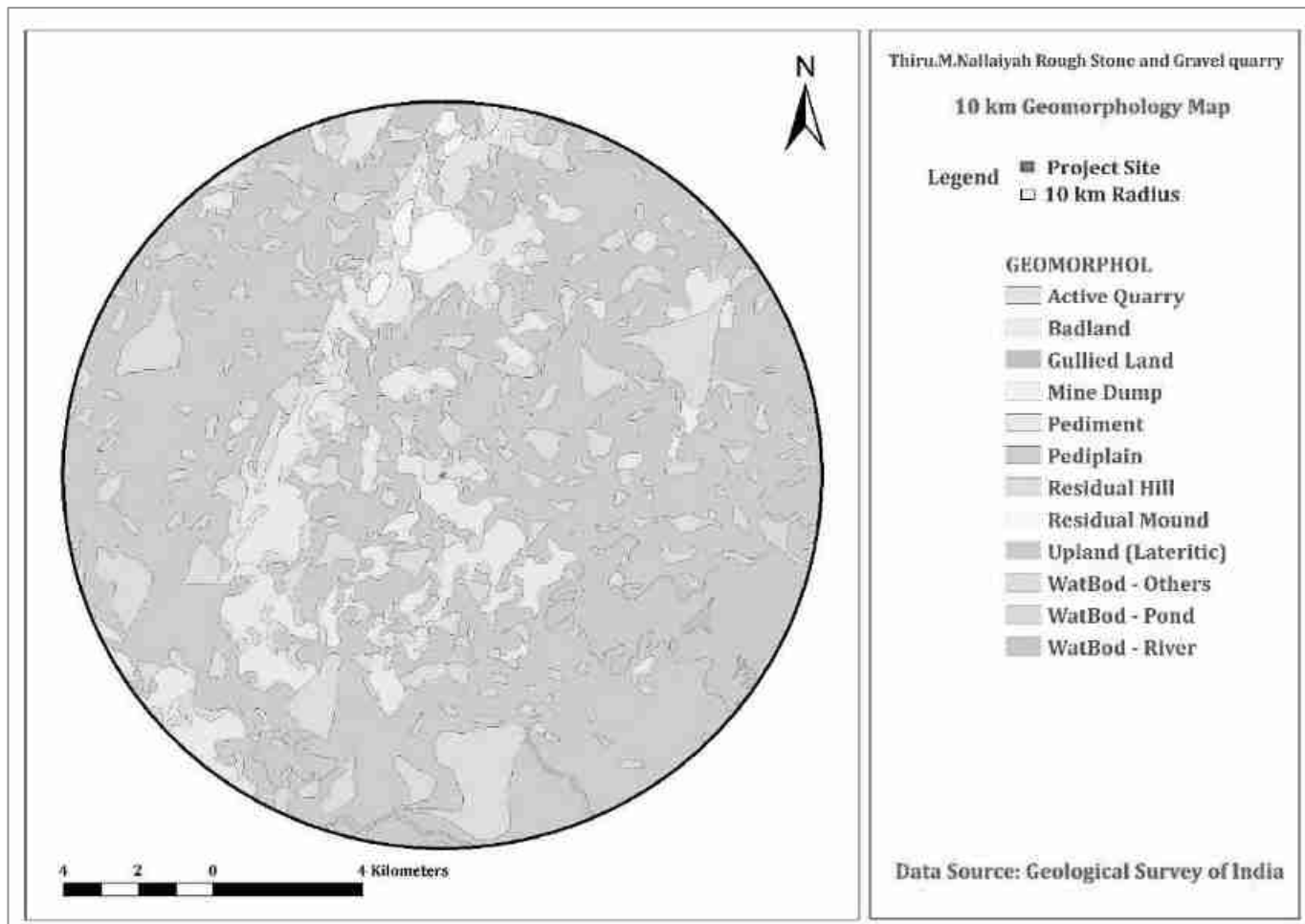


Figure 3-5 Geomorphology within 10km from the project site

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. Various types of Gneiss rocks are found in the western part of the study area, consisting of the blocks of Viarlimalai,

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Annavaasal and Ponamaravathy. Quartzite deposits are found in small quantity in some parts of Annavaasal 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. Cretaceous 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.

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 Pudukkottaitaluks 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.

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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 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 the 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

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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 sandstone 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

Tertiary formations

The tertiary formations encountered in this district are of Miocene and Pliocene ages and are found in the entire Aranthangi and Avudaiyarkoil taluks and also along the eastern parts of the Pudukottai 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 Pudukottai District, the weathered zone ranges from 1.0m to 12.0m. In Granitic gneiss area, the highly weathered portion

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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.

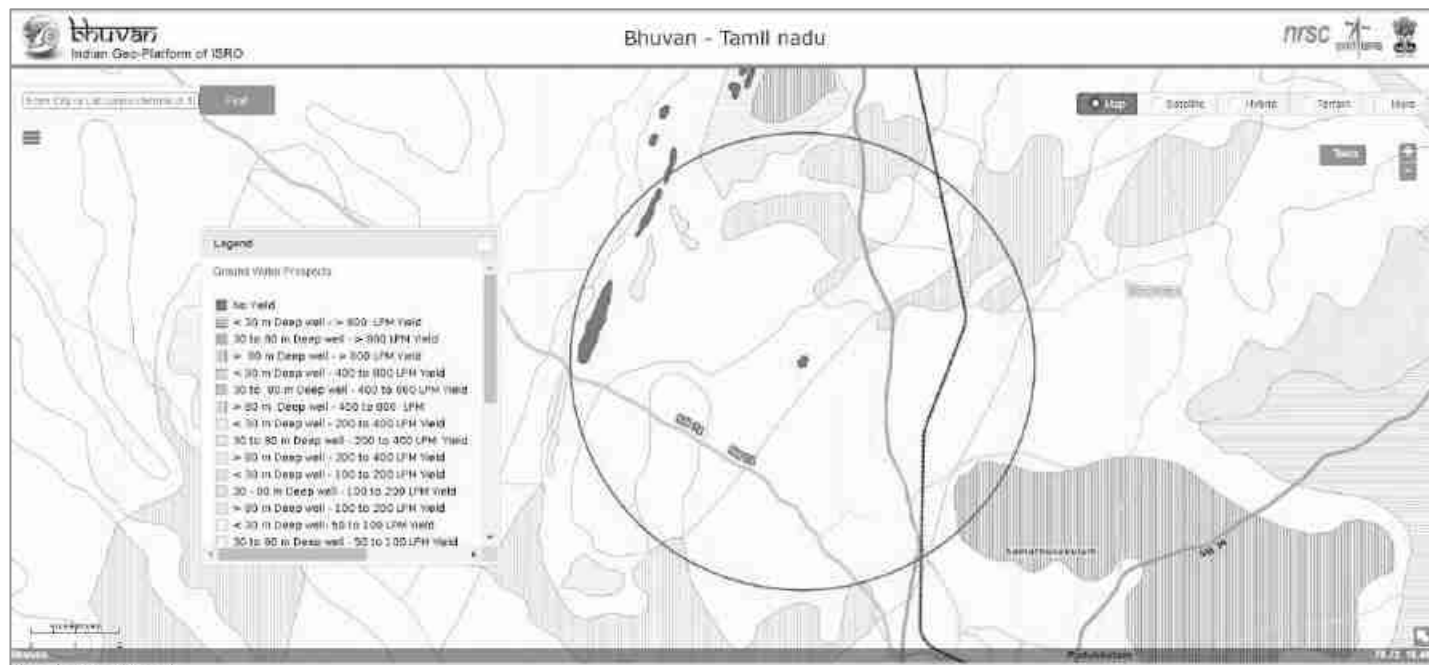


Figure 3-6 Ground water prospects within 5 km radius of the project site

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	January to March 2024
Design Criteria	Based on the Environmental settings in the study area
Monitoring Locations	Project Site – GW 1 IIPHS Safety college – GW 2 Marayapatti School, annavasal road Mangudi – GW 3 Annai Sakthi Ammayar Ninaivu Arasu Kuzhandhaigal II Lakshmi Nagar, Pudukkottai - GW 4

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	Rakkachi Amman Kovil, Pudukkottai – GW5 Melur Middle School – GW6 Sri Periyanaayagi Amman Agencies ATS Petrol Bunk – GW7
Methodology	Water Samples were collected in 5 Litre fresh cans as per IS 3025 Part I and transported to the laboratory in Iceboxes
Frequency of Monitoring	Once in a season

3.3.5.1 Sampling Procedure

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

Table 3-5: Standard Procedure

S. No	Parameters	Test Method
1	pH (at 25°C)	IS:3025(P -11)1983 RA: 2012
2	Electrical Conductivity	IS:3025(P -14) 2013
3	Colour	IS:3025 (P -4)1983 RA: 2012
4	Turbidity	IS:3025(P -10)1984 RA: 2012
5	Total Dissolved Solids	APHA 22 nd Edn.2012-2540-C
6	Total Suspended Solids	IS:3025(P-17)-1984 RA:2012
7	Total Hardness as CaCO ₃	APHA 22 nd Edn.2012-2340-C
8	Calcium as Ca	APHA 22 nd Edn2012.3500 Ca-B
9	Magnesium as Mg	APHA 22 nd Edn.2012-3500 Mg-B
10	Chloride as Cl	IS:3025(P -32)-1988 RA: 2014
11	Sulphate as SO ₄	APHA 22 nd Edn.2012-4500 SO ₄ -E
12	Total Alkalinity as CaCO ₃	APHA 22 nd Edn.2012-2320-B
13	Iron as Fe	IS:3025(P -53):2003 RA: 2014
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

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Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	

17	Sodium as Na	IS:3025(P -45):1993 RA: 2014
18	Potassium as K	IS:3025(P -45):1993 RA: 2014
19	Coliform	IS: 1622:1981:RA:2014
20	E. coli	IS: 1622:1981:RA:2014

Table 3-6 Ground water sampling results

S. No	Parameters	Units	GW1	GW 2	GW 3	GW 4	GW 5	GW 6	GW 7
1	pH (at 25°C)	-	7.65	7.56	8.21	7.25	7.21	7.92	7.58
2	Electrical Conductivity	µS/cm	700	1310	3400	330	758	1290	1970
3	Colour	Hazen Unit	4	4	4	3	4	3	4
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	390	710	2095	195	416	810	1325
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	217	194	459	95	247	114	555
8	Calcium Hardness as CaCO ₃	mg/L	150	87.6	205	45.6	163	41.7	213
9	Magnesium Hardness as CaCO ₃	mg/L	67	106	254	49.4	83.6	71.9	342
10	Calcium as Ca	mg/L	59.9	35	82.8	18.2	65	16.7	85.2
11	Magnesium as Mg	mg/L	16.3	25.8	61.9	12.0	20.3	17.5	83.1
12	Chloride as Cl	mg/L	49.3	152	699	36	67	201	414
13	Sulphate as SO ₄	mg/L	7.67	17.9	240	12	7.2	86.1	230
14	Total Alkalinity as CaCO ₃	mg/L	248	491	562	113	293	448	149

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Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	

			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)
15	Iron as Fe	mg/L							
16	Silica as SiO ₂	mg/L	13.5	10.4	15.6	7.3	10.4	20.1	26.3
17	Fluoride as F	Mg/L	0.521	1.66	0.91	0.936	0.45	0.72	0.651
18	Nitrate as NO ₃	mg/L	40.69	11.6	41.7	6.8	4.04	13.3	0.651
19	Potassium as K	mg/L	2.3	19.5	96.9	1.8	4.1	10.5	67.4
20	Sodium as Na	mg/L	43.6	128	517	34.2	59.2	176	326

3.3.6 Interpretation of results:

3.3.6.1 Physical parameters of water:

The basic physical parameters of water include

Colour:

Value observed in Project Site (True/Apparent Color): 4 Hazel unit.

Acceptable and permissible limits: 5 Hazel units and 15 Hazel 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: 7.65

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)

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<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>	
<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

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 less turbid and no any physical treatment is required to treat the turbidity of the water.

Total Dissolved Solids:

Value observed in the Project Site: 390 mg/L.

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

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 are 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: 150 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: 67 mg/L.

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

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

Chloride

Value observed in the project site: 49.3 mg/L.

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

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Project Proponent	<i>Thiru.M.Nallaiyah</i>	
Project Location	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

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: 248 mg/L.

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

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

Hardness:

Value observed in the Project Site: 217 mg/L.

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

The value of Hardness in the project site is within the acceptable and 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.

3.3.6.3 Biological parameters of water:

The biological parameters of water includes E- Coli & Coliform

Value observed in the project site: <2 mpn/100ml – e-coli and <2 mpn/100ml – Coliforms

The E- coli and coliform shall not be detectable in any 100 ml sample as per the drinking water standards IS 10500:2012.

E- coli is one of the fecal coliform bacteria. The presence of this indicates the water is feacally contaminated. Without treatment, when consumed, will have water borne diseases like cholera, typhoid and diarrhea.

3.3.7 Surface Water Analysis

Surface water samples were taken from Perunjunai Lake and Eraiyur Lake. The results are summarized below.

Table 3-7 Surface Water Sample Results

Project	New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah	Draft EIA Report
Project Proponent	Thiru.M.Nallaiyah	
Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	

S. No	Parameters	Units	Perunjunai Lake	Eraiyr Lake
1	pH (at 25°C)	-	6.83	7.08
2	Electrical Conductivity	µS/cm	300	250
3	Colour	Hazen Unit	10	5
4	Turbidity	NTU	10.5	3.6
5	Total Dissolved Solids	mg/L	195	138
6	Total Suspended Solids	mg/L	22.6	8
7	Total Hardness as CaCO ₃	mg/L	87.4	34.2
8	Calcium Hardness as CaCO ₃	mg/L	60.8	15.2
9	Magnesium Hardness as CaCO ₃	mg/L	26.6	19
10	Calcium as Ca	mg/L	24.3	6.09
11	Magnesium as Mg	mg/L	6.46	4.62
12	Chloride as Cl	mg/L	13.8	13.8
13	Sulphate as SO ₄	mg/L	15.9	18.3
14	Total Alkalinity as CaCO ₃	mg/L	123	105
15	Iron as Fe	mg/L	BQL(LOQ:0.1)	1.02
16	Silica as SiO ₂	mg/L	8.23	10.4
17	Fluoride as F	Mg/L	0.84	0.4
18	Nitrate as NO ₃	mg/L	40	6.35
19	Potassium as K	mg/L	1.9	2.04
20	Sodium as Na	mg/L	11.5	11.1
21	Total Kjeldahl Nitrogen as N	mg/L	22.6	33.4
22	Biochemical oxygen Demand @ 27°C	mg/L	5.8	8.6
23	Chemical Oxygen Demand	mg/L	20.3	44.7
24	Dissolved Oxygen	mg/L	5.75	5.04

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

3.3.8 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:

<i>Project</i>	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>	
<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

Winter season : December to February

Pre-monsoon season : March to May

Monsoon season : June to September

Post-monsoon season : October to November

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 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 Southeastern part of the district, which includes the coastal blocks of Manamelgudi and Avudaiyarkoil. It gradually decreases towards the northeast, where the average annual rainfall is found to be the lowest in Malaiyanur.

PUDUKKOTTAI DISTRICT -NORMAL AND ACTUAL RAINFALL (2008 TO 2017)

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

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Project Proponent	Thiru.M.Nallaiyah	
Project Location	Melur Village, Kulathur 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 June to August 2022.

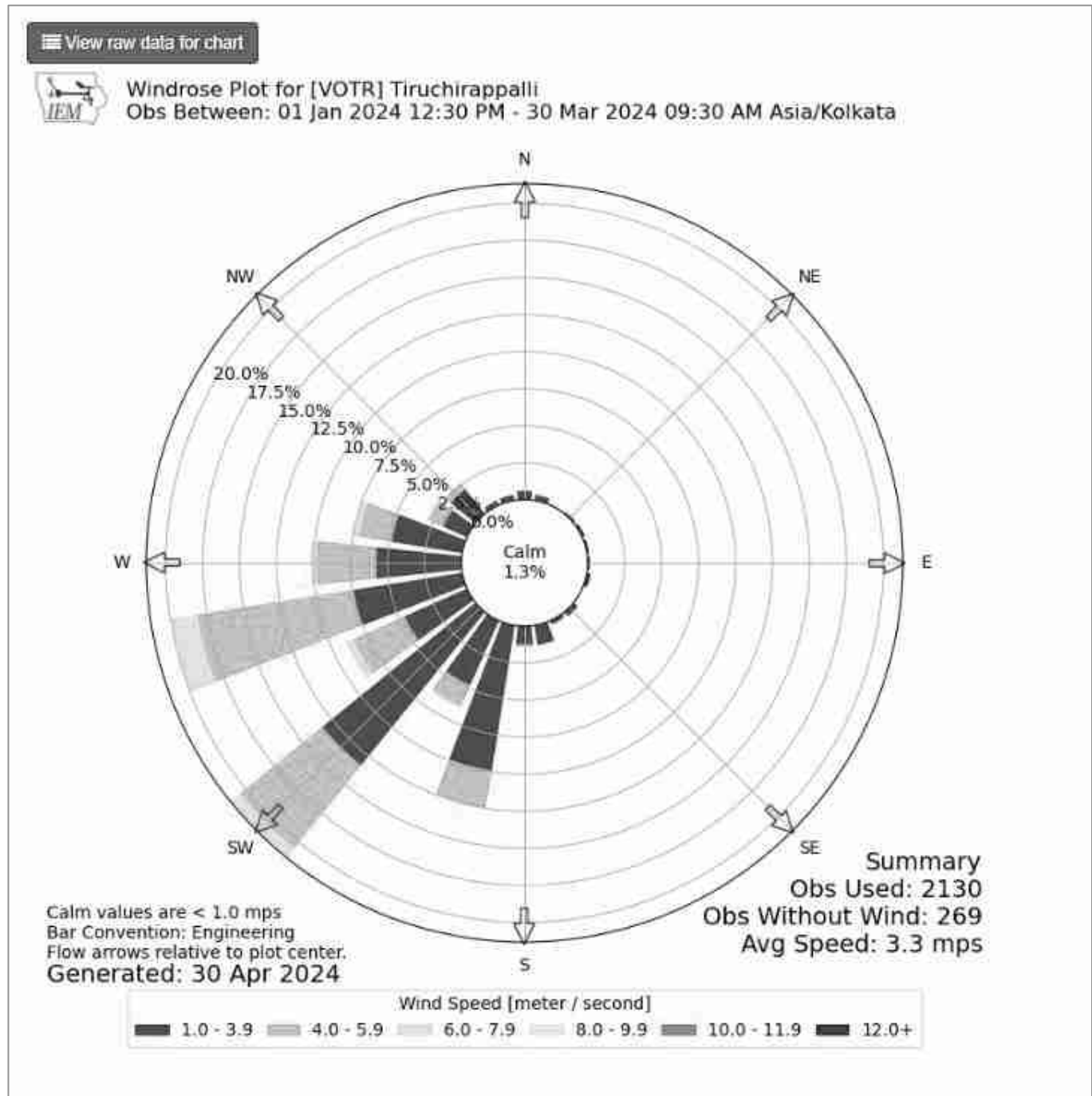


Figure 3-7 Wind rose.

Project	New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah	Draft EIA Report
Project Proponent	Thiru.M.Nallaiyah	
Project Location	Melur Village, Kulathur 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.

3.3 Ambient Air Quality

Table 3-8: Selection of Sampling Location

Environmental Parameters: Ambient Air			
Monitoring Period	January to March 2024		
Design Criteria	The monitoring stations are selected based on factors like topography/terrain, prevailing meteorological conditions like predominant wind direction (January to March 2024), etc, play a vital role in the selection of air sampling stations. Based on these criteria, 7 air sampling station were selected in the area as shown below.		
Monitoring Locations	Location & Code	Distance (km)	Direction
	Project Site - AAQ 1	-	-
	Marayapatti School, Annavasal road Mangudi – AAQ 2	5.61	Upwind SW
	IIPHS Safety college – AAQ 3	2.54	Downwind NE
	Annai Sakthi Ammaiyyar Ninaivu Arasu Kuzhandhaigal Illam, Lakshmi Nagar, Pudukkottai – AAQ 4	7.24	Crosswind SE
	Rakkachi Amman Kovil, Pudukkottai - AAQ 5	8.81	Crosswind NW
	Melur Middle School – AAQ 6	1.69	Crosswind N
	Sri Periyannayagi Amman Agencies ATS Petrol Bunk – AAQ 7	4.17	Crosswind S
	Methodology	Respirable Particulate Matter (PM10) - Gravimetric (IS 5182: Part 23:2006) Particulate Matter PM2.5 - Gravimetric (Fine particulate matter) Sulphur Dioxide - Calorimetric (West & Gaeke Method) (IS 5182: Part 02:2001) Nitrogen Dioxide - Calorimetric (Modified Jacob & Hocheiser Method) (IS 5182: Part 06:2006)	
Frequency of Monitoring	2 days in a week, 4 weeks in a month for 3 months in a season.		

Project	New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah	Draft EIA Report
Project Proponent	Thiru.M.Nallaiyah	
Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	

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.

Code	Location	PM 10 ($\mu\text{g}/\text{m}^3$)				PM 2.5 ($\mu\text{g}/\text{m}^3$)				SO ₂ ($\mu\text{g}/\text{m}^3$)				NO _x ($\mu\text{g}/\text{m}^3$)			
		Min	Max	Avg	98 %	Min	Max	Avg	98 %	Min	Max	Avg	98 %	Min	Max	Avg	98 %
AAQ 1	Project Site	35	53	43.4	52.08	13	22	18.5	22	4	12	8.4	11.54	8	23	16.3	23
AAQ 2	Marayapatti School, Annasaval road Mangudi	48	58	52.1	57.54	20	31	23.5	30.08	11	19	14.1	19	14	30	24.7	29.54
AAQ 3	IIPHS Safety college	40	51	47.1	51	17	24	21.3	24	6	15	9.8	14.08	12	29	16.3	23
AAQ 4	Annai Sakthi Ammaiyaar Kuzhandhaigal Illam, Lakshmi Nagar, Pdk.	45	54	49.5	53.54	19	26	22.7	25.54	7	15	11.3	14.54	26	27	19.6	26.54
AAQ 5	Rakkachi Amman Kovil, Pudukkottai	49	61	54.8	61	22	34	26.7	32.16	15	22	17.7	21.54	26	44	32.8	43.54
AAQ 6	Melur Middle School	50	59	55.4	59	22	28	24.7	27.54	14	23	19.9	23	29	44	35.6	43.54
AAQ 7	Sri Periyanaayagi Agencies ATS Petrol Bunk	53	63	57.4	62.08	24	32	26.7	31.08	19	25	22.5	25	36	45	40.3	44.54
NAAQ Standards - Residential Area		100 ($\mu\text{g}/\text{m}^3$)				60($\mu\text{g}/\text{m}^3$)				80 ($\mu\text{g}/\text{m}^3$)				80 ($\mu\text{g}/\text{m}^3$)			

Table 3-9 Ambient Air Quality

Project	New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah	Draft EIA Report
Project Proponent	Thiru.M.Nallaiyah	
Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	

3.4.2 Interpretation of ambient air quality:

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

Observation:

The Maximum value of PM10 (63 ($\mu\text{g}/\text{m}^3$), PM 2.5(34 ($\mu\text{g}/\text{m}^3$), SOx 25 ($\mu\text{g}/\text{m}^3$), NOx (45 ($\mu\text{g}/\text{m}^3$) is observed in different places.

Inference:

The monitoring results for PM10, PM2.5, NOx was found to be high in Kaliasman Kovil, Rakkadanpatti Village which densely populated small rural area where there is no commercial development like industry, college, etc. The only contributing factor to the higher values is due to the vehicular movement. In the absence of vehicular movement, the values of PM10, PM2.5, NOx was found to be less.

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

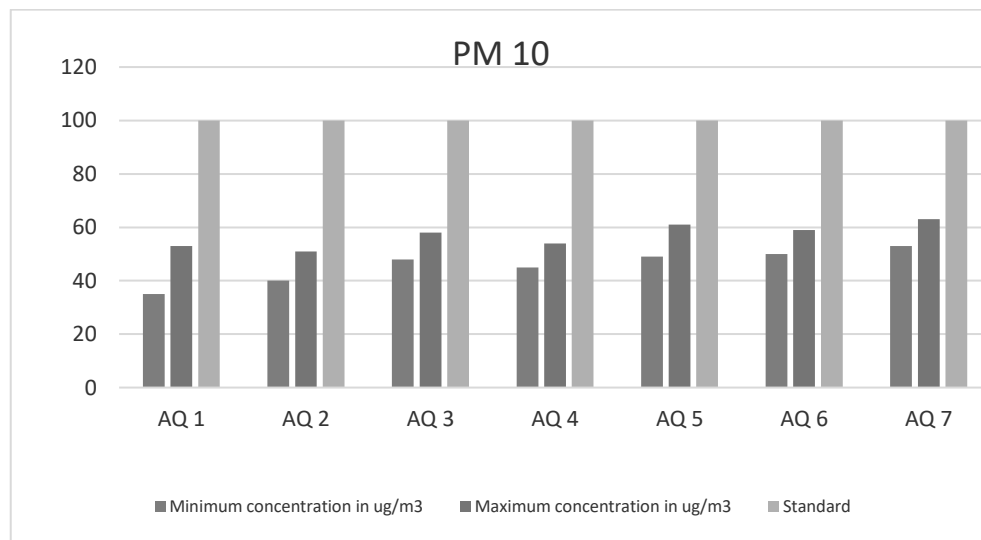


Figure 3-8 Concentration of PM10 ($\mu\text{g}/\text{m}^3$) in Study Area

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Project Proponent	Thiru.M.Nallaiyah	
Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	

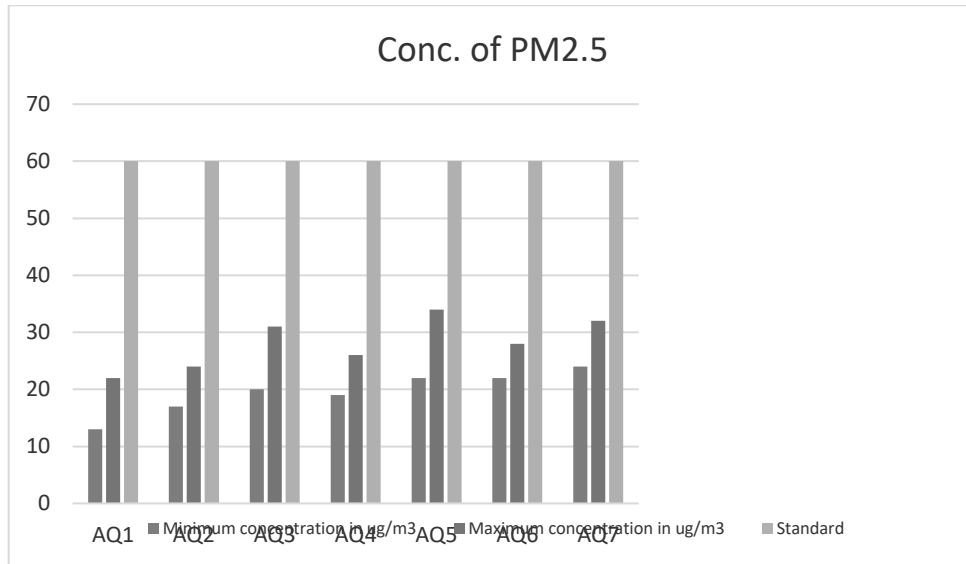


Figure 3-9 Concentration of PM2.5 (µg/m³) in Study Area

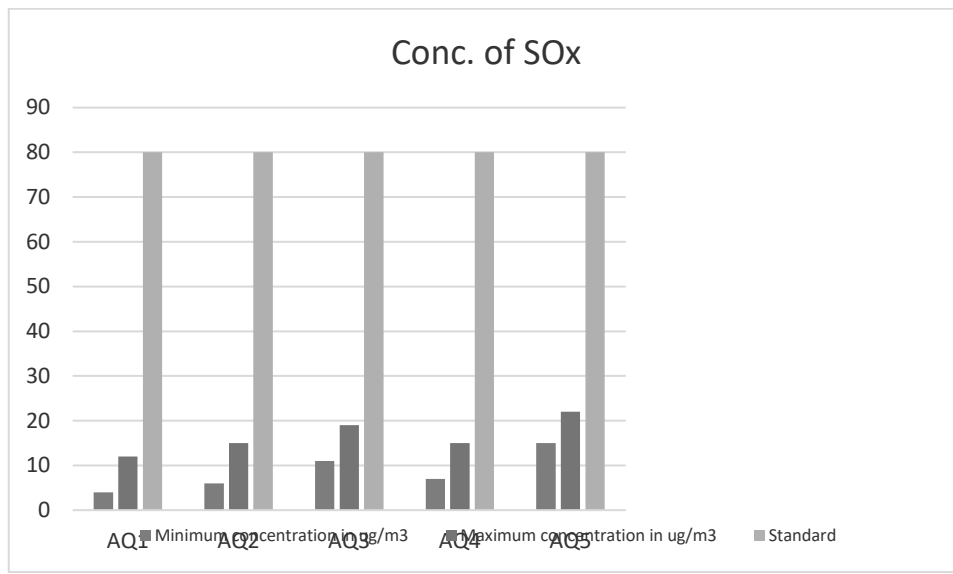


Figure 3-10 Concentration of SOx (µg/m³) in Study Area

Project	New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah	Draft EIA Report
Project Proponent	Thiru.M.Nallaiyah	
Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	

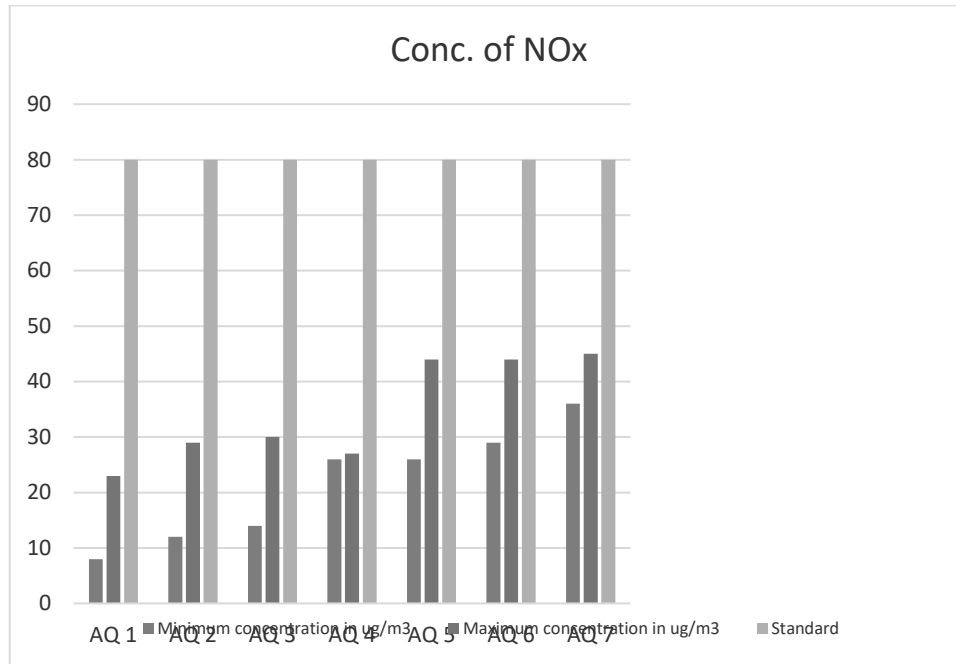


Figure 3-11 Concentration of NOx (µg/m³) in Study Area

3.4 Noise Environment:

Table 3-10 Noise Analysis

Environmental Parameters: Noise Analysis	
Monitoring Period	January to March 2024
Design Criteria	Based on the Sensitivity of the area
Monitoring Locations	Project Site – N1, Marayapatti School, annavasal road Mangudi – N2, IIPHS Safety college – N3, Annai Sakthi Ammaiyyar Ninaivu Arasu Kuzhandhaigal Illam, Lakshmi Nagar, Pudukkottai – N4 Rakkachi Amman Kovil, Pudukkottai - N5 Melur Middle School – N6 Sri Periyarayagi Amman Agencies ATS Petrol Bunk – N7
Methodology	Noise level measurements were taken at the selected locations using noise level meter both during day and nighttime. Noise

Project	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.M.Nallaiyah</i>	
Project Location	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

	level measurements were taken continuously for 24 hours at hourly intervals
Frequency of Monitoring	Noise samples were collected from 5 locations - Once in a season

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

3.5.1 Day Noise Level (Leq day)

Table 3-11 Day Noise Level (Leq day)

Location	Leq day in dB(A)		
	Max	Min	Average
Project Site	55	41	50
Marayapatti School, annavasal road Mangudi	63	51	58
IIPHS Safety college	56	45	52
Annai Sakthi Ammaiyyar Ninaivu Arasu Kuzhandhaigal Illam, Lakshmi Nagar, Pudukkottai	59	49	55
Rakkachi Amman Kovil, Pudukkottai	64	51	59
Melur Middle School	58	43	54
Sri Periyannayagi Amman Agencies ATS Petrol Bunk	61	47	56

3.5.2 Night Noise Level (Leq Night)

Table 3-12 Night Noise Level (Leq Night)

<i>Project</i>	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>	
<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

Location	Leq Night in dB(A)		
	Max	Min	Average
Project Site	43	36	39
Marayapatti School, annavasal road Mangudi	49	40	45
IIPHS Safety college	47	39	42
Annai Sakthi Ammaiyyar Ninaivu Arasu Kuzhandhaigal Illam, Lakshmi Nagar, Pudukkottai	46	39	43
Rakkachi Amman Kovil, Pudukkottai	50	43	47
Melur Middle School	45	35	40
Sri Periyannayagi Amman Agencies ATS Petrol Bunk	46	36	43

Observation:

The maximum Day noise and Night noise were found to be 64 dB(A) and 50 dB(A) respectively in Rakkachi Amman Kovil, Pudukkottai. The minimum Day Noise and Night noise were 55 dB(A) and 43 dB(A) respectively which was observed in Project Site.

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

3.5 Soil Environment

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

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Project Proponent	Thiru.M.Nallaiyah	
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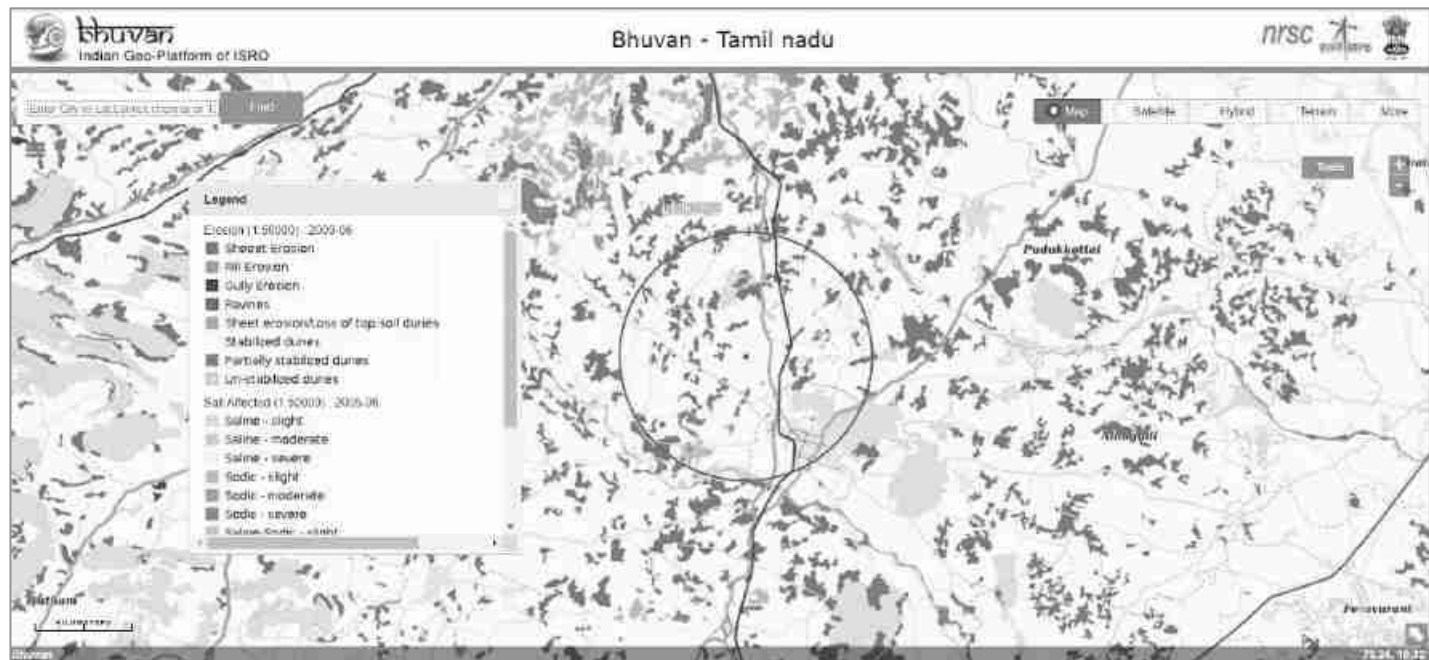


Figure 3-12 Soil Erosion pattern within 10 km radius of the project site.

3.6.1 Baseline Data:

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

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

Table 3-13 Soil Quality Analysis

Environmental Parameters: <i>Soil Quality Analysis</i>	
Monitoring Period	January to March 2024
Design Criteria	Based on the environmental settings of the study area
Monitoring Locations	Project Site – SQ 1, Marayapatti School, annavasal road Mangudi – SQ 2,

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	IIPHS Safety college – SQ 3, Annai Sakthi Ammaiyar Ninaivu Arasu Kuzhandhaigal Illam, Lakshmi Nagar, Pudukkottai – SQ 4 Rakkachi Amman Kovil, Pudukkottai – SQ 5 Melur Middle School – SQ 6 Sri Periyanyagi Amman Agencies ATS Petrol Bunk – SQ 7
Methodology	Composite soil samples using sampling augers and field capacity apparatus
Frequency of Monitoring	Soil samples were collected from 7 locations Once in a season

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

Table 3-14 Soil Quality Analysis

S.No	Parameters	Unit	SQ 1	SQ 2	SQ 3	SQ 4	SQ5	SQ 6	SQ 7
1	pH (at 25°C)	-	7.82	7.17	7.16	7.40	6.87	7.90	8.69
2	Specific Electrical Conductivity	ms/cm	0.35	0.36	0.91	0.20	0.19	0.27	0.51
3	Water Holding Capacity	ml/L	4.6	3.6	5.1	5.4	4.3	4.2	4.2
4	Chloride	mg/Kg	38.9	46.5	42.0	57.4	44.6	67.4	54.1
5	Calcium	mg/Kg	26.4	35.3	42.1	30.5	11.8	27.1	20.5
6	Sodium	mg/Kg	454	468	589	446	305	469	511
7	Pottasium	mg/Kg	423	473	523	405	315	443	559
8	Organic matter	%	0.11	0.09	1.18	0.7	1.09	0.09	0.18

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9	Soluble Magnesium	mg/Kg	11.6	12.5	16.4	18.4	9.45	9.53	14.7
10	Sulphate	mg/Kg	32.1	20.5	24.1	38.5	53.9	7.76	30
11	CEC	meq/100g	11.5	10.9	12.1	11.9	13.3	10.5	12.4
12	Carbonate	mg/Kg	NIL	NIL	NIL	NIL	NIL	NIL	16.8
13	BiCarbonate	mg/Kg	84.9	96	120	105	89	90.4	130
14	TKN	%	0.12	0.06	0.23	0.09	0.18	0.15	0.19
15	Bulk Density	g/cm ³	1.21	1.16	1.25	1.34	1.08	1.32	1.26
16	Phosphorous	mg/Kg	45.3	154	118	52	84	102	35.1
17	Sand	%	57.1	47	48	62	53	62	47.4
18	Clay	%	7.14	12	10	23	40	31	10.52
19	Silt	%	35.7	41	43	15	7	8	42.1
20	SAR	meq/Kg	18.5	17.2	19.5	15.7	16.0	19.7	21.0
21	Silicon	%	0.092	0.091	0.095	0.096	1.092	0.089	0.087

3.6.1.1 Physical Properties:

Regular cultivation practices increase the bulk density of soils thus inducing compaction. This results in reduction in water percolation rate and penetration of roots through soils. The soils with low bulk density have favorable physical conditions whereas those with high bulk density exhibit poor physical conditions for agriculture crops. The bulk density of the soil in the study area ranged between 1.08 to 1.32 mg/kg which indicates favorable physical condition for plant growth. The water holding capacity was found in the range of 4.2 ml/1 to 5.4 ml/1.

3.6.1.2 Chemical Properties:

Chemical characteristics of soils include pH, exchangeable cations and fertility status in the form of NPK values and organic matter. The value of the pH ranges from 6.87 to 8.69, which indicates majority of pH of the soil is slightly alkaline. The soil in the project site is sodic in nature, which challenges because

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they tend to have very poor structure which limits or prevents water infiltration and drainage. The organic matter varies from 0.09 to 1.18 mg/kg, which indicates the soil is slightly unfertile.

3.6 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.

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.

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3.7.2 *Field study & Methodology adopted:*

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

3.7.3 *Study outcome:*

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

Sample plots were selected in such a way to get maximum representation of different types of vegetation and plots were laid out in different part of the study area of 2 km radius. Analysis of the vegetation will help in determining the relative importance of each species in the study area and to reveal if any economically valuable species is threatened in the process.

Table 3-15 Calculation of Density, Frequency (%), Dominance, Relative Density, Relative Frequency, Relative Dominance & Important Value Index

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

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Table 3-16 Tree Species in the core Zone

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Dominance	Relative Density	Relative Frequency	Relative Dominance	IVI	IUCN Conservation Status
1	Ficus Carica	Athi Maram	2	2	6	0.33	33.33	1	0.28	1.68	2.17	4.45	8.31	Least Concern
2	Cassia siamea	ManjalKonrai	3	2	6	0.50	33.33	1.5	0.07	2.52	2.17	1.11	5.81	Least Concern
3	Acacia nilotica	Karuvelai	4	4	6	0.67	66.67	1	0.28	3.36	4.35	4.45	12.16	Least Concern
4	Bambusa vulgaris	Moongil	4	4	6	0.67	66.67	1	0.50	3.36	4.35	7.92	15.63	Not assessed
5	Anacardium occidentale	Cashew	1	1	6	0.17	16.67	1	0.44	0.84	1.09	6.96	8.88	Not assessed
6	Alstonia scholaris	Elilaipalai	2	2	6	0.33	33.33	1	0.27	1.68	2.17	4.31	8.16	Least Concern
7	Psidium guajava	Guava	3	3	6	0.50	50.00	1	0.23	2.52	3.26	3.61	9.39	Not assessed
8	Aegle marmelos	Vilvam	1	1	6	0.17	16.67	1	0.16	0.84	1.09	2.50	4.43	Not assessed
9	Causuarina equisetifolia	Savukku	2	2	6	0.33	33.33	1	0.21	1.68	2.17	3.34	7.20	Not assessed
10	Albizia amara	Wunja	1	1	6	0.17	16.67	1	0.20	0.84	1.09	3.22	5.14	Not assessed
11	Cocos nucifera	Thennai	10	6	6	1.67	100.0	1.67	0.15	8.40	6.52	2.39	17.32	Not assessed
12	Artocarpus heterophyllus	Palaa	2	2	6	0.33	33.33	1	0.18	1.68	2.17	2.85	6.70	Not assessed
13	Bombax ceiba	Sittan	4	4	6	0.67	66.67	1	0.08	3.36	4.35	1.27	8.98	Not assessed
14	Azadirachta indica	Veppam	17	6	6	2.83	100.0	2.83	0.13	14.29	6.52	1.98	22.79	Not assessed
15	Delonix regia	Cemmayir-Konrai	1	1	6	0.17	16.67	1	0.21	0.84	1.09	3.34	5.27	Least Concern
16	Delonix elata	Perungondrai	1	1	6	0.17	16.67	1	0.17	0.84	1.09	2.62	4.54	Least Concern
17	Dalbergia sissoo	Shisham	1	1	6	0.17	16.67	1	0.15	0.84	1.09	2.29	4.21	Not assessed
18	Ficus benghalensis	Alai	2	2	6	0.33	33.33	1	0.08	1.68	2.17	1.19	5.04	Not assessed

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19	Annona squamosa	Sitapalam	1	1	6	0.17	16.67	1	0.23	0.84	1.09	3.61	5.53	Not assessed
20	Pithecellobium dulce	Kodukapuli	1	1	6	0.17	16.67	1	0.14	0.84	1.09	2.18	4.11	Not assessed
21	Ficus religiosa	Arasa maram	3	3	6	0.50	50.00	1	0.09	2.52	3.26	1.35	7.13	Not assessed
22	Couroupita guianensis	Nagalingam	5	3	6	0.83	50.00	1.67	0.14	4.20	3.26	2.18	9.64	Not assessed
23	Musa paradise	Vaazhai	3	3	6	0.50	50.00	1	0.08	2.52	3.26	1.19	6.97	Not assessed
24	Prosopis juliflora	Vaelikaruvai	3	3	6	0.50	50.00	1	0.21	2.52	3.26	3.34	9.13	Not assessed
25	Mangifera indica	Mamaram	7	6	6	1.17	100.0	1.16	0.07	5.88	6.52	1.11	13.52	Data insufficient
26	Mimusops elengi	Magizham	2	2	6	0.33	33.33	1	0.18	1.68	2.17	2.85	6.70	Not assessed
27	Morinda pubescens	Nuna	6	6	6	1.00	100.0	1	0.24	5.04	6.52	3.74	15.31	Not assessed
28	Thespesia populnea	Poovarasam	3	3	6	0.50	50.00	1	0.15	2.52	3.26	2.39	8.18	Not assessed
29	Tectona grandis	Thekku	3	3	6	0.50	50.00	1	0.12	2.52	3.26	1.88	7.66	Not assessed
30	Tamarindus indica	Puli	10	6	6	1.67	100.0	1.66	0.20	8.40	6.52	3.09	18.02	Not assessed
31	Syzygium cumini	naval	5	1	6	0.83	16.67	5	0.11	4.20	1.09	1.79	7.07	Not assessed
32	Carica papaya	Papaya	3	3	6	0.50	50.00	1	0.09	2.52	3.26	1.43	7.21	Not assessed
33	Ziziphus mauritiana	Elandai	1	1	6	0.17	16.67	1	0.28	0.84	1.09	4.45	6.38	Not assessed
34	Citrus medica	Elumichai	2	2	6	0.33	33.33	1	0.23	1.68	2.17	3.61	7.46	Not assessed
Total			119	92					6.35					

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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	28	17	24	1.17	0.71	1.65	14.43	17.17	Not Assessed
2	Lantana trifolia	Shrub verbana	10	3	24	0.42	0.13	3.33	5.15	3.03	Not Assessed
3	Robiniapseudoacacia	Black locust	17	5	24	0.71	0.21	3.4	8.76	5.05	Least Concern
4	Lantana camara	Unnichedi	9	6	24	0.38	0.25	1.5	4.64	6.06	Not Assessed
5	Calotropis gigantea	Erukam	14	12	24	0.58	0.50	1.17	7.22	12.12	Not Assessed
6	Stachytarpheurticifolia	Rat tail	15	9	24	0.63	0.38	1.67	7.73	9.09	Not Assessed
7	Datura metal	Ummattangani	5	4	24	0.21	0.17	1.25	2.58	4.04	Not Assessed
8	Hibiscus rosa sinensis	Sembaruthi	3	2	24	0.13	0.08	1.5	1.55	2.02	Not Assessed
9	Tabernaemontanadivaricata	Crepe Jasmine	3	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
10	Chloromolaena odorata	Venapacha	9	6	24	0.38	0.25	1.5	4.64	6.06	Least Concern
11	Euphorbia geniculata	Amman Pacharisi	3	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
12	Catharanthus roseus	Nithyakalyani	3	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
13	Woodfordiafruticosa	Velakkai	3	3	24	0.13	0.13	1	1.55	3.03	Least Concern
14	Morindapubescens	Mannanunai	2	2	24	0.08	0.08	1	1.03	2.02	Not Assessed
15	Acalypha indica	Kuppaimeni	20	8	24	0.83	0.33	2.5	10.31	8.08	Not Assessed
16	Parthenium hysterophorous	Vishapoondur	50	13	24	2.08	0.54	3.85	25.77	13.13	Not Assessed

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Table 3-18 Herbs & Grasses in the core zone

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IUCN Conservation status
1	Plumbago zeylanica	Chittiramoolam	3	3	30	0.10	0.10	1	1.19	3.23	Not assessed
2	Mimosa pudica	Thottacherungi	6	5	30	0.20	0.17	1.2	2.38	5.38	Least concern
3	Sida acuta	Malaidangi	10	3	30	0.33	0.10	3.33	3.97	3.23	Not assessed
4	Scrophularia nodosa	Sarakkothini	15	7	30	0.50	0.23	2.14	5.95	7.53	Not assessed
5	Helicteresisora	Valampuri	2	2	30	0.07	0.07	1	0.79	2.15	Not assessed
6	Cynodondactylon	Arugu	12	6	30	0.40	0.20	2	4.76	6.45	Not assessed
7	Sporobolus fertilis	Giant Parramatta Grass	9	4	30	0.30	0.13	2.25	3.57	4.30	Not assessed
8	Viburnum dentatum	Viburnum	5	5	30	0.17	0.17	1	1.98	5.38	Least concern
9	Heraculem spondylium	Hog Weed	20	10	30	0.67	0.33	2	7.94	10.75	Not assessed
10	Laportea canadensis	Peruganchori	30	20	30	1.00	0.67	1.5	11.90	21.51	Not assessed
11	Euphorbia hirta	Amman Pacharisi	5	4	30	0.17	0.13	1.25	1.98	4.30	Not assessed
12	Tridax procumbens	Vettukaayathalai	5	4	30	0.17	0.13	1.25	1.98	4.30	Not assessed
13	Tephrosia purpurea	Kavali	20	4	30	0.67	0.13	5	7.94	4.30	Not assessed
14	Sida cordifolia	Maanikham	45	4	30	1.50	0.13	11.25	17.86	4.30	Not assessed
15	Tridax procumbens	Cuminipachai	15	4	30	0.50	0.13	3.75	5.95	4.30	Not assessed
16	Ruellia strepens	Grandinayagam	25	4	30	0.83	0.13	6.25	9.92	4.30	Not assessed
17	Senna occidentalis	Nattamsakarai	25	4	30	0.83	0.13	6.25	9.92	4.30	Not assessed

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

Biodiversity index is a quantitative measure that reflects how many different types 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	0.017857	-4.02535	-0.07188
Cassia siamea	ManjalKonrai	2	0.017857	-4.02535	-0.07188
Acacia nilotica	Karuvelai	4	0.035714	-3.3322	-0.11901
Bambusa vulgaris	Moongil	4	0.035714	-3.3322	-0.11901
Anacardium occidentale	Cashew	2	0.017857	-4.02535	-0.07188
Alstonia scholaris	Elilaipalai	2	0.017857	-4.02535	-0.07188

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Psidium guajava	Guava	3	0.026786	-3.61989	-0.09696
Aegle marmelos	Vilvam	1	0.008929	-4.7185	-0.04213
Causuarina equisetifolia	Savukku	2	0.017857	-4.02535	-0.07188
Albizia amara	Wunja	1	0.008929	-4.7185	-0.04213
Cocos nucifera	Thennai	15	0.133929	-2.01045	-0.26926
Artocarpus heterophyllus	Palaa	2	0.017857	-4.02535	-0.07188
Bombax ceiba	Sittan	4	0.035714	-3.3322	-0.11901
Azadirachta indica	Veppam	10	0.089286	-2.41591	-0.21571
Delonix regia	Cemmayir-Konrai	1	0.008929	-4.7185	-0.04213
Delonix elata	Perungondrai	1	0.008929	-4.7185	-0.04213
Dalbergia sissoo	Shisham	1	0.008929	-4.7185	-0.04213
Ficus benghalensis	Alai	2	0.017857	-4.02535	-0.07188
Annona squamosa	Sitapalam	1	0.008929	-4.7185	-0.04213
Pithecellobium dulce	Kodukapuli	1	0.008929	-4.7185	-0.04213
Ficus religiosa	Arasa maram	3	0.026786	-3.61989	-0.09696
Couroupita guianensis	Nagalingam	5	0.044643	-3.10906	-0.1388
Musa paradise	Vaazhai	3	0.026786	-3.61989	-0.09696
Prosopis juliflora	Vaelikaruvai	3	0.026786	-3.61989	-0.09696
Mangifera indica	Mamaram	8	0.071429	-2.63906	-0.1885
Mimusops elengi	Magizham	2	0.017857	-4.02535	-0.07188
Morinda pubescens	Nuna	6	0.053571	-2.92674	-0.15679
Thespesia populnea	Poovarasam	3	0.026786	-3.61989	-0.09696
Tectona grandis	Thekku	3	0.026786	-3.61989	-0.09696
Tamarindus indica	Puli	8	0.071429	-2.63906	-0.1885
Syzygium cumini	naval	1	0.008929	-4.7185	-0.04213
Carica papaya	Papaya	3	0.026786	-3.61989	-0.09696
Ziziphus mauritiana	Elandai	1	0.008929	-4.7185	-0.04213
Citrus medica	Elumichai	2	0.017857	-4.02535	-0.07188
Total		112			-3.22

H (Shannon Diversity Index) = 1.76

Shrubs

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Jatropagossypifolia	Kaatamanaku	28	0.14433	-1.93565	-0.27937
Lantana trifolia	Shrub verbana	10	0.051546	-2.96527	-0.15285
Robiniapseudoacacia	Black locust	17	0.087629	-2.43464	-0.21335
Lantana camara	Unnichi	9	0.046392	-3.07063	-0.14245
Calotropis gigantea	Erukam	14	0.072165	-2.6288	-0.18971
Stachytarphaurticifolia	Rat tail	15	0.07732	-2.55981	-0.19792
Datura metal	Ummattangani	5	0.025773	-3.65842	-0.09429

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Hibiscus rosa sinensis	Sembaruthi	3	0.015464	-4.16925	-0.06447
Tabernaemontanadivaricata	Crepe Jasmine	3	0.015464	-4.16925	-0.06447
Chloromolaena odorata	Venapacha	9	0.046392	-3.07063	-0.14245
Euphorbia geniculata	Amman Pacharisi	3	0.015464	-4.16925	-0.06447
Catharanthus roseus	Nithyakalyani	3	0.015464	-4.16925	-0.06447
Woodfordiafruiticosa	Velakkai	3	0.015464	-4.16925	-0.06447
Morindapubescens	Mannanunai	2	0.010309	-4.57471	-0.04716
Acalypha indica	Kuppaimeni	20	0.103093	-2.27213	-0.23424
Parthenium hysterophorous	Vishapoondur	50	0.257732	-1.35584	-0.34944
Total		194			-2.3656

H (Shannon Diversity Index) =1.97

Herbs

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Plumbago zeylanica	Chittiramoolam	3	0.011905	-4.43082	-0.05275
Mimosa pudica	Thottacherungi	6	0.02381	-3.73767	-0.08899
Sida acuta	Malaidangi	10	0.039683	-3.22684	-0.12805
Scrophularia nodosa	Sarakkothini	15	0.059524	-2.82138	-0.16794
Helicteresisora	Valampuri	2	0.007937	-4.83628	-0.03838
Cynodondactylon	Arugu	12	0.047619	-3.04452	-0.14498
Sporobolus fertilis	Giant Parramatta Grass	9	0.035714	-3.3322	-0.11901
Viburnum dentatum	Viburnum	5	0.019841	-3.91999	-0.07778
Heraculem spondylium	Hog Weed	20	0.079365	-2.5337	-0.20109
Laportea canadensis	Peruganchori	30	0.119048	-2.12823	-0.25336
Euphorbia hirta	Amman Pacharisi	5	0.019841	-3.91999	-0.07778
Tridax procumbens	Vettukaayathalai	5	0.019841	-3.91999	-0.07778
Tephrosia purpurea	Kavali	20	0.079365	-2.5337	-0.20109
Sida cordifolia	Maanikham	45	0.178571	-1.72277	-0.30764
Tridax procumbens	Cuminipachai	15	0.059524	-2.82138	-0.16794
Ruellia strepens	Grandinayagam	25	0.099206	-2.31055	-0.22922
Senna occidentalis	Nattamsakarai	25	0.099206	-2.31055	-0.22922
Total		252			-2.56298

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H (Shannon Diversity Index) =2.39

i. Evenness

Details	H	H _{max}	Evenness	Species Richness (Margalef)
Trees	3.22	3.5	0.9	7
Shrubs	2.36	2.77	0.85	2.84
Herbs	2.56	2.83	0.9	2.89

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 as a whole. Species richness is high for herb community when compared with tree and shrubs.

3.7.6 Frequency Pattern

To understand the frequency pattern, the observed frequency is compared with the Raunkiaer's frequency. Any deviation from Raunkiaer's frequency implies disturbed community. Classes of species in a community and normal value of class according to Raunkiaer.

Table 3-20 Frequency Pattern

Class	Frequency (%)	Normal Value in the class
A	1-20	53
B	21-40	14
C	41-60	9
D	61-80	8
E	81-100	16

Where A>B>C>= <D<E

Raunkiaer's class for the observed species

S. No.	Scientific Name	Local Name	Frequency (%)	Class as per Raunkiaer's Law
1.	Ficus Carica	Athi Maram	33.33	B
2.	Cassia siamea	ManjalKonrai	33.33	B

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3.	Acacia nilotica	Karuvelai	66.67	D
4.	Bambusa vulgaris	Moongil	66.67	D
5.	Anacardium occidentale	Cashew	33.33	B
6.	Alstonia scholaris	Elilaipalai	33.33	B
7.	Psidium guajava	Guava	50.00	C
8.	Aegle marmelos	Vilvam	16.67	A
9.	Causuarina equisetifolia	Savukku	33.33	B
10.	Albizia amara	Wunja	16.67	A
11.	Cocos nucifera	Thennai	100	E
12.	Artocarpus heterophyllus	Palaa	33.33	B
13.	Bombax ceiba	Sittan	66.67	D
14.	Azadirachta indica	Veppam	100	E
15.	Delonix regia	Cemmayir-Konrai	16.67	A
16.	Delonix elata	Perungondrai	16.67	A
17.	Dalbergia sissoo	Shisham	16.67	A
18.	Ficus benghalensis	Alai	33.33	B
19.	Annona squamosa	Sitapalam	16.67	A
20.	Pithecellobium dulce	Kodukapuli	16.67	A
21.	Ficus religiosa	Arasa maram	50.00	C
22.	Couroupita guianensis	Nagalingam	50.00	C
23.	Musa paradise	Vaazhai	50.00	C
24.	Prosopis juliflora	Vaelikaruvai	50.00	C
25.	Mangifera indica	Mamaram	100	E
26.	Mimusops elengi	Magizham	33.33	B
27.	Morinda pubescens	Nuna	100	E
28.	Thespesia populnea	Poovarasam	50.00	C
29.	Tectona grandis	Thekku	50.00	C
30.	Tamarindus indica	Puli	100	E
31.	Syzygium cumini	naval	16.67	A
32.	Carica papaya	Papaya	50.00	C
33.	Ziziphus mauritiana	Elandai	16.67	A
34.	Citrus medica	Elumichai	33.33	B

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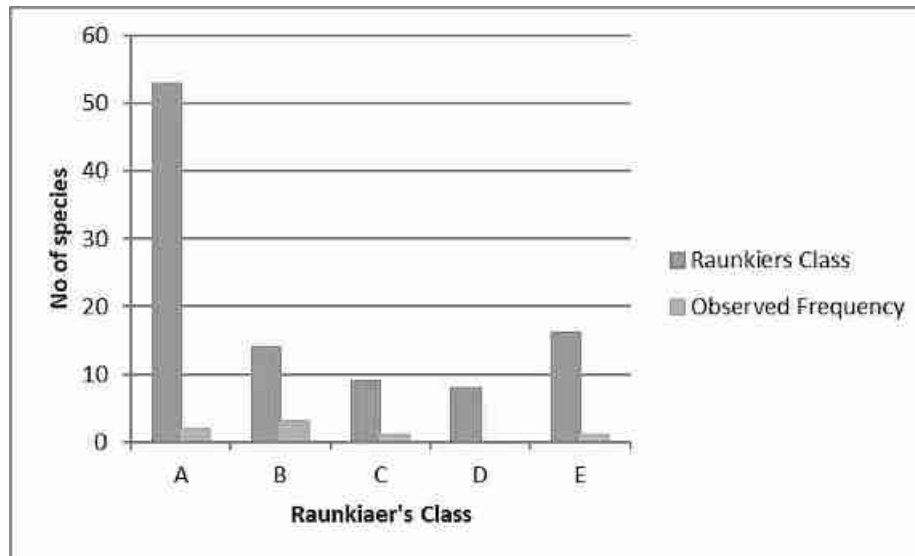


Figure 3-13 Raunkiaer's class for the observed species

Interpretation: The observed frequency is $A < B > C > D < E$, which does not follow Raunkiaer's Distribution Frequency and hence the ecology is disturbed.

3.7.7 Floral study in the Buffer Zone:

Economically important Flora of the study area

Agricultural crops: Paddy and 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.

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3.7.8 Faunal Communities

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

- Point Survey Method: Observations were made in each site for 15 minutes duration.
- Roadside Counts: The observer traveled by motor vehicles from site to site, all sightings were recorded (this was done both in the day and night time). An index of abundance of each species was also established.
- Pellet and Track Counts: All possible animal tracks and pellets were identified and recorded (South Wood, 1978).

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

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

Methodology Adopted:

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 striped Palm Squirrel, Common Indian Hare, Common mongoose, Common Mouse etc were observed during primary survey.

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

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

Table 3-21 List of fauna species

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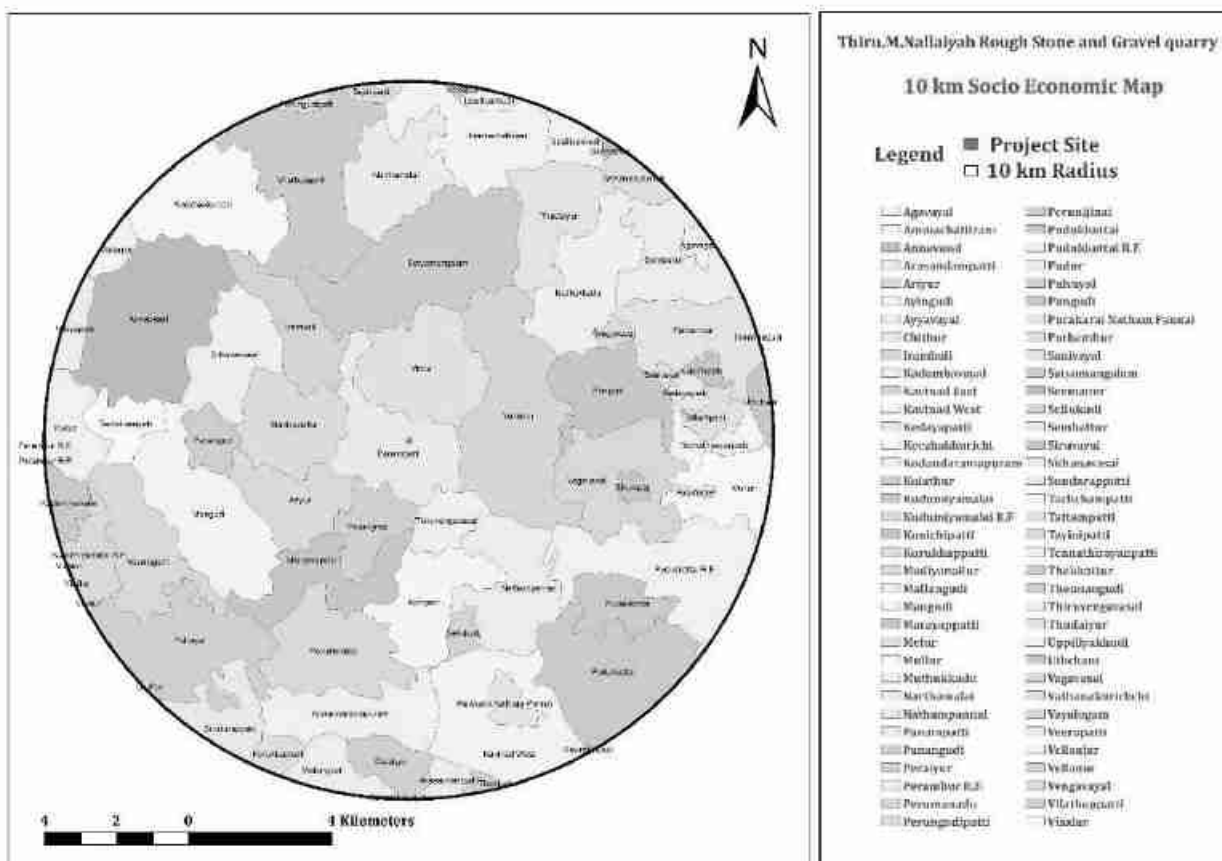
Scientific Name	Common Name	Schedule of wildlife protection act	IUCN conservation status
Mammals			
Funambulus pennanti	Palm Squirrel	IV	Least Concern
Mus rattus	Indian rat	IV	Not listed
Bandicota bengalensis	Indian mole rat	IV	Least Concern
Funambulus palmarum	Three stripped palm squirrel	IV	Least Concern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

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Bungarus caeruleus	Common krait	IV	Not listed
Ophisops leschenaultia	Snake eyed lizard	--	Not listed
Bufo melanostictus	Toad	IV	Least concern
Ptyas mucosa	Rat snakes	IV	Least concern
Hemidactylus sp.	House lizard	--	Not listed
Butterflies			
Danaus chrysippus	Plain Tiger	--	Not listed
Papilio demoleus	Common lime	--	Not listed
Euploea core	Common crow	--	Least concern
Danaus genutia	Common tiger	--	Not listed
Eurema brigitta	Small grass yellow	--	Least concern

3.7 Demography and Socio Economics

The demography survey study is done within 10km radius from the project site. The population, Household, Sex ratio, Literacy rate, SC, ST details for all the villages in the study area is listed below:



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Figure 3-15 Socio economic map surrounding the project site

Table 3-22: Demography Survey Study

Source: Census of India, 2011

Villages	Household	Population	Sex Ratio		Literacy Rate		SC	ST
			Male	Female	Male	Female		
Melur	602	2534	1230	1304	880	756	512	1
Vellanur	1454	6014	3061	2953	2286	1809	1365	217
Madiyanallur	353	1552	766	786	509	407	349	0
Panampatti	516	2292	1167	1125	810	632	657	0
Thiruvengavasal	142	615	314	301	217	151	86	0
Perunijinai	223	919	448	471	306	238	416	0
Ariyur	261	1194	645	549	503	318	294	3
Marayappatti	389	1757	891	866	593	459	743	0
Ayingudi	600	2582	1328	1254	968	657	1143	0
Poongudi	403	1564	738	826	556	483	657	2
Vagavasal	686	3060	1550	1510	1149	901	576	4
Siruvayal	7	29	16	13	12	8	0	0
Sellukudi	111	470	239	231	164	115	232	0
Pudukkottai R.F.	8	26	12	14	10	10	0	0
Nathampannai (CT)	2261	8915	4454	4461	3617	3194	1535	9

3.8 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.

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Figure 3-16: Site Connectivity

Table 3-23: No. of Vehicles per Day

S. No	Vehicles Distribution	Number of Vehicles Distribution/Day	Passenger Car Unit (PCU)	Total Number of Vehicle in PCU
		MDR	-	NH-336
1	Cars	634	1	634
2	Buses	274	3	822
3	Trucks	176	3	528
4	Two wheelers	422	0.5	211
5	Three wheelers	286	1.5	429
	Total	1734	-	2624

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Table 3-24: Existing Traffic Scenario and LOS

Road	V (Volume in PCU/hr)	C (Capacity in PCU/hr)	Existing V/C Ratio	LOS
NH45	2624/24=109.3	297	0.36	B

Note: The existing level may be “Very Good” for MDR 833.

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>	<p>The proposed 1.53.5 Ha mine located in Melur Village, Production of rough stone about 1,25,720m³ and 17,728m³ of Gravel respectively. The quarry operation is proposed to carry out with conventional open cast 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.</p> <table border="1"> <thead> <tr> <th colspan="4">ULTIMATE PIT DIMENSION</th> </tr> <tr> <th>Pit No.</th> <th>Length (m)</th> <th>Width (m)</th> <th>Depth (m)</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>77</td> <td>60</td> <td>33.0</td> </tr> </tbody> </table>	ULTIMATE PIT DIMENSION				Pit No.	Length (m)	Width (m)	Depth (m)	I	77	60	33.0	<p>The proposed project site is not prone to any kind of soil erosion (Source: Bhuvan).</p> <p>In addition, garland drainage of 1m x 1m will be provided to avoid storm water run-off.</p> <p>It is proposed to plant 150 Nos (per year) 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.</p> <p>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.</p> <p>The Gravel of the lease area is estimated as 17278m³. Gravel formation will be removed and transported to the needy end user, only after obtaining permission and paying necessary seigniorage fees to the Government. The Weathered Rock of the lease area is estimated as 7705m³. Weathered Rock formation will be removed and dumped in the</p>
ULTIMATE PIT DIMENSION														
Pit No.	Length (m)	Width (m)	Depth (m)											
I	77	60	33.0											

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	<p>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.</p> <p>Impact on soil of the study area will be minimal as there are no wastewater generated, heavy metal infusion, stack emissions.</p> <p>Impact due to transformation of terrain characteristics over the large area results in soil degradation.</p> <p>Solid waste will be generated from the mining activity as there will be refuse also generation of domestic waste. If it is not properly managed, may cause odor and health problem to the workers.</p>	<p>Southwestern side boundary barrier of the lease area.</p> <p>The source of dust generation is majorly due to drilling, blasting, loading & unloading of the mined-out mineral, the impact will be mitigated by water sprinkling regularly once in 3hrs.</p> <p>The proposed mining activity is carried out in almost plain terrain where the contour level difference is 4m.</p> <p>After removal of minerals, undulating portion will be created. Excavated area or ultimate pit at the end of the mine period will be converted into water reservoir. Two tier tree belts will be planted along the safety distance.</p> <p>The 100% recovery is achieved by extracting the entire mineable reserve. Hence there will be no refuse generation due to the mining activity. Apart from that, a very meagre quantity of domestic waste will be generated in the project, which will be handed over to the local body on daily basis.</p>
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4.3 WATER ENVIRONMENT:

Aspect	Impact	Mitigation Measures
<i>Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.</i>	<p>The mining in the area may cause ground water contamination due to intersection of the water table and mine runoff.</p> <p>The ground water depletion may occur due to mining activity.</p> <p>Chemicals consisting of nitrate used for blasting may pollute the surface run off.</p>	<p>The water table will not be intersected during mining, as the ultimate depth is limited upto 33.0meter below the ground level, whereas the ground water table is at 57m below the ground level. The municipal wastewater will be disposed into septic tanks of 5 cum and soak pit. No chemicals consisting of toxic elements will be used for carrying out mining activity.</p> <p>The ground water table is at a depth of 57m BGL, the mining operation will not affect the aquifer. The ultimate pit at the end of the mining operation will be used for rainwater storage, the stored water will be used for green belt development and further the stored water will be used for domestic purposes (other than drinking) after proper treatment.</p> <p>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.</p>

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	Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labours.	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>	<p><i>Impacts during Operation Phase</i></p> <p>During mining operation, fugitive dust and other air pollutants like particulate matter (PM₁₀ & PM_{2.5}) will be generated.</p> <p>The main source of pollutants arises due to drilling and blasting. 2 No of Tipper will be used for loading and unloading, 1 No of Excavator (0.90m³ 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.</p>	<p><i>Mitigation Measures during Operation Phase</i></p> <p>It is proposed to plant 750 Nos of local species (with 150 Nos each year) along the haul roads, outer periphery within the lease area to prevent the impact of dust in consultation with Forest department for the plantation of trees (Neem, Magizham, Tamarind, Elandhai and Vilvam) in two tier to combat air pollution and with herbs (Nerium) in between the tree species.</p> <p>Planning transportation routes of the mined-out mineral, so as to reach the nearest paved roads (an approach road) by shortest route connecting to Sithannavasal road.</p> <p>Alternatively, gravelled road may be</p>

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	<p><u><i>Effect on Human</i></u></p> <ul style="list-style-type: none"> • Adverse effect on human health of working labourers and neighbouring villagers like effect on breathing and respiratory system, damage to lung tissue, influenza or asthma. • Dust generation due to loading and unloading of mineral and due to transportation can also affect the workers as well as nearby villagers. <p><u><i>Effect on Plants</i></u></p> <ul style="list-style-type: none"> • Stomatal index may be minimized due to dust deposit on leaf. 	<p>constructed between mine lease area and nearest paved road connectivity. The speed of trucks plying on the haul road will be limited to 20km/hr to avoid generation of dust.</p> <p>The trucks will be covered by tarpaulin.</p> <p>Overloading will be avoided.</p> <p>Personal Protective Equipments (PPEs) like eye goggles, dust mask, leather gloves, safety shoes & boots will be provided to the workers engaged at dust generation points like excavation and loading points.</p> <p>0.5 KLD of water will be proposed for sprinkling on unpaved roads to avoid dust generation during transportation.</p>
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Air Quality Modeling:

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

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

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Special features of AERMOD include its ability to treat the vertical inhomogeneity of the planetary boundary layer special treatment of surface releases, irregularly shaped area sources, a plume model for the convective boundary layer, limitation of vertical mixing in the stable boundary layer, and fixing the reflecting surface at the stack base.

The AERMET is the meteorological preprocessor for the AERMOD. Input data can come from hourly cloud cover observations, surface meteorological observations and twice-a-day upper air soundings. Output includes surface meteorological observations and parameters and vertical profiles of several atmospheric parameters.

The AERMAP is a terrain preprocessor designed to simplify and standardize the input of terrain data for the AERMOD. Input data include receptor terrain elevation data. Output includes, for each receptor, location and height scale, which are elevations used for the computation of airflow around hills.

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 – 1.2 Cum Bucket Capacity (with Rock Breaker Attachment)
2. Jack Hammer 25.5mm Dia
3. Tipper
4. Tractor Mounted - Compressor
5. Drilling and excavation with Accessories

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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 January to March 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 replicated a 2 truck travel adjacent for a typical mining scenario.

The parameters considered for the hauling operation include the following,

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

Other fugitive particulate emission sources:

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

- Fugitive emissions from trucks unloading at the primary crusher were represented by a single volume source. The release height was set to 0 meters (dump pocket is at grade level).
- Fugitive emissions due to wind erosion is not considered as the mining area is predominately rocky surface with minimal wind erosion. If a 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.

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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 February to April 2021 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 Controlled emission calculation (24Hour- average modelling inputs)

Activity	Emission Factor		References
Topsoil handling	Scraper	0.029 Kg TSPM/ average time between spray application	USEPA (2008)
	Bulldozing	15.048 kg PM10/ Hr excavation	USEPA (2008)
	Loading	2.3237E-04 kg PM10/ average time between spray application	USEPA (2006a)
	Haulage	0.69718 kg PM10/VKT	USEPA (2006a) Cowherd (1988)
Jose I. Huertas & Dumar A. Camacho & Maria E. Huertas, Standardized emissions inventory methodology for open-pit mining areas, Environmental Science Pollution Research, 2012.			

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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, Transportation of the excavated mineral.</i>	Usage of Equipments (Excavator, Tipper, Jack Hammer), Machinery and trucks used for transportation will generate noise. Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc due to prolonged exposure.	<ul style="list-style-type: none"> The machinery will be maintained in good running condition so that noise will be reduced to minimum possible level. Awareness will be imparted to the workers once in six months about the permissible noise level and effect of maximum exposure to those levels. Adequate silencers will be provided in all the diesel engines of vehicles. It will be ensured that all transportation vehicles carry a valid PUC Certificates. Speed of trucks entering or leaving the mine will be limited to moderate speed (20km/hr) to prevent undue noise from empty vehicles.

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	<p>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.</p>	<p>The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipments.</p> <ul style="list-style-type: none"> • It is proposed to plant 750 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 & NH 336 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 ENVIRONMENT:

Aspect	Impacts	Mitigation Measures
Site Clearance	Loss of habitat due to site clearance which may lead to ecological disturbance.	The proposed mining lease is already dry land hence no site clearance is required. Only few shrubs and herbs like parthenium sp., prosopis juliflora were present.
Planting of trees	Development of afforestation in the mine lease area will have a positive impact as the land was initially a barren.	7.5m safety distance will be provided all along the boundary of the mine lease area and safety. Around 0.41.5 Ha of land is utilized for greenbelt development (750 Nos – 5 years). This will attract avifauna thus enhancing the existing ecological environment.

4.7 SOCIO ECONOMIC ENVIRONMENT:

Aspect	Impact	Mitigation Measures
Proposed implementation of Mining activity	Land acquisition for the implementation of the project may result in loss of assets, which in return will make the PAP to shift, losing their normal routine and livelihood	The proposed project is a own patta land of <i>Thiru.M.Nallaiyah</i> and the land is vacant where there are no human settlement within 500m radius. Hence the project does not involve Rehabilitation and resettlement

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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 Melur village which is 2.02 km-NE away from the project 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, 5 Lakhs will be allocated. Government High School, Melur - Provision of To provide necessary equipment to the school & Computer, Environmental books for library (in Tamil language), Greenbelt facilities and Basic amenities such as safe drinking water, furniture.

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4.8 Other Impacts:

S. No	Aspect	Impact	Mitigation measure
1.	Risk due to the proposed mining	Accidents may occur in the mine area	Proper PPE kit (Safety jacket, Helmet, Safety Shoes, Gloves) etc will be provided to each and every employee in the mine lease concerning the safety of each labour
2.	Blasting	Injury to the labours due to the blasting activity	Alarm system in the form of Siren will be engaged in the project site to caution the blasting activity. In addition to that, the blasting activity will be scheduled at particular time – 1.00 P.M to 2.30 P.M (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	Labours will be checked for health condition before employing them in mining activity	All the labours will be checked and screened for health before employing them. After employing them, periodical medical check-ups 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 Deputy 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.9742/SEAC/ToR-1536/2023 dated 22.08.2023. 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 semi mechanized Involving drilling and blasting are preferred. Benefits: Material is hard so to make it loose and to bring it to appropriate size.
2.	Employment	Local employment.	Outsource employment	Local employment is preferred Benefits: Provides employment to local people along with financial benefits. No residential building/ housing is required.
3.	Labour transportation	Public transport	Private transport	Local labours will be deployed from Melur 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 Melur Village which is located in 0.33 km in NE side from the project 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 PM 2.5 SO ₂	7 locations	24 hourly twice a week 4 hourly.	Project site, Marayapatti School - annavasal road Mangudi, IIPHS Safety college, Annai Sakthi Kuzhandhaigal Illam-

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NO _x		Twice a week, One non monsoon season 8 hourly, twice a week 24 hourly, twice a week	Pudukkottai, Rakkachi Amman Kovil-Pudukkottai, Melur Middle School, Sri Periyanaayagi Agencies ATS Petrol Bunk
Noise	7 locations	24 hourly Once in 7 locations	Project site, Marayapatti School - annavasal road Mangudi, IIPHS Safety college, Annai Sakthi Kuzhandhaigal Illam- Pudukkottai, Rakkachi Amman Kovil-Pudukkottai, Melur Middle School, Sri Periyanaayagi Agencies ATS Petrol Bunk
Water (Ground water) <ul style="list-style-type: none"> • pH • Temperature • Turbidity • Magnesium Hardness • Total Alkalinity • Chloride • Sulphate • Fluoride • Nitrate • Sodium • Potassium • Salinity • Total nitrogen 	7 locations	Once in 7 locations	Project site, Marayapatti School - annavasal road Mangudi, IIPHS Safety college, Annai Sakthi Kuzhandhaigal Illam- Pudukkottai, Rakkachi Amman Kovil-Pudukkottai, Melur Middle School, Sri Periyanaayagi Agencies ATS Petrol Bunk

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Water (surface water) <ul style="list-style-type: none"> • pH • Temperature • Turbidity • Magnesium Hardness • Total Alkalinity • Chloride • Sulphate • Fluoride • Nitrate • Sodium • Potassium • Salinity • Total nitrogen 	Sample from nearby lakes/river	One time Sampling	Perunjunai Lake and Eraiyur Lake
Soil (Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	7 locations	Once in 7 locations	Project site, Marayapatti School - annavasal road Mangudi, IIPHS Safety college, Annai Sakthi Kuzhandhaigal Illam-Pudukkottai, Rakkachi Amman Kovil-Pudukkottai, Melur Middle School, Sri Periyayagi Agencies ATS Petrol Bunk
Ecology and biodiversity Study	Study area covering 10 km radius	One time Sampling	
Socio- Economic study (Population, Literacy Level, employment, Infrastructure like	Villages around 10 km radius	One time Sampling	

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school, hospitals & commercial establishments)			
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Table 6-2: Monitoring Schedule during Mining

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

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7 Additional Studies

7.1 General

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

7.1.1 Public Hearing:

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

Existing Other Quarries

Thiru.M.Raja Mohamed – 0.91.0 Ha

Thiru.Ramesh babu – 1.50.5 Ha

Proposed Area

Thiru.M.Nallaiyah – 1.53.5 Ha

Thiru.P.Arumugam – 2.13.0 Ha

Thiru.Arockiya raj – 1.68.0 Ha

Lease Expired:

Thiru.A.Palanivel – 1.73.0 Ha

Thiru.R.Jaffer Ali – 0.60.0 Ha

Bagavathi Amman Magalir Ponvizha Grama Suya Velai Vaippu Thitta Sangam – 1.00.0 Ha

M.Nallaiah – 1.53.5 Ha

The Total extent of the Existing / Lease expired / Proposed quarries are 7.76.0 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. 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

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injury to human lives, damage property, interrupt production etc. Risk assessment is a systematic method of identifying and analyzing the hazards associated with an activity and establishing a level of risk. The hazards cannot be completely eliminated, and thus there is a need to define and estimate an accident risk level possible to be presented either in quantitative or qualitative way.

7.1.3 Identification of Hazard

7.1.3.1 Blasting Pattern:

The quarrying operation will be carried out by Opencast 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:

Diameter of Hole	32-36 mm
Spacing between holes	0.60 m
Depth	1 to 1.5 m
Pattern of hole	Zigzag
Inclination of holes	70° from Horizontal
Use of delay detonators	25 milli-second delays
Detonating fuse	“Detonating” Cord

a. Types of explosives to be used:

Small dia of 32-36mm 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 0.50 km from the nearby villages. Controlled blasting measures will be adopted for minimizing ground vibration and fly of rock. Shallow depths jackhammer drilling & blasting is proposed to be carried out with minimum use of explosive mainly to give the shattering effect in rough stone for easy excavation and to control fly of rocks.

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Project Location	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

Diameter of Holes	=	32 - 36 mm
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 daytime	=	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 1.20 Cum Bucket capacity (with Rock Breaker attachment), Jack Hammers (32 mm Dia) of 1 No.
- Loading Equipment – Excavator of 1.20 Cum Bucket Capacity (with Bucket attachment)
- Transportation (includes within the mine and mine to destination) – Tipper 2 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 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 (22 Nos.) and regular inspection for their use;
- In case of eventuality, first aid will be given by the senior safety office in the mine area initially to the injured person. The safety officer will give notice of accident as per Rule-23 of Mines Act-1952.
- The safety officer (common for 3 mines within 500m radius) will be responsible for coordination between management district authorities/DGMS etc. Regarding general safety as per Rule-181 of MMR 1961, “No person shall negligently or will fully do anything likely to endanger life or limb in the mine, or negligible or will fully omit to do anything necessary for the safety of the mine or of the persons employed there in”. The workers will be provided with protective foot wear and safety helmets.
- Cleaning of mine faces will be regularly done;
- Handling of explosives, charging and blasting will be carried out by highly skilled labours 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 center 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. 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:

- Onsite (Within ML boundary)
- Offsite (Outside ML boundary)

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7.3.2 Onsite off-site emergency Plan:

1- Emergency on account of:

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

2- Disaster due to natural calamities like:

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

7.3.3 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

7.3.4 Emergency Control:

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

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- 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 private land of Thiru.M.Nallaiyah. 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:

- a. **Market:** Generating useful economical resource for construction. Due to demand supply chain, excavated mineral (Rough stone & Gravel) will sold in the market in the affordable price.
- b. **Infrastructure:** The excavated rough stone will be used for *Laying Roads, Building & Construction Projects, Bridges.*
- c. **Enhancement of Green Cover & Green Belt Development:** As a part of reclamation plan, native tree species will be planted along the safety boundary (0.41.5 Ha) 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 150 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, 2% of the project cost i.e., 5 Lakhs will be allocated. The detailed agenda, which is to be executed has been framed. The salient features of the programme are as follows:

- Government High School, Melur - Provision of
- To provide necessary equipment to the school & Computer,
- Environmental books for library (in Tamil language),

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- Greenbelt facilities and
- Basic amenities such as safe drinking water, furniture.

8.3 Project Cost / Investment Details

(a) Project cost / investment cost :

Sl. No	DETAILS	Cost of lakhs
i)	Own patta land	Own patta land
ii)	Hired machinery	Hired machinery
iii)	Land cost	14,00,000
iv)	Labourers Shed	1,20,000
v)	Refilling/Fencing cost	70,000
vi)	Sanitary facility	80,000
TOTAL		16,70,000

(b) Expenditure/ PRODUCTION COST

Machinery Cost: 30,00,000

(c) EMP (Estimation) Cost :

Total EMP Cost – Rs. 61,17,799 (Sixty-one lakhs seventeen thousands and seven hundreds ninety nine rupees only)

Investment Cost = Rs.16,70,000/-

Operational Cost = Rs.30,00,000/-

Total EMP Cost = Rs. 61,17,799/-

GRAND TOTAL PROJECT COST (A+B) = Rs. 46,70,000/-

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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 semi mechanized mining method with drilling & blasting as per the mining plan approved by the 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 an average of 5m. The individual bench slope has been proposed to be kept at 60⁰ from horizontal. Moreover, all safety standards/ safeguards will be implemented as per guidelines prescribed by Director General of Mines Safety.

9.3 Mine Drainage

9.1.1 *Storm water Management*

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

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

9.1.2 *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.

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9.1.3 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.M.Nallaiyah will work in association with M/s. Ecotech Labs Pvt Ltd.

Table 9-1: Impacts and mitigation measures

Categories	Mitigation Measure	Provision for Implementation	Capital	Recurring
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	15350	15350
	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
	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	Dust extractor @ Rs. 25,000/- per unit deployed	25000	2500

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	machine with separate dust extractor unit	as capital & @ Rs. 2500 per unit recurring cost for maintenance		
	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	30700
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	30000	10000
	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0

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Noise Environment	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 implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / 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

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Water Environment	Water management	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	15350	5000
	Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	5000
		Installation of dust bins	5000	2000
Bio toilets will be made available outside mine lease on the land of owner itself		Provision made in Operating Cost	0	0
Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	7000	1000
	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee)	72000	18000
	Health check up for workers will be provisioned	IME & PME Health check-up @ Rs. 1000/- per employee	0	18000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	3070
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000

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	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	307000	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	76750	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	10000	5000
	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	61400	9210

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	plant maintenance (recurring)		
	Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	138150	13815
Total		1213000	887645
Total Cost		2100645/-	

Table 9-2: Budgetary Allocation for EMP during Mining

Year	Cost (@ 5% per year inflation adjustment) in Rs.
1 st Year	2100645/-
2 nd Year	932027/-
3 rd Year	978629/-
4 th Year	1027560/-
5 th Year	1078938/-
Total	61,17,799/- (Sixty one lakhs seventeen thousands and seven hundreds ninety nine rupees only)

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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.M. Nallaiyah site is a cluster of five mining projects. The individual mine lease area is 1.53.5 Ha of Rough Stone and Gravel Quarry located at S.F.Nos. 210/7C1 & 210/8A1B of Melur Village, Kulathur 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
2	Proponent	Thiru.M.Nallaiyah
3	Mining Lease Area Extent	1.53.5 Ha
4	Location	S.F.Nos. 210/7C1 & 210/8A1B of Melur Village, Kulathur Taluk in Pudukkottai District
5	Latitude	10°26'41.1998" N to 10°26'36.3638" N
6	Longitude	78°46'03.0733" E to 78°45'57.3908" E
7	Topography	Plain terrain
8	Site Elevation above MSL	≈110.0 m from MSL
9	Topo Sheet No.	58-J/15
10	Minerals of Mine	Rough Stone and Gravel
11	Proposed production of Mine	Proposed capacity of Rough Stone: 1,25,720m ³ and Gravel: 17,728m ³
12	Ultimate depth of Mining	33.0m below ground level
13	Method of Mining	Open cast, mechanized mining
14	Water demand	2.0 KLD

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15	Source of water	Water will be supplied through tankers supply
16	Manpower	Direct :10 nos, Indirect :8 nos
17	Mining Lease	Precise Area Communication Letter received from Assistant Director, Dept. Geology and Mining, Pudukkottai vide letter Rc.No.368/2022 (G&M) Mines dated 28.10.2022
18	Mining Plan Approval	Mining Plan was approved by the Assistant Director, Dept. of Geology & Mining, Pudukkottai vide letter Rc.No.368/2022 (G&M) dated 24.11.2022
19	Production details	Geological reserves of Rough stone: 4,97,220m ³ Proposed year wise recoverable reserves of Rough Stone : 1,25,720m ³ for five years
20	Boundary Fencing	7.5m barrier all along the boundary Fencing will be provided
21	Disposal of overburden	The over burden in the form of Gravel is 17,728m 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 57m below Ground Level by monitoring nearby bore hole, during the climatic conditions, the fluctuations of water level are 57m in Rainy seasons and 62m in summer seasons of this quarry area.
23	Habitations within 500m radius of the Project Site	There is no Habitation within 500m radius of the project site.
24	Drinking water	Water will be supplied through tankers from Melur Village which is 2.02 km NNE from the proposed project site.

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

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<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>	
<i>Project Location</i>	<i>Melur Village, Kulathur 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 equipments except the transportation vehicles and Excavator (as & when required) for loading will be allowed at site. Noise generated by these equipments shall be intermittent and does not cause much adverse impact. Plantation will be carried out along approach roads. The plantation minimizes propagation of noise and also arrest dust.
4	Solid waste will be generated from the mining activity as there will be refuse after 95% recovery and also generation of domestic waste	The 100% recovery is achieved by extracting the entire mineable reserve. Hence there will be no refuse generation due to the mining activity. Apart from that, a very meagre quantity of domestic waste will be generated in the project,

<i>Project</i>	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>	
<i>Project Location</i>	<i>Melur Village, Kulathur 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	<p>Dust masks will be provided as additional personal protection equipment to the workers working in the dust prone area.</p> <p>Periodical trainings will be conducted to create awareness about the occupational health hazards due to activities like blasting, drilling, excavation.</p> <p>Workers health related problem if any, will be properly addressed.</p>

<i>Project</i>	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>	
<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

11. Disclosure of Consultant

10.4 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.

11.1.1 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.
- 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.

Project	New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah	Draft EIA Report
Project Proponent	Thiru.M.Nallaiyah	
Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	

Declaration by Experts contributing to the EIA of New Rough Stone Quarry - 1.53.5 Ha by Thiru.M.Nallaiyah at S.F.No. 210/7C1 & 210/8A1B, Melur Village, Kulathur Taluk, Pudukkottai District, Tamil Nadu State

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

EIA Coordinator: Dr. A. Dhamodharan




Dr. A. DHAMODHARAN
(NABET APPROVED EIA COORDINATOR)
NABET/EIA/2124/SA 0147
Environmental Consultant
Eco Tech Labs Pvt. Ltd
Plot No.48A, 2nd Main Road, Ram Nagar South Extn.
Pallikaranai, Chennai - 600 100.

Signature:



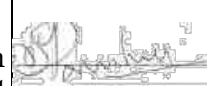
Period of involvement: 01.06.2022 to 30.08.2022

Contact information: M/s. Ecotech Labs Pvt Ltd.,

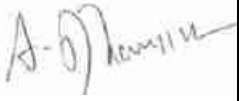


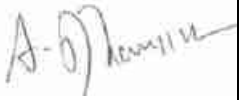
No. 48, 2nd Main Road, Ram Nagar South Extension,
Pallikaranai, Chennai – 600 100

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. Period: February – April 2021	





Project	New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah	Draft EIA Report
Project Proponent	Thiru.M.Nallaiyah	
Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	

2	WP	Dr. A. Dhamodharan	<ol style="list-style-type: none"> 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. 5. <p>Period: March 2021</p>	
3	SHW	Dr. A. Dhamodharan	<ol style="list-style-type: none"> 1. Identification of nature of solid waste generated. 2. Categorization of the generated waste and estimating the quantity of waste to be generated based on the per capita basis. Identification of impacts of SHW on Environment 3. Suggesting suitable mitigation measures by recommending appropriate disposal method for each category of waste generated 4. Topsoil and refuse management <p>Period: March 2021</p>	
4	SE	Mr. S. Pandian	<ol style="list-style-type: none"> 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. <p>Period: March 2021</p>	

Project	New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah	Draft EIA Report
Project Proponent	Thiru.M.Nallaiyah	
Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	

5	EB	Dr. A. Dhamodharan	<ol style="list-style-type: none"> 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. <p>Period: April 2021</p>	
6	HG	Dr. T. P. Natesan	<ol style="list-style-type: none"> 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. 3. Storm water management through garland drainage system. <p>Period: April 2021</p>	
7	GEO	Dr. T. P. Natesan	<ol style="list-style-type: none"> 1. Field survey for assessing regional and local geology, aquifer distribution, Determination of groundwater use pattern, development of rainwater harvesting program. <p>Period: April 2021</p>	
8	SC	Dr. A. Dhamodharan	<ol style="list-style-type: none"> 1. Interpretation of baseline report 2. Identification of possible impacts on soil, prediction of soil conservation and suggesting suitable mitigation measures. <p>Period: April 2021</p>	

Project	New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah	Draft EIA Report
Project Proponent	Thiru.M.Nallaiyah	
Project Location	Melur Village, Kulathur Taluk, Pudukkottai District.	

9	AQ	Mrs. K. Vijayalakshmi	<ol style="list-style-type: none"> 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. <p>Period: February – April 2021</p>	
10	NV	Mrs. Neha Singh	<ol style="list-style-type: none"> 1. Selection of monitoring locations 2. Interpretation of baseline data 3. Prediction of impacts due to noise pollution and suggestion of appropriate mitigation measures <p>Period: February – April 2021</p>	
11	LU	Dr. T. P. Natesan	<ol style="list-style-type: none"> 1. Collection of Remote sensing satellite data to study the land use pattern. 2. Primary field survey and limited field verification for land categorization in the study area 3. Preparation of Land use map using Satellite data for 10km radius around the project site. <p>Period: April 2021</p>	
12	RH	Mr. Pinaki Dasgupta	<ol style="list-style-type: none"> 1. Identification of the risk 2. Interpreting consequence contours 3. Suggesting risk mitigation measures <p>Period: April 2021</p>	

<i>Project</i>	<i>New Rough Stone and Gravel Quarry – 1.53.5 Ha by Thiru.M.Nallaiyah</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.M.Nallaiyah</i>	
<i>Project Location</i>	<i>Melur Village, Kulathur Taluk, Pudukkottai District.</i>	

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 Survey Numbers. 210/7C1 & 210/8A1B Melur Village, Kulathur Taluk, Pudukkottai District. I also confirm that the consultant organization shall be fully accountable for any misleading information mentioned in this statement.

Signature:




Name: Dr. A. Dhamodharan

Designation: Managing Director

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

NABET Certificate No. & Issue Date: NABET/EIA/2124/RA 0147

ANNEXURE-I

**STANDARD TOR CONDITIONS WITH
ADDITIONAL TOR POINTS**



THIRU.DEEPAK S. BILGI, I.F.S.
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY-TAMILNADU
3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai - 600 015.
Phone No. 044-24359973
Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr No.SEIAA-TN/F.No.9742/SEAC/ToR-1536/2023 Dated: 22.08.2023

To

Thiru.M.Nallaiyah
S/o.Marukionar,
No.8668/4, Chola real estate,
Thiruvappur,
Pudukkottai Taluk,
Pudukkottai District - 622 002

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for the Proposed Rough Stone Quarry over an extent of 1.53.5 Ha of Patta land in S.F. No: 210/7C1, 210/8A1B of Melur Village of Kulathur Taluk of Pudukkottai District, Tamil Nadu by Thiru. M.Nallaiyah, - under project category – “B1” and Schedule S.No. 1(a) – ToR issued along with Public Hearing- preparation of EIA report – Regarding:

- Ref:**
1. Online proposal No. SIA/TN/MIN/414495/2023, 13.01.2023.
 2. Your application submitted for Terms of Reference dated: 19.01.2023.
 3. Minutes of the 367th meeting of SEAC held on 31.03.2023.
 4. Minutes of the 614th meeting of Authority held on 24.04.2023 & 25.04.2023.
 5. Minutes of the 397th meeting of SEAC held on 03.08.2023.
 6. Minutes of the 648th meeting of Authority held on 22.08.2023


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

The proponent, Thiru Thiru.M.Nallaiyah has submitted application for ToR, in Form-I, Pre-Feasibility report for the Rough Stone Quarry over an extent of 1.53.5 Ha of Patta land in S.F. No: 210/7C1, 210/8A1B of Melur Village of Kulathur Taluk of Pudukkottai District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

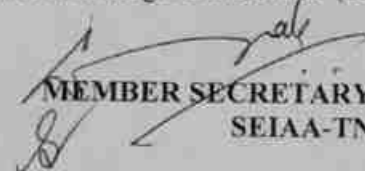
Existing Rough stone and Gravel quarry lease over an extent of 1.53.5 Ha of Patta land in S.F. No: 210/7C1, 210/8A1B of Melur Village of Kulathur Taluk of Pudukkottai District Tamil Nadu by Thiru M. Nallaiyah - Terms of Reference for EIA study (next scheme of mining). (SIA/TN/MIN/414495/2023, Dated: 13.01.2023)

The proposal was earlier placed in the 367th meeting of SEAC held on 31.03.2023. The Project Proponent gave a detailed presentation on the proposal. The details of the project furnished by the proponent are available on the PARIVESH web portal (parivesh.nic.in). **The SEAC noted the following:**

1. The project proponent, Thiru M. Nallaiyah has applied seeking Terms of Reference for EIA study for the existing Rough stone and Gravel quarry lease (next scheme of mining) over an extent of 1.53.5 Ha of Patta land in S.F. No: 210/7C1, 210/8A1B of Melur Village of Kulathur Taluk of Pudukkottai District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) "Mining of Minerals Projects" of the Schedule to the EIA Notification, 2006, as amended.
3. As per the precise area communication letter, the lease period is 5 years and mine plan period is 5 years. As per the approved mine plan, the annual peak production shall not exceed 39115 m³ of Rough stone & 17278 m³ of Gravel for an ultimate depth of 33m BGL.
4. There is an existing pit with depth of 14m at the project site. The quarry was previously operated from 05.02.2007 to 04.02.2012

Based on the presentation made by the proponent, SEAC decided to call for the following additional details from the Proponent:

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)


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not, places of worship, industries, factories, sheds, etc indicating the ownership of the building, nature of construction, age of the building, number of residents, their profession and income, etc. On receipt of the aforesaid details/documents, the Committee will further deliberate and decide on future course of action.

Based on the presentation and details furnished by the project proponent, **SEAC decided to grant Terms of Reference (TOR) with Public Hearing** subject to the following TORs, **in addition to (i)** the standard terms of reference for EIA study shown in **Annexure-I** and **(ii)** the Standard ToR for non-coal mining projects and details issued by the MOEF & CC to be included in EIA/EMP Report:

1. The PP shall submit photographs of fencing, greenbelt and garland drain.
2. The PP shall submit the letter obtained from the concerned AD (Mines) showing details on the date of lease executed, date of last working day, Mining Plan approved quantity, EC Approved Quantity and Achieved quantity (year wise).
3. Since the quarry is existing with a depth of excavation of 14 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 anyone 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, and Anna University Chennai –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 and it shall cover the aspects of stability of quarry walls including the access ramp keeping the benches intact.
4. 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.

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.


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- (iv) Mined out Depth as on date Vs EC Permitted depth
 - (v) Details of illegal/illicit mining
 - (vi) Violation in the quarry during the past working.
 - (vii) Quantity of material mined out outside the mine lease area
 - (viii) Condition of Safety zone/benches
 - (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.
2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.
 3. The 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.
 4. 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.
 5. 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.
 6. 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, H/I Class mines manager appointed by the proponent.
 7. 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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8. 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.
9. 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.
10. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
11. 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.
12. 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).
13. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,
14. 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.
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


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- 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.
17. 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.
 18. 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.
 19. 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.
 20. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
 21. 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.
 22. 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.
 23. 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


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- Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.
24. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
 25. Impact on local transport infrastructure due to the Project should be indicated.
 26. 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.
 27. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
 28. 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.
 29. 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.
 30. 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
 31. 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.
 32. 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.
 33. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project


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- specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
34. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
 35. 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.
 36. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
 37. 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.
 38. 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.
 39. 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.
 40. 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	விவம்
2	<i>Adenanthera pavonina</i>	Manjadi	மஞ்சாடி, ஆனைக்குன்றுமணி
3	<i>Albizia lebbek</i>	Vaagai	வாகை
4	<i>Albizia amara</i>	Usai	உசை
5	<i>Bauhinia purpurea</i>	Mantharai	மந்தாரை
6	<i>Bauhinia racemosa</i>	Aathi	ஆதி
7	<i>Bauhinia tomentosa</i>	Irvathi	இருவாதி
8	<i>Buchanania axillaris</i>	Kattuma	காட்டுமர
9	<i>Borassus flabellifer</i>	Parai	பனை
10	<i>Butea monosperma</i>	Murukkamarai	முருக்கமரம்
11	<i>Bobax ceiba</i>	Ilavu, Sevvilavu	இலவ
12	<i>Calophyllum inophyllum</i>	Purnai	புனை
13	<i>Cassia fistula</i>	Sarakondrai	சரகொண்டரை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கொண்டரை
15	<i>Chloroxylon swietenia</i>	Purasamaram	புரசமரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Manjallavu	கோங்கு, மஞ்சள் இலவு
17	<i>Cordia alliodora</i>	Naruvuli	நருவூளி
18	<i>Creteta adansonii</i>	Mavalangum	மாவிளங்கம்
19	<i>Dillenia indica</i>	Uva, Uzha	உவா
20	<i>Dillenia pentagyna</i>	SiruUva, Sitruzha	சீறு உவா
21	<i>Diospyros sebiman</i>	Karungali	கருங்காலை
22	<i>Diospyros schloroxylon</i>	Vagau	வாகனை
23	<i>Ficus amplissima</i>	Kallchi	கால் இச்சி
24	<i>Hibiscus tiliaceus</i>	Aatrupoovarasu	ஆறுநிலாபுரசு
25	<i>Hardwickia buata</i>	Aacha	ஆச்சா
26	<i>Holoptelia integrifolia</i>	Aayili	ஆயிலி மரம், ஆயில்
27	<i>Limna coromandelica</i>	Odhiani	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	வில்லா மரம்
31	<i>Litsea glutinosa</i>	Pisampattai	பிசம்பட்டை பிச்சம்பட்டை
32	<i>Madhuca longifolia</i>	Iluppai	இலுப்பை
33	<i>Mankara hexandra</i>	UlakkaiPaalai	உலக்கை பாலை
34	<i>Mimusops elengi</i>	Magizhamaram	மகிழ்மரம்
35	<i>Mitrasyna parvifolia</i>	Kadambu	கடம்பு
36	<i>Morinda pubescens</i>	Nuna	நுணா
37	<i>Morinda citrifolia</i>	Vellai Nuna	வெள்ளை நுணா
38	<i>Phoenix sylvestris</i>	Eachai	ஏச்சமரம்
39	<i>Pongamia pinnat</i>	Pungam	புங்கம்


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40	<i>Premna mollissima</i>	Munna	முள்ளை
41	<i>Premna serratifolia</i>	Narumunna	நறு முள்ளை
42	<i>Premna tomentosa</i>	Malaipoovarasu	மலை பூவரசு
43	<i>Prosopis cinerea</i>	Vanni maram	வள்ளி மரம்
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Vennangu, Tada	வெண்ணாங்கு
46	<i>Pterospermum xylocarpum</i>	Polavu	புலவு
47	<i>Putranjiva roxburghii</i>	Karpala	கற்பாலா
48	<i>Salvadora persica</i>	Ugaa Maram	ஊகா மரம்
49	<i>Sapindus emarginatus</i>	Marupungan, Soapukai	மணிப்பங்கன சோப்புக்காய்
50	<i>Saraca asoca</i>	Asoca	அசோகா
51	<i>Streblus asper</i>	Piray maram	பிராய் மரம்
52	<i>Strychnos nuxvomica</i>	Yetti	எட்டி
53	<i>Strychnos potatorum</i>	Therthang Kottai	தேத்தான் கொட்டை
54	<i>Syzygium cumini</i>	Naval	நாவல்
55	<i>Terminalia belleric</i>	Thandri	தாண்டு
56	<i>Terminalia arjuna</i>	Ven marudhu	வெண் மருது
57	<i>Toona ciliata</i>	Sandhana vembu	சந்தன வேம்பு
58	<i>Thespesia populnea</i>	Puvarasu	பூவரசு
59	<i>Walsuratrifoliata</i>	valsura	வாலசூரா
60	<i>Wrightia tinctoria</i>	Veppalai	வேப்பாலை
61	<i>Pithecolobium dulce</i>	Kodukkapuli	கொடுக்காப்பழி

Discussion by SEIAA and the Remarks:-

Existing Rough stone and Gravel quarry lease over an extent of 1.53.5 Ha of Patta land in S.F.No: 210/7C1, 210/8A1B of Melur Village of Kulathur Taluk of Pudukkottai District Tamil Nadu by Thiru M. Nallaiyah - Terms of Reference for EIA study (next scheme of mining)

The subject was placed in this 648th meeting of Authority held on 22.08.2023. The Authority noted that the subject was placed in the 397th meeting of SEAC held on 03.08.2023 and the SEAC has furnished its recommendation for the **grant of Terms of Reference for EIA study (next scheme of mining)** subject to the conditions stated therein.


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After detailed discussions, the Authority accepts the recommendation of SEAC and decided to **grant Terms of Reference (ToR) along with Public Hearing** under cluster for 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 conditions in '**Annexure B**' of this minute.

1. The project proponent shall prepare mine closure plan considering quantity of Topsoil & Weathered rock, If any.
2. 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.

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.
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.


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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.
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.


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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.
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.


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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.

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.


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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).
- 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.


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- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
- 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
- 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should


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- be indicated. A copy of the forestry clearance should also be furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
 - 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
 - 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
 - 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
 - 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
 - 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
 - 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management

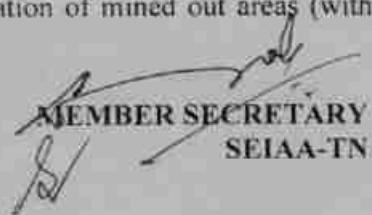

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Authority).

- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
- 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
- 26) Description of water conservation measures proposed to be adopted in the Project should be


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- 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.
 - 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


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plans and with adequate number of sections) should be given in the EIA report.

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


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using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.

- e) Where the documents provided are in a language other than English, an English translation should be provided.
- f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
- g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.
- h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.
- i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
- j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

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

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

1. Project name and location (Village, District, State, Industrial Estate (if applicable).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.


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5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of its acquisition, nearby (in 2-3 km.) water body, population, within 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.


MEMBER SECRETARY
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24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.
31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

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

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF& CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010,


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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(l)(part) dated 29th August, 2017.


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SEIAA-TN

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. The APCCF (C), Regional Office, MoEF& CC (SZ), 34, HEPC Building, 1st& 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai -34.
5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi 110003
6. The District Collector, Pudukkottai District.
7. Stock File.

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 1.53.5 Ha

COMPLIANCE OF TOR CONDITIONS

Point wise compliance of ToR points issued by SEIAA, TN vide letter No. SEIAA-TN/F. No. 9742/SEAC/ToR-1536/2023 Dated: 22.08.2023 for Mining of Minor Minerals in the Mine of “Proposed Rough stone & Gravel Quarry Over an Extent of 1.53.5 Ha at S.F.No. 210/7C1, 210/8A1B of Melur Village, Kulathur 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.	<p>This is a fresh mining project of Proposed Rough stone and Gravel quarry.</p> <p>Precise Area Communication Letter received from Assistant Director, Dept. Geology and Mining; Pudukkottai vide letter Rc.No.368/2022 (G&M) Mines dated 28.10.2022.</p> <p>Mining Plan was approved by the Assistant Director, Dept. of Geology & Mining, Pudukkottai vide letter Rc.No.368/2022 (G&M) dated 24.11.2022.</p> <p>As area is being exploited for the first time hence Year-wise production details since 1994 and before 1994 are not relevant or applicable.</p>	<p>Chapter-2</p> <p>Table No.2.9</p> <p>Page No.47</p>

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 1.53.5 Ha

Year	Rough stone (m ³)	Gravel (m ³)
I	39115	17278
II	28740	-
III	28265	-
IV	18140	-
V	11460	-
Total	125720	17278

Proposed Production of Rough Stone & Gravel for five years is proposed in the EIA/EMP in chapter no-2.

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 1.53.5 hectare in Melur Village for Rough stone and Gravel quarry approved by Assistant Director, Dept. of Geology & Mining, Pudukkottai vide Rc.No. 368/2022 (G&M) dated 24.11.2022.	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

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 1.53.5 Ha

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.	

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 1.53.5 Ha

	<p>bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions?</p> <p>The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large may also be detailed in the EIA report.</p>		
8	<p>Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.</p>	<p>It is an open cast mining project. Blasting details are incorporated in chapter 2.</p>	<p>Chapter-2, Page no.49</p>
9	<p>The study area will comprise of 15 km zone around the mine lease from lease periphery and the data contained in the EIA</p>	<p>Study area comprises of 15 km radius from the mine lease boundary. Key Plan showing core zone (ML area).</p>	<p>Chapter-2 Fig no. 2.5</p>

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 1.53.5 Ha

	such as waste generation etc should be for the life of the mine / lease period.		Page no.40
10	<p>Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated.</p> <p>Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.</p>	<p>Land Use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, National Park, migratory routes of fauna, water bodies, human settlement and other ecological features has been prepared and incorporated in Chapter-3 of EIA/ EMP Report.</p> <p>There is no wildlife sanctuary and national park, migratory routes of fauna in the study area.</p>	<p>Chapter-2, Table no. 2.4 Page no.41</p>
11	<p>Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.</p>	<p>The Gravel of the lease area is estimated as 17278m³. Gravel formation will be removed and transported to the needy end user, only after obtaining permission and paying necessary seigniorage fees to the Government.</p> <p>The Weathered Rock of the lease area is estimated as 7705m³. Weathered Rock formation will be removed and dumped in the Southwestern side boundary barrier of the lease area.</p>	<p>Chapter-2, Page no.48</p>

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 1.53.5 Ha

<p>12</p>	<p>A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area.</p> <p>In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.</p>	<p>Complied.</p> <p>The proposed mining lease area is not falling under forest land.</p>	
<p>13</p>	<p>Status of forestry clearance for the broken-up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.</p>	<p>The proposed mining lease area is not falling under forest land.</p>	

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 1.53.5 Ha

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.	
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	

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 1.53.5 Ha

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

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 1.53.5 Ha

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

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 1.53.5 Ha

	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 (January to March 2024) has been incorporated in EIA/EMP report.	Chapter 3

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 1.53.5 Ha

<p>Notification of 2009 water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report.</p> <p>Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre- dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500m of the mine lease in the pre- dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.</p>	<p>The key plan of monitoring station has been discussed in Chapter-4. Locations of the monitoring stations have been selected keeping in view the pre- dominant downwind direction and location of the sensitive receptors and also that they represent whole of the study area.</p>	
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TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 1.53.5 Ha

23	<p>Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided.</p> <p>The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing predominant wind direction may also be indicated on the map.</p>	<p>Air quality modelling & Impact of Air quality will be furnished in Final EIA report.</p> <p>Transportation of mineral during operation of mines will be done by road & NH 336 through dumpers and the impact of movement of vehicles are incorporated in EIA/EMP report.</p> <p>Air quality modelling & Impact of Air quality will be furnished in Final EIA report.</p>	<p>Chapter-4</p> <p>Page No.114</p>
24	<p>The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.</p>	<p>Total water requirement: 2.0 KLD Dust Suppression: 0.5 KLD Domestic Purpose: 1.0 KLD Plantation :0.5 KLD Domestic Water will be sourced from nearby Melur which is about 2.02 Km-NNE of the area.</p>	<p>Chapter-2</p> <p>Page no.53</p>
25	<p>Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.</p>	<p>Not Applicable Water will be taken from nearby villages</p>	

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 1.53.5 Ha

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

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 1.53.5 Ha

	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: 110.0m from MSL The ground Water Level is noticed at the depth of 57m 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

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 1.53.5 Ha

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

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 1.53.5 Ha

	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

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 1.53.5 Ha

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 border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">S. No</th> <th style="text-align: center;">Description</th> <th style="text-align: center;">Cost</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Fixed Asset Cost</td> <td style="text-align: right;">16,70,000/-</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Operational Cost</td> <td style="text-align: right;">30,00,000 /-</td> </tr> <tr> <td></td> <td>Total</td> <td style="text-align: right;">46,70,000/-</td> </tr> </tbody> </table> <p>EMP Cost: 61,17,799/-</p>	S. No	Description	Cost	1	Fixed Asset Cost	16,70,000/-	2	Operational Cost	30,00,000 /-		Total	46,70,000/-	Chapter-8 Pg No. 135
S. No	Description	Cost													
1	Fixed Asset Cost	16,70,000/-													
2	Operational Cost	30,00,000 /-													
	Total	46,70,000/-													
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												

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 1.53.5 Ha

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	

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 1.53.5 Ha

	<p>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.</p>	<p>prepared and complying with the circular issued by MoEF vide O.M. No. J-11013/41/2006-IA. II(I) dated 4th August 2009.</p>	
(h)	<p>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</p>	<p>There are no changes in prepared EIA as per submitted Form-1 & PFR</p>	
(i)	<p>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</p>	<p>Will be complied after grant environment clearance from SEIAA, Tamilnadu</p>	

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 1.53.5 Ha

	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.	

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 1.53.5 Ha

Additional ToR Compliance

S.No.	Condition	Compliance
1.	The PP shall submit the photographs of fencing, greenbelt and garland drain.	Noted. Agreed to comply.
2.	The PP shall submit the letter obtained from the concerned AD (Mines) showing details on the date of lease executed, date of last working day, Mining Plan approved quantity, EC Approved Quantity and Achieved quantity (year wise).	Noted and the letter will be submitted with final EIA presentation.
3.	Since the quarry is existing with a depth of excavation of 14 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 anyone 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. and Anna University Chennai - Dept of Mining Engg. The above studies shall spell out 'a 'Slope Stability Action Plan' for the propose quarry covering the existing condition of the quarry wall including the overall pit slope angle and it shall cover the aspects of stability of quarry walls including the access ramp keeping the benches intact.	Noted and the letter will be submitted with final EIA presentation.
4.	The PP shall prepare the EMP for the entire life	Noted.

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	of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	Agreed to comply
Annexure - I		
1.	<p>In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:</p> <p>(i) Original pit dimension</p> <p>(ii) Quantity achieved Vs EC Approved Quantity</p> <p>(iii) Balance Quantity as per Mineable Reserve calculated.</p> <p>(iv) Mined out Depth as on date Vs EC Permitted depth</p> <p>(v) Details of illegal/illicit mining</p> <p>(vi) Violation in the quarry during the past working.</p> <p>(vii) Quantity of material mined out outside the mine lease area</p> <p>(viii) Condition of Safety zone/benches</p> <p>(ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.</p>	<p>85m (L) * 73m (W) * 14m (D)</p> <p>86870m³</p> <p>-</p> <p>14m</p> <p>Nil</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p>
2.	Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.	VAO certificate is enclosed as Annexure.
3.	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas.	The DFO letter will be submitted during final EIA.

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	Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.	
4.	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-CEO 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.	Noted and the letter will be submitted with final EIA presentation.
5.	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 the 30m BGL.	This is an existing quarry. Slope stability report will be submit during final EIA meeting.
6.	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	The PP will furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the

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	mate, mine foreman, II/I Class mines manager appointed by the proponent.	MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent
7.	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.	Noted. Agree to comply.
8.	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.	It is an existing quarry operated by himself.
9.	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.	Earlier operated period 05.02.2007 to 04.02.2012
10.	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	Earlier operated period 05.02.2007 to 04.02.2012
11.	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	Details will be given with final EIA report.

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	<p>the same shall be submitted.</p> <p>Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.</p>	
12.	<p>All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).</p>	<p>Complied.</p> <p>All corners with coordinates of the mine lease area have attached with EIA report in chapter 2</p>
13.	<p>The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,</p>	<p>Drone video survey will be submitted in final EIA report</p>
14.	<p>The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.</p>	<p>The proponent will furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan will be furnished in Final EIA.</p>
15.	<p>The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.</p>	<p>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.</p>
16.	<p>The Project Proponent shall provide the</p>	<p>Complied.</p>

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	<p>Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act 1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.</p>	<p>Manpower requirements table attached in EIA report chapter 2</p>
17.	<p>The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD/TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.</p>	<p>Hydro geological study report will be submitted along final EIA report.</p>
18.	<p>The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.</p>	<p>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</p>

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19.	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.
20.	Rainwater harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	Noted. Agree to comply.
21.	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water hes, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Current land use of the study area has attached in EIA report chapter 3. Operational and post operational land use will be submitted.
22.	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.	The over burden in the form of Gravel is 17,728m ³ of used for filling and levelling of low lying areas of road projects and other infrastructure development work in and around the district.
23.	Proximity to Areas declared as "Critically Polluted (or) the Project areas which attracts	The proposed mining lease area is not falling under critically polluted area.

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	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.	
24.	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	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.
25.	Impact on local transport infrastructure due to the Project should be indicated.	Traffic impact assessment has given in EIA report chapter 3.
26.	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.
27.	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
28.	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.	
29.	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.	<p>Around 750 (150 per year) trees will be planted around the site. The list of trees to be planted are given below:</p> <p>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</p>
30.	Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner	The green belt plan enclosed with mining plates in Annexure VII
31.	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.
32.	A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	Risk assessment and management plan has prepared and enclosed in chapter 7.

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33.	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	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.
34.	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations	Public health implication and remedial measures is given in EIA/EMP report.
35.	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.
36.	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.
37.	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.	
38.	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 for) the concerned DFE TNPCB	Certified compliance report will be furnish in Final EIA.
39.	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.	Noted. Agree to comply.
40.	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 shall prepare mine closure plan considering quantity of Topsoil & Weathered rock. If any	The mine plan and mine closure plan has been approved by the Assistant Director, Department of Mining and Geology, Pudukkottai District
2	The DFO letter stating that the proximity distance of Reserve Forest, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25km from the proposed site.	Noted. Agree to comply.
Discussion by SEIAA and the Remarks: -		

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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.
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	Agreed to comply. It will be furnished in final EIA report.

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	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.	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	<p>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.</p> <ul style="list-style-type: none"> a) Soil health & bio-diversity b) Climate change leading to Droughts, Floods etc., c) Pollution leading to release Greenhouse gases (GHG), rise in Temperature & 	<p>The biodiversity has been studied and discussed in chapter 3.</p> <p>The soil erosion map 10km surrounding the project site has been given in chapter 3.</p> <p>The detailed study will be carried out and will be enclosed in the Draft EIA Report.</p>
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	<p>Livelihood of the local people.</p> <p>d) Possibilities of water containment and impact on aquatic ecosystem health.</p> <p>e) Agriculture, Forestry & Traditional practices.</p> <p>f) Hydrothermal/Geothermal effects due to destruction in the Environment.</p> <p>g) Bio-geochemical processes and its foot prints including environmental stress</p> <p>h) Sediment geochemistry in the surface streams</p> <p>Sediment geochemistry in the surface streams.</p>	
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 along the boundary of the proposed mining area shall committed mentioned in EMP.	The detailed study will be carried out and will be furnished in the Final EIA Report.
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	Noted and public hearing details will be included along with final EIA report.

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	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.	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
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	The EMP details has been given in Chapter 8

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	whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.	
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 the details on potential fragmentation impact on natural environment, by the activities.	Noted. 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	Noted.

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	study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	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.
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.

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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 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.	VAO certificate is enclosed as 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	Agreed to comply

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	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 freshwater systems due to activities, contemplated during mining may be investigated and reported.	Agreed to comply

ANNEXURE-II
PRECISE AREA COMMUNICATION LETTER

அனுப்புநர்

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

பெறுநர்

திரு.நல்லையா
த/பெ.மாரிக்கோணார்
எண்.8668/4, சோழா ரியல் எஸ்டேட்,
திருவப்பூர்,
புதுக்கோட்டை.



ந.க.எண்.368/2022(பு.ம.சு) நாள் 28.10.2022

அய்யா,

பொருள் : கனிமங்கள் மற்றும் சுரங்கங்கள் - புதுக்கோட்டை மாவட்டம் - குளத்தூர் வட்டம் - மேலூர் கிராமம் - பட்டா புல எண்கள்.210/7C1 & 210/8A1B-ன் மொத்தப்பரப்பு 1.53.5 ஹெக்டேரில் கல்குவாரி குத்தகை உரிமம் கோரி திரு.ம.நல்லையா த/பெ.மாரிக்கோணார் என்பவர் விண்ணப்பம் செய்தது - வரைவு சுரங்கத்திட்டம் சமர்ப்பிக்க அறிவுறுத்துதல் - தொடர்பாக தொடர்பாக.

- பார்வை : 1. திரு.மா.நல்லையா த/பெ.மாரிக்கோணார் என்பவரின் விண்ணப்பம் நாள்: 19.05.2022.
2. வருவாய் கோட்டாட்சியர், இலுப்பூர், அவர்களின் கடிதம் ந.க.3937/2022/அ5, நாள்: 30.08.2022.
3. உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, புதுக்கோட்டை அவர்களின் அறிக்கை நாள்: 20.10.2022.
4. மற்றும் தொடர்புடைய ஆவணங்கள்.

புதுக்கோட்டை மாவட்டம், குளத்தூர் வட்டம், நார்த்தாமலை சரகம், மேலூர் கிராமம், பட்டா புல எண்கள்.210/7C1 & 210/8A1B-ஆகியவற்றின் மொத்தப்பரப்பு 1.53.5 ஹெக்டேரில் கல்குவாரி குத்தகை உரிமம் கோரி திரு.மா.நல்லையா த/பெ.மாரிக்கோணார் என்பவர் அனுமதி கோரி விண்ணப்பம் செய்துள்ளார்.

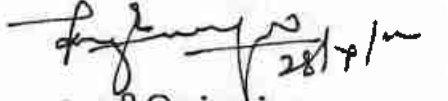
பார்வை 2 மற்றும் 3ல் கண்டுள்ளவாறு வருவாய் கோட்டாட்சியர், இலுப்பூர், உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, புதுக்கோட்டை மற்றும் தனிவருவாய் ஆய்வாளர் (கனிமம்) ஆகியோர் புலத்தணிக்கை மேற்கொண்டு குளத்தூர் வட்டம், மேலூர் கிராமம் பட்டா புல எண்கள். 210/7C1 (0.93.0) & 210/8A1B(0.60.5) ஆகியவற்றின் மொத்தம் 1.53.5 ஹெக்டேரில் கல் மற்றும் கிராவல் குத்தகை உரிமம் வழங்க அனுமதி வழங்கலாம் என பரிந்துரை செய்துள்ளனர்.

எனவே, திரு.மா.நல்லையா த/பெ.மாரிக்கோணார் என்பவருக்கு குளத்தூர் வட்டம், மேலூர் கிராமம் பட்டா புல எண்கள்.210/7C1 (0.93.0) & 210/8A1B(0.60.5) ஆகியவற்றின் மொத்தம் 1.53.5 ஹெக்டேர் பரப்பினை 1959-ஆம் 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.

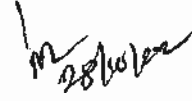
M. M.

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

1. அருகிலுள்ள பட்டா புலங்களுக்கு 7.5மீட்டர் பாதுகாப்பு இடைவெளி விடவேண்டும்.
2. கிழக்குப்பகுதியில் புல எண்.211-ல் அமைந்துள்ள அரசு புறம்போக்கு கல்லாங்குத்திற்கு 10மீ பாதுகாப்பு இடைவெளிவிடவேண்டும்.
3. தெற்குப்பகுதியில் அமைந்துள்ள முத்துடையான்பட்டி - அன்னவாசல் ரோட்டிற்கு 10மீ பாதுகாப்பு இடைவெளிவிடவேண்டும்.



உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
புதுக்கோட்டை





S. DHANASEKAR, M.Sc., (Geo)
Qualified Person



ANNEXURE-III
MINING PLAN APPROVED LETTER

From

To

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

Thiru.M.Nallaiyah,
S/o.Marikonar,
No.8668/4, Chola Real Estate,
Thiruvappur,
Pudukkottai Taluk,
Pudukkottai District.

Rc.No. 368/2022 (G&M) dated 24.11.2022

Sir,

Sub: Mines and Quarries - Minor Minerals - Pudukkottai District - Kulathur Taluk - Melur village in S.F.Nos.210/7C1 & 210/8A1B, - over an extent of 1.53.5 Hects., of patta lands - Rough stone & Gravel quarry lease - draft mining plan submitted to Thiru.M.Nallaiyah - Approval of mining plan - Regarding.

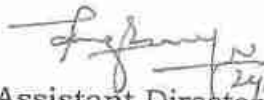
Ref: 1.Application of Thiru.M.Nallaiyah, S/o.Marikonar, dt 19.05.2022.
2.Precise area communication in Rc.No.368/2022(G&M) dated 28.10.2022.
3. Letter from Thiru.M.Nallaiyah, S/o.Marikonar letter dt.23.11.2022.

In the reference 1st cited, Thiru.M.Nallaiyah, S/o.Marikonar, No.8668/4, Chola Real Estate, Thiruvappur, Pudukkottai Taluk, Pudukkottai District has applied for the grant of lease to quarry rough stone & Gravel, over an extent of 1.53.5 hecets in patta lands in S.F.Nos. 210/7C1 & 210/8A1B of Melur village, Kulathur 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.M.Nallaiyah, S/o.Marikonar for grant of lease to quarry rough stone & gravel, over an extent of 1.53.5 hecets in patta land in S.F.Nos.210/7C1 & 210/8A1B of Melur village, Kulathur 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 **1,25,720M³** and **17,278M³** to the proposed depth of 33m. 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 Director of Geology and Mining, Industrial Estate, Guindy,
Chennai- 32.

ANNEXURE-IV
500M Radius letter

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

To
Thiru.M.Nallaiyah,
S/o.Marikonar,
No.8668/4, Chola Real Estate,
Thiruvappur,
Pudukkottai Taluk,
Pudukkottai District

Sir,

Rc.No.268/2022 (G&M) dated 24.11.2022

Sub : Mines and Minerals - Minor Mineral - Pudukkottai District - S.F.Nos.210/7C1 & 210/8A1B of Melur village, Kulathur Taluk, over an extent of 1.53.5 Hects - Rough stone & gravel Quarry Lease Application preferred by Thiru.M.Nallaiyah - Reg.

Ref : 1.Application of Thiru.M.Nallaiyah, S/o.Marikonar, dt 19.05.2022.
2.Precise area communication in Rc.No.368/2022(G&M) dated 28.10.2022.
3. Letter from Thiru.M.Nallaiyah, S/o.Marikonar letter dt.23.11.2022.

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 1.53.5 Hects in patta S.F.Nos.210/7C1 & 210/8A1B of Melur village, Kulathur Taluk, Pudukkottai District are as follows:

1) Existing Other Quarries:

S. No	Name of the Lessee / Permit Holder	Village & Taluk	S.F.No	Extent	Lease period
1.	Thiru.M.Rajamohamed, S/o.Mohamed Ibrahim, No.9884, Kalif Nagar 4th Street, Pudukkottai	Melur Kulathur	210/21	0.91.0	21.01.2019 to 21.01.2024
2.	Thiru.Ramesh Babu, S/o.Jayaraman, T.S.No.7166/2 of Maharajapuram, Thirukokarnam, Pudukkottai District	Melur Kulathur	210/19 & 210/9B 1B	1.50.5	06.11.2019 to 05.11.2024
Total				2.41.5	


2) Proposed Area

S. No	Name of the applicant	Village & Taluk	S.F.No	Extent
1	Thiru.M.Nallaiyah, S/o.Marikonar, No.8668/4, Chola Real Estate, Thiruvappur, Pudukkottai Taluk, Pudukkottai District	Melur Kulathur	210/7C1 & 210/8A1B	1.53.5

2.	Thiru.P.Arumugam, S/o.Palanivel, No.3/625, Melamuthudaiyanpatti, Vellanur, Kulathur Taluk, Pudukkottai District	Melur Kulathur	210/12C1A etc.,	2.13.0
3.	Thiru.Arockiya Raj, S/o.Rethinam Pillai, No.297/7, Sathiyamoorthi Nagar, Pudukkottai	Melur Kulathur	210/7A	1.68.0
Total				5.34.5

3) Lease Expired

S. No	Name of the Lessee / Permit Holder	Village & Taluk	S.F.No	Extent	Lease period
1	Thiru.A.Palanivel, S/o.Arumugam, 3/625, MelaMuthudaiyanpatti Vellanur post, Pudukkottai District	Melur Kulathur	210/12B etc.,	1.73.0	29.05.2015 to 29.05.2020
2	Thiru.R.Jaffer Ali, S/o.Raja Mohamed, T.S.No.9884, Kalif Nagar 4th Street, Pudukkottai	Melur Kulathur	211 (Q.No.1)	0.60.0	20.01.2017 to 19.01.2022
3	Bagavathi Amman Mahalir Ponvizha Grama Suyu Velai Vaippu Thitta Sangam, Melur, Kulathur Taluk, Pudukkottai District	Melur Kulathur	211 (part)	1.00.0	15.11.2017 to 14.11.2022
4	M.Nallaiah, S/o.Marikonnar, Vettanviduthi, Alangudi Taluk	Melur Kulathur	210/7C1 & 210/8A, 1B	1.53.5	05.02.2007 to 04.02.2012
Total				4.86.5	

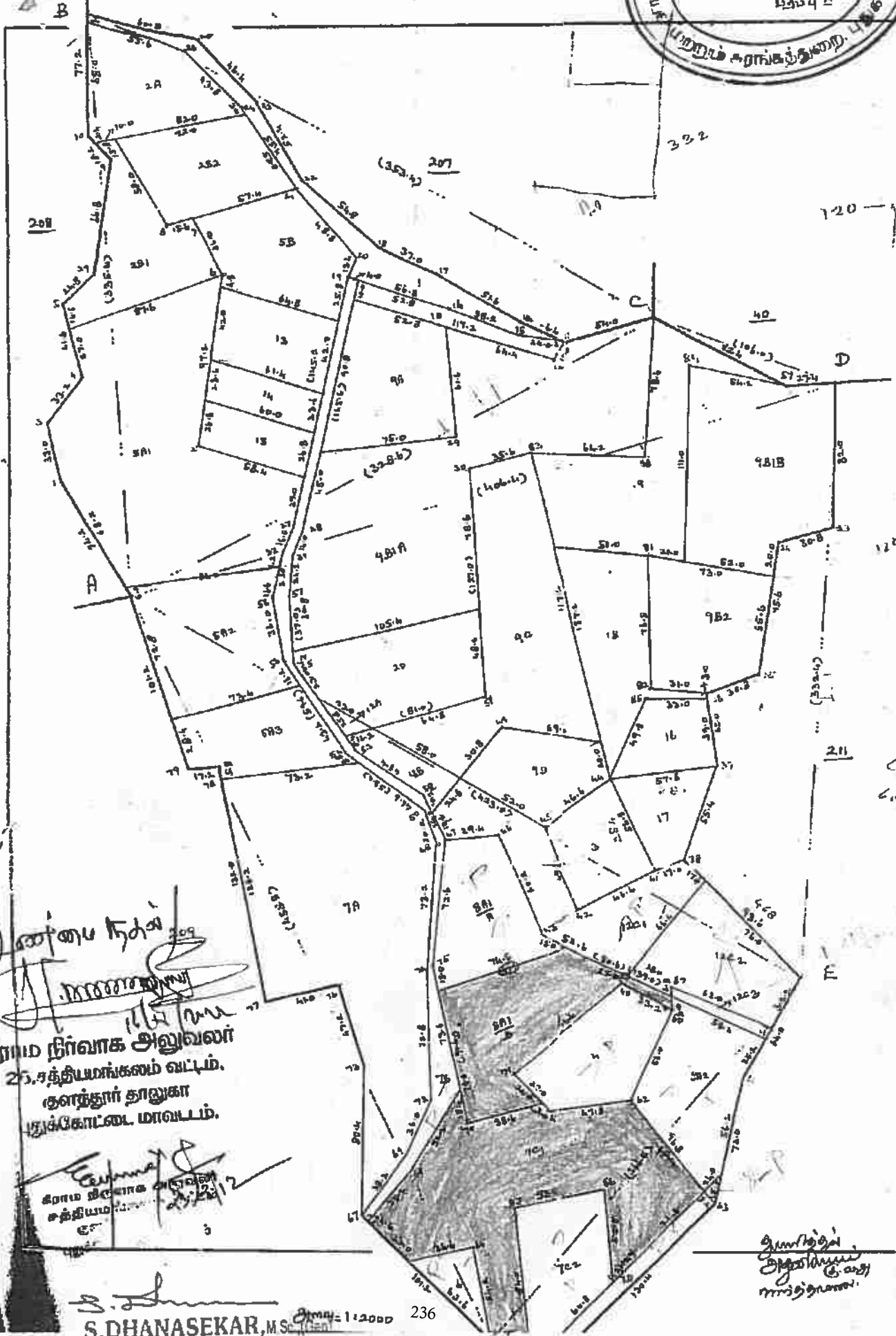
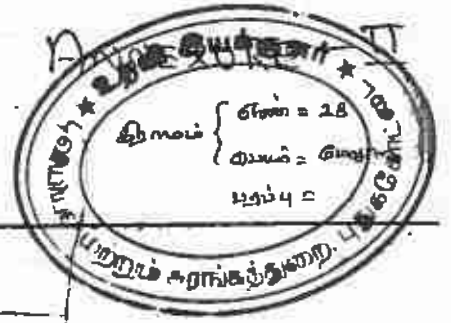

 Assistant Director,
 Geology and Mining,
 Pudukkottai


 20/11/22

ANNEXURE-V
FMB, A REGISTER, VILLAGE MAP

மாவட்டம்: புதுக்கோட்டை
வட்டம்: சேந்தூர்

40660 = 210



சுயேட்சை நடுவர்
ச.தமிழமங்கலம் வட்டம்,
சேந்தூர் தாலுகா
புதுக்கோட்டை மாவட்டம்.

ச.தமிழமங்கலம் வட்டம்
சேந்தூர் தாலுகா
புதுக்கோட்டை மாவட்டம்

S. DHANASEKAR, M.S. (Qual. Per.)
236

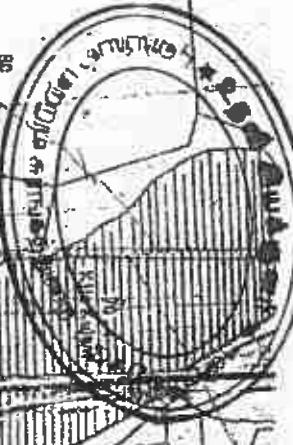
சுயேட்சை நடுவர்
ச.தமிழமங்கலம் வட்டம்,
சேந்தூர் தாலுகா
புதுக்கோட்டை மாவட்டம்



PANAMPATTI

MELUR

S. DHANASEKAR, M.S.I. (500)
Overhead Person





தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : புதுக்கோட்டை

வட்டம் : குளத்தூர்

வருவாய் கிராமம் : மேலூர்

பட்டா எண் : 1108

உரிமையாளர்கள் பெயர்

1. மாரிகோனார்

மகன்

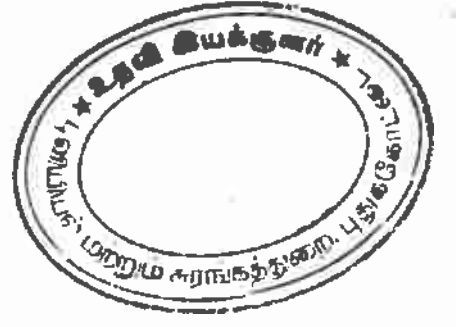
நல்லையா

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
210	6	0 - 9.50	0.35	--	--	--	--	PTR942/06--- - 13-07-2006
210	7C1	0 - 93.00	3.45	--	--	--	--	----- 04-08- 2006
210	8A1B	0 - 60.50	2.24	--	--	--	--	----- 04-08- 2006
		1 - 63.00	6.04					

குறிப்பு 2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 22/11/028/01108/10890 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 10-11-2022 அன்று 10:53:52 AM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



அ-பதிவேடு விவரங்கள்

மாவட்டம் : புதுக்கோட்டை

வட்டம் : குளத்தூர்

கிராமம் : மேலூர்

1. புல எண்	210	9. மண் வயனமும் ரகமும் 7 - 2	
2. உட்பிரிவு எண்	8A1B	10. மண் தரம்	4
3. பழைய புல உட்பிரிவு எண்	210-8	11. தீர்வை (ரூ - ரெறு)	3.71
4. பகுதி	P	12. பரப்பு (ரெறுக்கடெர் - ஏர்)0 - 60.50	
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - ரெறு)	2.24
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1108
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.நல்லையா

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டன. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 20890 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.



அ-பதிவேடு விவரங்கள்



மாவட்டம் : புதுக்கோட்டை
வட்டம் : குளத்தூர்
கிராமம் : மேலூர்


1. புல எண்	210	9. மண் வயனமும் ரகமும் 7 - 2	
2. உட்பிரிவு எண்	7C1	10. மண் தரம்	4
3. பழைய புல உட்பிரிவு எண்	210-7	11. தீர்வை (ரூ - ரெற)	3.71
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)0 - 93.00	
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - ரெற)	3.45
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1108
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இடு போகமா	-	16. பெயர்	1.நல்லையா

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 20890 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.


S. KAR, M.Sc., (Gao)
Qualified Person

**ANNEXURE-VI MINING PLAN REPORT &
PLATES**

MINING PLAN

FOR

GRANT OF ROUGH STONE & GRAVEL QUARRY LEASE IN PATTALAND
PROPOSED PERIOD OF MINING 5 YEARS

(Prepared Under Rules 41 & 42 as amended in Tamil Nadu Minor Mineral Concession
Rules, 1959)

LOCATION OF THE APPLIED AREA

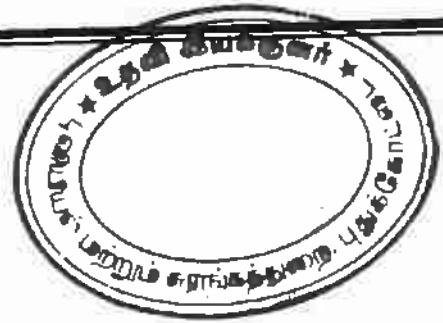
EXTENT : 1.53.5 Ha.
S.F. Nos : 210/7C1 & 210/8A1B
VILLAGE : MELUR.
TALUK : KULATHUR.
DISTRICT : PUDUKKOTTAI.
STATE : TAMIL NADU.

APPLICANT

THIRU. M. NALLAIYAH,
S/o. MARIKONAR,
No. 8668/4, CHOLA REAL ESTATE,
THIRUVAPPUR,
PUDHUKKOTTAI TALUK
PUDUKKOTTAI DISTRICT - 622 002.

PREPARED BY:

S. DHANASEKAR, M.Sc.(Geol),
QUALIFIED PERSON,
NO. 5/30-7 B, AVVAI NAGAR,
PONKUMAR MINES ROAD,
JAGIR AMMAPALAYAM,
SALEM DISTRICT - 636 302.
Email: geodhana@yahoo.co.in
CELL : 98946-28970 & 73733-74702.



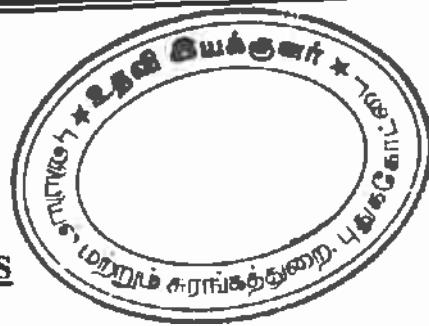
CONTENTS

SL. NO.	DESCRIPTION	PAGE NO.
1.0	Introduction	8
2.0	Executive Summary	10
3.0	General Information	11
4.0	Location	11
5.0	Geology And Mineral Reserves	12
6.0	Mining	16
7.0	Blasting	21
8.0	Mine Drainage	22
9.0	Other Permanent Structures	23
10.0	Employment Potentials & Welfare Measures	24
11.0	Environment Management Plan	25
12.0	Mine Closure Plan	29
13.0	Any other details intend to furnish by the applicant	30



ANNEXURES

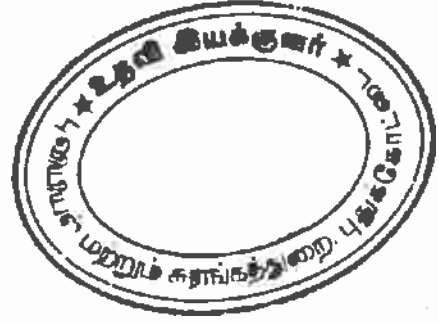
SL. NO.	DESCRIPTION	ANNEXURE NO.
1.	Copy of Precise Area Communication Letter	I
2.	Copy of FMB	II
3.	Copy of Combined Sketch	III
4.	Copy of Patta, Adangal & 'A' Register	IV
5.	Copy of Land Consent Documents	V
6.	Copy of ID Proof	VI
7.	Copy of Qualification Certificate	VII
8.	Copy of Experience Certificate	VIII
9.	Copy of Proposed Lease Area Photos	IX



LIST OF PLATES

SL. NO.	DESCRIPTION	PLATE NO.	SCALE
1.	Location Plan	I	Not to Scale
2.	Key Map	IA	Not to Scale
3.	Topo Sheet Map of the Lease Area	IB	1:50,000
4.	Satellite Image (Lease Area)	IC	1:1000
5.	Satellite Image(500m Radius)	ID	1:5000
6.	Mine Lease Plan	II	1:1000
7.	Surface & Geological Plan	III	1:1000
8.	Geological Sections	III-A	HOR 1:1000 VER 1: 500
9.	Year wise Development and Production Plan	IV	1:1000
10.	Year Wise Development and Production Sections	IV- A	HOR 1:1000 VER 1: 500
11.	Mine Layout, Land Use Pattern & Afforestation Plan	V	1:1000
12.	Environment Plan	VI	1:5000
13.	Conceptual & Final Mine Closure Plan	VII	1:1000
14.	Conceptual & Final Mine Closure Sections	VII- A	HOR 1:1000 VER 1: 500
15.	Progressive Mine Closure Plan	VIII	1:1000

M. Nallaiyah,
S/o. Marikonar,
No. 8668/4, Chola Real Estate,
Thiruvappur,
Pudhukkottai Taluk
Pudukkottai District - 622 002.




CONSENT LETTER FROM THE APPLICANT

I hereby give my consent for preparing the Mining Plan in respect of **Rough Stone & Gravel** quarry over an extent of **1.53.5 Hectares** of **Patta Land** in **S.F.Nos. 210/7C1 & 210/8A1B** at **Melur Village, Kulathur Taluk, Pudukkottai District, Tamilnadu State** to **Shri. S. Dhanasekar, M.Sc., Qualified Person.**

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

S.DHANASEKAR, M.Sc.,
Qualified Person
No.5/30-7B, Avvai Nagar,
Ponkumar Mines Road,
Jagir Ammapalayam,
Salem District - 636 302.
E-Mail: geodhana@yahoo.co.in
Cell: 98946-28970

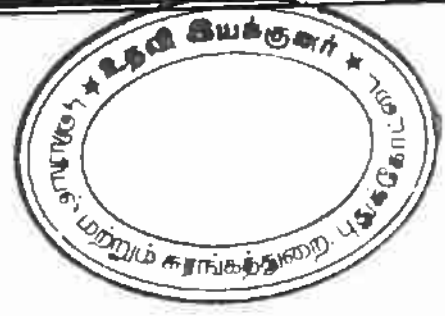
I hereby undertake that all modifications so made in the Mining Plan by the Qualified Person may be deemed to have been made with my knowledge and consent and shall be acceptable to me and binding on me in all respect


(M. Nallaiyah)
Signature of the Applicant

Place: Pudukkottai.


Date: 21-11-22

M. Nallaiyah,
S/o. Marikonar,
No. 8668/4, Chola Real Estate,
Thiruvappur,
Pudhukkottai Taluk
Pudukkottai District - 622 002.



DECLARATION

I hereby declare that the Mining Plan in respect of **Rough Stone & Gravel** quarry over an extent of **1.53.5 Hectares** of Patta Land in **S.F.Nos. 210/7C1 & 210/8A1B** at **Melur Village, Kulathur Taluk, Pudukkottai District, and Tamilnadu 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.


(M. Nallaiyah)
Signature of the Applicant

Place: Pudukkottai.

Date: 21-11-22

S. Dhanasekar.M.Sc.,(Geol),
Qualified Person,

No.5/3027B, Avvai Nagar,
Ponkumar Mines Road,
Jagir Ammapalayam,
Salem- 636 302.

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 1.53.5 Hectares of Patta Land in S.F.Nos. 210/7C1 & 210/8A1B at Melur Village, Kulathur Taluk, Pudukkottai District, Tamilnadu State obtained by Thiru. M. NALLAIYAH, for applied quarry lease.

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

Certified


Signature of Qualified Person.

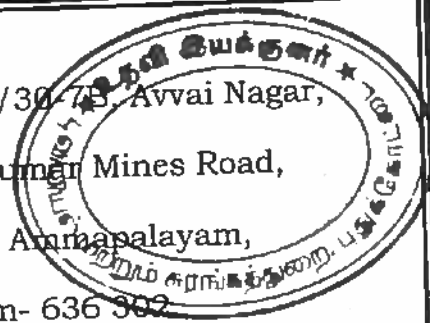
S.DHANASEKAR, M.Sc.(Geo)
Qualified Person

Place: SALEM

Date: 21.11.20

S. Dhanasekar.M.Sc.,(Geol),
Qualified Person,

No.5/30-75, Avvai Nagar,
Ponkumar Mines Road,
Jagir Annasalayam,
Salem- 636 302



CERTIFICATE

This is to certify that during preparation of Mining Plan for **Rough Stone & Gravel** quarry over an extent of **1.53.5 Hectares** of **Patta Land** in **S.F.Nos. 210/7C1 & 210/8A1B** at **Melur Village, Kulathur Taluk, Pudukkottai District, Tamilnadu State** for **Thiru. M. NALLAIYAH** 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, Chennai. The standards prescribed by DGMS in respect of Mines Health will be strictly implemented.

Certified


Signature of Qualified Person.
S.DHANASEKAR, M.Sc.,(Geo)
Qualified Person

Place: SALEM

Date: 21.11.22

MINING PLAN FOR MINOR MINERALS
ROUGH STONE & GRAVEL QUARRY
PROPOSED PERIOD OF MINING 5 YEARS

Over an extent of 1.53.5 Hectares of Patta Land in S.F.Nos. 210/7C1 & 210/8A1B
Melur Village, Kulathur Taluk, Pudukkottai District, and Tamilnadu State.



(Prepared Under Rules 41 & 42 as amended in Tamil Nadu Minor Mineral Concession
Rules, 1959)

1.0 INTRODUCTION :

1. Thiru. M. Nallaiyah, S/o. Marikonar, residing at No.8668/4, Chola Real Estate, Thiruvappur, Pudukkottai Taluk, Pudukkottai District- 622 002 has applied quarry lease for Rough Stone & Gravel over an extent of 1.53.5 Hectares of Patta Land in S.F.Nos. 210/7C1 & 210/8A1B at Melur Village, Kulathur Taluk, Pudukkottai District of Tamilnadu State for a period of Five years.
2. The Assistant Director (G&M), PUDUKKOTTAI in his letter Rc. No.368/2022 (G&M) dated 28.10.2022 has directed the applicant to produce approved Mining Plan and Environmental Clearance certificate from the State Environment Impact Assessment Authority (SEIAA) for the grant of quarry lease for the applied area.
3. Accordingly, Mining Plan is prepared under Rules 41 & 42 as amended in Tamil Nadu Minor Mineral Concession Rules, 1959 by incorporating the conditions imposed in the precise area communication letter and by incorporating all the details proposed in the letter to obtain environment clearance from State Environment Impact Assessment Authority.
4. In the above circumstances Thiru. M. Nallaiyah is hereby preparing the Mining Plan for approval for Applied Rough Stone & Gravel Quarry. And subsequent submission of Form-I and Pre-Feasibility report to obtain environmental clearance from the SEIAA of Tamil Nadu.
5. This Mining Plan is prepared for the Applied Rough Stone & Gravel for a period of Five Years.
6. This Mining Plan is prepared by considering the TNMMCR 1959, and as per the EIA Notification 2006 and subsequent amendments and judgments.


S.DHANASEKAR, M.Sc.(Geo)
Qualified Person

7. The Geological Reserves available in the lease period is 497220m³ and Mineable & recoverable Reserves is estimated as 125720m³ of Rough Stone after leaving necessary safety distance from the lease boundary as indicated while granting the quarry lease Proceedings and relevant mining laws in force.



8. The proposed production scheduled for the five years about 125720m³ of Rough stone and 17278m³ of Gravel. The proposed average annual production of Rough stone is about 25144m³.

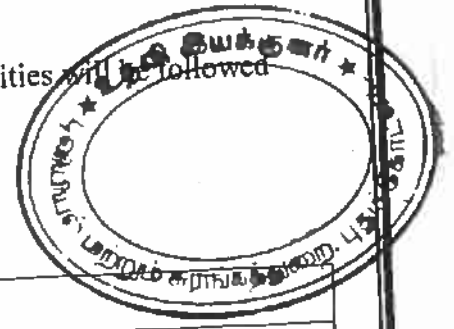
9. Environmental parameters,

- i) There is no interstate boundary around 10Kms radius.
- ii) There is no wild life animal sanctuary within 10Kms radius form the project site area under the Wildlife (Protection) Act, 1972. Therefore the project seeks clearance only from State Environment Impact Assessment Authority (SEIAA), under B2 Category.

10. Environmental measures already adopted are,

- i) Dust Control at source while drilling and blasting,
- ii) Dust suppression at loading point and transport haul roads,
- iii) 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.
- iv) Unnecessary land degradation should be avoided or damaged land should be reclaimed or rehabilitated.
- v) Uneven rat hole mining is avoided and follow scientific and systematic mining by safe bench system of open cast mining.
- vi) Mining near major fracture zones already avoided to control ground water fluctuation in the adjacent agricultural lands.
- vii) Emission test of vehicles should be in stack maintain minimum emission level of flue gases.
- viii) Noise level should not exceed 80db and the vehicles use only permitted Air Horn while on road near residential areas.
- ix) Safety zones as prescribed by the Department of Geology and Mining from adjacent infrastructures should be strictly adhering to.

x) And any other conditions as stipulated by the concerned authorities will be followed to protect the environment.



2.0 EXECUTIVE SUMMARY:

a.	Name of the Village	:	Melur
b.	Name of the Panchayat / Union	:	Melur / Kulathur
c.	The proposed total Mineable Reserves	:	125720m ³
d.	The proposed quantity of reserves (level of production)) Rough Stone & Gravel	:	125720m ³ of Rough Stone 17278m ³ of Gravel
e.	Total extent of the area	:	1.53.5 Ha
f.	Proposed Period of mining	:	Five Years
g.	Proposed Depth of mining	:	33m
h.	Existing Pit Dimension	:	85.0m (L) X 73.0m(W) X 14.0m(D)
i.	Average Production Per Year Rough Stone	:	25144m ³ of Rough stone
j.	Method of mining / level of mechanization	:	Opencast, Semi-mechanized Mining with a bench height of 5m and bench width of 5m is proposed.
k.	Types of Machineries used in the quarry	:	i) Compressor with jack hammer. ii) Excavator of 0.90Cbm bucket Capacity.
l.	Cost of the Project a. Fixed Cost b. Operational Cost c. EMP Cost	:	Rs. 15,53,000/- Rs. 30,00,000/- Rs. 3,35,000/-
m.	The Applied lease area is bounded by four corners and the coordinates are	:	Toposheet No. 58 – J/15,
	Latitude	:	10° 26' 41.1998" N to 10° 26' 36.3638" N
	Longitude	:	78° 46' 03.0733" E to 78° 45' 57.3908" E
	North East	:	10° 26' 41.9334" N 78° 46' 02.4506"E
	South East	:	10° 26' 37.2527" N 78° 46' 01.2741"E
	North West	:	10° 26' 41.9254" N 78° 45' 58.7642"E
	South West	:	10° 26' 38.7248" N 78° 45' 57.5230"E

3.0. GENERAL INFORMATION:



3.1	a.	Name of the Applicant	:	Thiru. M. Nallaiyah
	b.	Address of the Applicant with phone No and e-mail id if any	:	M. Nallaiyah, S/o. Marikonar, No.8668/4, Chola Real Estate, Thiruvappur, Pudukkottai Taluk, Pudukkottai District - 622 002 .
	c.	Status of the Applicant	:	Individual
3.2	a.	Mineral Which the Applicant intends to mine	:	Rough Stone & Gravel
	b.	Precise area letter	:	Re. No.368/2022 (G&M) dated 28.10.2022
	c.	Period of permission	:	5 Years
	d.	Name and Address of the Qualified Person preparing Mining Plan	:	S.Dhanasekar, M.Sc., Qualified Person No.5/30-7B, Avvai Nagar, Ponkumar Mines Road, Jagir Ammapalayam, Salem District - 636 302. E-Mail: geodhana@yahoo.co.in Cell: 98946-28970 & 73733-74702

4.0 LOCATION: AREA DETAILS:

State	District	Panchayat / Union	Taluk	Village	S.F.Nos	Extent In Hectare
Tamilnadu	Pudukkottai	Melur / Kulathur	Kulathur	Melur	210/7C1 210/8A1B	0.93.0 0.60.5
TOTAL =						1.53.5Ha
b.	Classification of the Area (Ryotwari / Poramboke / others)		:	It is a Patta Land, which is not fit for vegetation/cultivation.		
c.	Ownership / Occupancy of the Applied Lease area (Surface rights)		:	It is a Patta Land in S.F.No. 210/7C1 & 210/8A1B registered in the name of Mr. M. Nallaiyah S/o. Marikonar vide patta no.1108. Hence applicant has surface right over the area.		

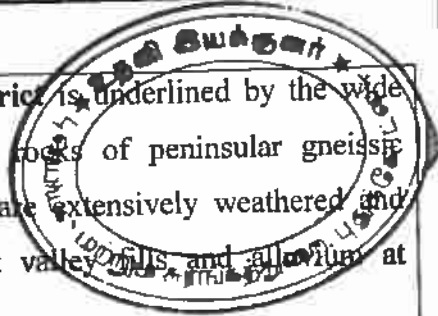
d.	Toposheet No. with Latitude and Longitude	: Toposheet No. 58 – J/15, : 10° 26' 41.1998" N to 10° 26' 36.3638" N : 78° 46' 03.0733" E to 78° 45' 57.3908" E
e.	Existence of Public Road / Railway line if any nearby the area and approximate distance	: Pudukkottai – Muthudaiyanpatti = 8.0 kms. Quarry site is located in Western side at a distance of 2.0 kms from Muthudaiyanpatti village.



PART - A

5.0 GEOLOGY AND MINERAL RESERVES:

5.1	a.	Topography	: 1. The applied lease area is Plain topography and sloping towards western side covered with Rough Stone which does not sustain any type of vegetation. The altitude of the lease area is 110m above MSL. 2. No major river is found nearby the lease area. 3. Water table is noticed at a depth of 57m from below the surface in the adjacent open well and bore well. 4. Temperature of the area is reported to be 18 ⁰ C to a maximum of 40 ⁰ C during summer. 5. Rainfall of this area is about 800mm to 900 mm during the monsoons in a year.
	b.	Infrastructures nearby the Applied Lease area. 1. Post Office 2. Police Station 3. G.H 4. Fire service 5. Railway Station 6. School 7. Airport 8. Seaport	: Vellanur – 4.4 kms : Vellanur – 4.3 kms : Pudukkottai – 12.1 kms : Sipcot – 4.1 kms : Pudukkottai – 13.0 kms : Maruthanthalai – 1.6 kms : Trichy – 40.0 kms : Tuticorin – 268.0 kms



c. Regional Geology

PUDUKKOTTAI District is underlined by the wide range of metamorphic rocks of peninsular gneiss 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, Charnockite basic granulites and calc-gneisses. The younger formations are Quartz veins and pegmatite.

The generalized stratigraphic succession of the geological formations met within this District is as follows.

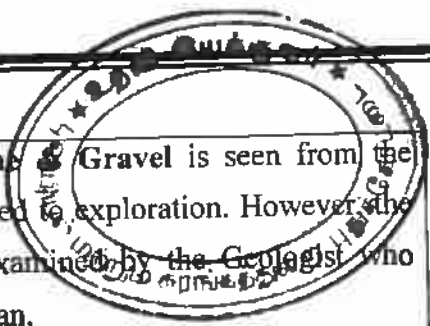
	Age	Rock Formation
1.	Recent to Sub recent	Soil, Alluvium
2.	Archaean	Granites, basic granulites, Peninsular Gneiss, Calc Gneiss and Charnockites

d. Geology of the Lease Area

1. The area is mainly composed of Archaean crystalline metamorphic complex.
2. The rock type noticed in the area for lease is **Charnockite** which contains mostly Quartz and Feldspar with some ferromagnesian minerals.
3. The Charnockite is part of peninsular Gneisses, a high grade metamorphic rock.
4. The general trend of formation Strike is NE-SW and Dip NW-80°.

The general geological succession of the area is given under

	Age	Rock Formation
1.	Recent to Sub recent	Soil, Alluvium
2.	Archaean	Charnockites
3.	Archaean	Peninsular Gneiss, and Calc Gneiss



5.2 Details of Exploration already carried out if any : Since the **Rough Stone & Gravel** is seen from the Surface itself, No needed to exploration. However, the area was personally examined by the Geologist who prepared the Mining Plan.

5.3 a. Already excavated in pit dimensions 85.0m (L) X 73.0m(W) X 14.0m(D)

b. Geological Reserves:
Gravel :
 The Thickness of Gravel in this area is 2.0m and the total volume of Gravel will be 26592m³.
Rough Stone :
 The Available Geological Reserve is estimated as 497220m³ respectively at the rate of 100% recovery upto the permissible depth. Gravel is calculated upto a depth of 2m, Weathered rock is calculated upto a depth of 1m and Rough Stone at a depth of 30m. Total Depth-33m.

GEOLOGICAL RESERVES								
Section	Bench	L (m)	W (m)	D (m)	Volume In M3	Geological Reserves in m3 @ 100%	Weathered Rock in m3	Gravel in m3
XY-AB	I	2	14	2				56
	II	2	14	1			28	
	III	2	45	5	450	450		
	IV	2	45	5	450	450		
	V	54	91	5	24570	24570		
	VI	54	91	5	24570	24570		
	VII	54	91	5	24570	24570		
	VIII	54	91	5	24570	24570		
TOTAL					99180	99180	28	56
XIYI-CD	I	77	85	2				13090
	II	77	85	1			6545	
	III	77	85	5	32725	32725		
	IV	77	85	5	32725	32725		
	V	77	85	5	32725	32725		
	VI	77	85	5	32725	32725		
	VII	77	85	5	32725	32725		
	VIII	77	85	5	32725	32725		
TOTAL					196350	196350	6545	13090

Section	Bench	L (m)	W (m)	D (m)	Volume In M3	Geological Reserves in m3 @ 100%	Weathered Rock in m3	Gravel in m3
X1Y1-EF	I	67	29	2				
	II	67	29	1			1943	
	III	67	29	5	9715	9715		
	IV	67	29	5	9715	9715		
	V	67	29	5	9715	9715		
	VI	67	29	5	9715	9715		
	VII	67	29	5	9715	9715		
	VIII	67	29	5	9715	9715		
	TOTAL					58290	58290	1943
X2Y2-CD	I	49	58	2				5684
	II	49	58	1			2842	
	III	49	58	5	14210	14210		
	IV	49	58	5	14210	14210		
	V	49	58	5	14210	14210		
	VI	49	58	5	14210	14210		
	VII	49	58	5	14210	14210		
	VIII	49	58	5	14210	14210		
	TOTAL					85260	85260	2842
X2Y2-GH	I	38	51	2				3876
	II	38	51	1			1938	
	III	38	51	5	9690	9690		
	IV	38	51	5	9690	9690		
	V	38	51	5	9690	9690		
	VI	38	51	5	9690	9690		
	VII	38	51	5	9690	9690		
	VIII	38	51	5	9690	9690		
	TOTAL					58140	58140	1938
GRAND TOTAL					497220	497220	13296	26592

c. Mineable Reserves:

The Mineable reserves are calculated by deducting 7.5m & 10.0m Safety distance and bench loss.

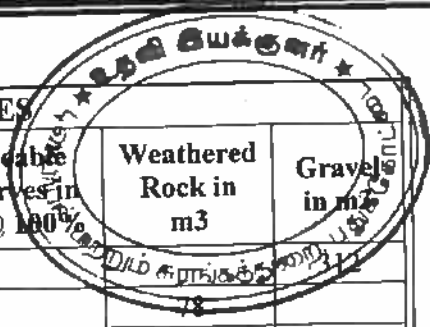
Gravel:

The Thickness of Gravel in this area is 2.0m and the total volume of Gravel will be **17278m³**.

Rough Stone :

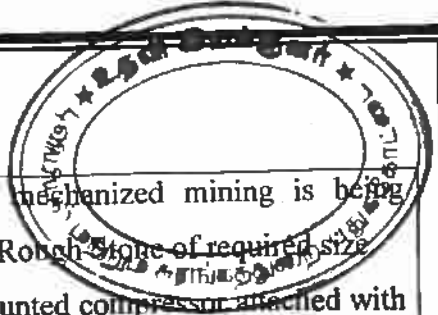
The mineable reserves and the Recoverable Reserves are **125720m³** respectively, at the rate of **100%** recovery upto the permissible depth. **Total Depth-33m (2m Gravel + 1m Weathered Rock + 30m Rough Stone)**.

MINEABLE RESERVES



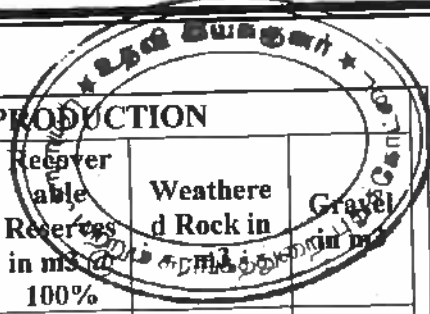
Section	Bench	L (m)	W (m)	D (m)	Volume In M3	Mineable Reserves in m3 @ 100%	Weathered Rock in m3	Gravels in m3
XY-AB	I	39	4	2				
	II	39	2	1				
	III	39	26	5	5070	5070		
	IV	39	16	5	3120	3120		
	V	39	52	5	10140	10140		
	VI	29	42	5	6090	6090		
	VII	19	32	5	3040	3040		
	TOTAL					27460	27460	78
XIY1-CD	I	67	71	2				9514
	II	65	69	1			4485	
	III	64	68	5	21760	21760		
	IV	54	63	5	17010	17010		
	V	44	58	5	12760	12760		
	VI	34	53	5	9010	9010		
	VII	24	48	5	5760	5760		
	VIII	14	38	5	2660	2660		
	TOTAL					68960	68960	4485
XIY1-EF	I	54	14	2				1512
	II	52	10	1			520	
	TOTAL							520
X2Y2-CD	I	42	50	2				4200
	II	40	48	1			1920	
	III	39	47	5	9165	9165		
	IV	34	42	5	7140	7140		
	V	29	37	5	5365	5365		
	VI	19	32	5	3040	3040		
	TOTAL					24710	24710	1920
X2Y2-GH	I	29	30	2				1740
	II	27	26	1			702	
	III	26	24	5	3120	3120		
	IV	21	14	5	1470	1470		
	TOTAL					4590	4590	702
GRAND TOTAL					125720	125720	7705	17278

6.0 MINING:

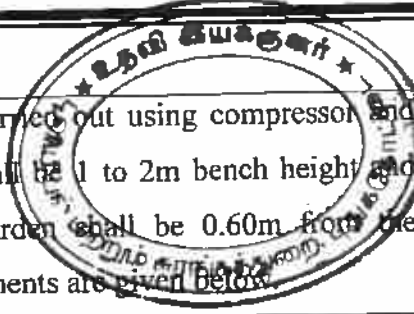


6.1	Method of Mining	: 1. Opencast method of semi mechanized mining is being adopted to extract Gravel & Rough Stone of required size. 2. Machineries like Tractor mounted compressor attached with Jack hammers is used for drilling and blasting. Excavators are used for quarrying of Rough Stone & Gravel and Tippers / Lorries are used for the transportation of Rough Stone & Gravel to the destination.
6.2	Mode of Working	: It is a semi mechanized quarrying operation using shot hole drilling with the help of compressor and jack hammers and smooth blasting. Rough Stone are removed using Hydraulic excavator and loaded directly to the tippers and transported to the needy end users.
6.3	Proposed bench height & Width	: Bench height = 5mts. Bench width = 5mts.
6.4	Details of Gravel / Mineral Production proposed for five years.	: Gravel / Overburden production details follows: This area is covered 2.0m Gravel & 1.0m Weathered Rock in this mine area. Gravel formation will be removed and hydraulic excavators are used for loading the gravel into the tipper from pit head to needy buyers. This will be done only after obtaining permission and paying necessary seigniorage fees to the Government. Weathered rock dumped at Southwestern side boundary barrier of the lease area.
<p>Year wise reserves calculations :</p> <p>Rough stone & Gravel production details as follows:</p> <p>The proposed rate of production of Rough Stone is about 125720m³ & Gravel is about 17278m³ for Five Years. The average proposed rate of production of Rough Stone is about 25144m³ per year at the rate of 100% recovery upto the permissible depth. Total Depth-33m (2m Gravel + 1m Weathered Rock + 30m Rough Stone).</p>		

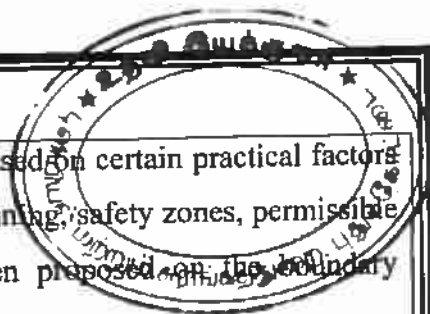
YEARWISE DEVELOPMENT AND PRODUCTION



YEAR	Section	Bench	L (m)	W (m)	D (m)	Volume In m3	Recoverable Reserves in m3 @ 100%	Weathered Rock in m3	Gravel in m3
I-YEAR	XY-AB	I	39	4	2				312
		II	39	2	1			78	
		III	39	26	5	5070	5070		
	X1Y1-CD	I	67	71	2				9514
		II	65	69	1			4485	
		III	64	68	5	21760	21760		
	X1Y1-EF	I	54	14	2				1512
		II	52	10	1			520	
	X2Y2-CD	I	42	50	2				4200
		II	40	48	1			1920	
		III	39	47	5	9165	9165		
	X2Y2-GH	I	29	30	2				1740
		II	27	26	1			702	
		III	26	24	5	3120	3120		
	TOTAL						39115	39115	7705
II-YEAR	XY-AB	IV	39	16	5	3120	3120		
	X1Y1-CD	IV	54	63	5	17010	17010		
	X2Y2-CD	IV	34	42	5	7140	7140		
	X2Y2-GH	IV	21	14	5	1470	1470		
	TOTAL						28740	28740	
III-YEAR	XY-AB	V	39	52	5	10140	10140		
	X1Y1-CD	V	44	58	5	12760	12760		
	X2Y2-CD	V	29	37	5	5365	5365		
	TOTAL						28265	28265	
IV-YEAR	XY-AB	VI	29	42	5	6090	6090		
	X1Y1-CD	VI	34	53	5	9010	9010		
	X2Y2-CD	VI	19	32	5	3040	3040		
	TOTAL						18140	18140	
V-YEAR	XY-AB	VII	19	32	5	3040	3040		
	X1Y1-CD	VII	24	48	5	5760	5760		
		VIII	14	38	5	2660	2660		
	TOTAL						11460	11460	
GRAND TOTAL						125720	125720	7705	17278



6.5	a. Mining	<p>Drilling of shot holes will be carried out using compressor and jack hammer. Depth of holes shall be 1 to 2m bench height and spacing shall be 0.75m and burden shall be 0.60m from the preface. Details of drilling equipments are given below.</p> <table border="1"> <thead> <tr> <th>Type</th> <th>Nos</th> <th>Dia of hole</th> <th>Size / Capacity</th> <th>Make</th> <th>Motive power</th> <th>H.P</th> </tr> </thead> <tbody> <tr> <td>Jack Hammer</td> <td>3</td> <td>25.5 mm</td> <td>Hand held</td> <td>Atlas copco</td> <td>Diesel</td> <td>60</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>2Nos</td> <td></td> <td></td> </tr> </tbody> </table>	Type	Nos	Dia of hole	Size / Capacity	Make	Motive power	H.P	Jack Hammer	3	25.5 mm	Hand held	Atlas copco	Diesel	60					2Nos		
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Jack Hammer	3	25.5 mm	Hand held	Atlas copco	Diesel	60																	
				2Nos																			
	b. Loading	<p>Loading of waste and Rough stone & Gravel is being carried out by Excavator into 10 tonne capacity tippers from the working place periodically. Details of loading equipment are given as under.</p> <table border="1"> <thead> <tr> <th>Type</th> <th>Nos</th> <th>Bucket Capacity(MT)</th> <th>Make</th> <th>Motive power</th> <th>H.P</th> </tr> </thead> <tbody> <tr> <td>Hydraulic excavator</td> <td>1</td> <td>1.2 M³</td> <td>L&T or Ex200</td> <td>Diesel</td> <td>120</td> </tr> </tbody> </table>	Type	Nos	Bucket Capacity(MT)	Make	Motive power	H.P	Hydraulic excavator	1	1.2 M ³	L&T or Ex200	Diesel	120									
Type	Nos	Bucket Capacity(MT)	Make	Motive power	H.P																		
Hydraulic excavator	1	1.2 M ³	L&T or Ex200	Diesel	120																		
	c. Transportation	<p>Transport of raw materials and waste shall be done by 10 tonnes tipper.</p> <table border="1"> <thead> <tr> <th>Type</th> <th>Nos</th> <th>Size / Capacity</th> <th>Make</th> <th>Motive power</th> <th>H.P.</th> </tr> </thead> <tbody> <tr> <td>Tipper</td> <td>2</td> <td>10 M.T</td> <td>Ashok Leyland</td> <td>Diesel</td> <td>110</td> </tr> </tbody> </table>	Type	Nos	Size / Capacity	Make	Motive power	H.P.	Tipper	2	10 M.T	Ashok Leyland	Diesel	110									
Type	Nos	Size / Capacity	Make	Motive power	H.P.																		
Tipper	2	10 M.T	Ashok Leyland	Diesel	110																		
6.6	a. Disposal of Overburden/ Gravel & Weathered Rock	<p>The Gravel of the lease area is estimated as 17278m³. Gravel formation will be removed and transported to the needy end user, only after obtaining permission and paying necessary seigniorage fees to the Government.</p> <p>The Weathered Rock of the lease area is estimated as 7705m³. Weathered Rock formation will be removed and dumped in the Southwestern side boundary barrier of the lease area.</p>																					
6.7	a. Brief Note on Conceptual Mining Plan for the entire lease period	<p>Conceptual Mining Plan is prepared with an object of systematic development of bench lay outs, selection of ultimate pit limit, depth of quarrying, ultimate pit slope, etc., Average Ultimate Pit dimension in given as Under,</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>ULTIMATE PIT DIMENSION</th> </tr> </thead> <tbody> <tr> <td>77.0m(L)Avg x 60.0m(W)Avg x 33.0m(D)</td> </tr> </tbody> </table>	ULTIMATE PIT DIMENSION	77.0m(L)Avg x 60.0m(W)Avg x 33.0m(D)																			
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Ultimate pit size is designed based on certain practical factors such as the economical depth of mining, safety zones, permissible areas etc. Afforestation has been proposed on the boundary barrier by planting trees.

All the baseline information studies like Air Quality monitoring, Noise and Vibration monitoring, Water Analysis studies are being carried out every year as per the MOEF norms.

b. **Energy:**

Electricity for mines and lights only at nights (working is restricted on day time only between 8Am to 4Pm). Diesel (HSD) will be used for quarrying machines around 103456 liters for the entire project life. Diesel will be brought from nearby diesel pumps. No power is required for the project. Lightings on the night is taken from nearby electric poles after obtaining permission from concerned authorities.

For Gravel:

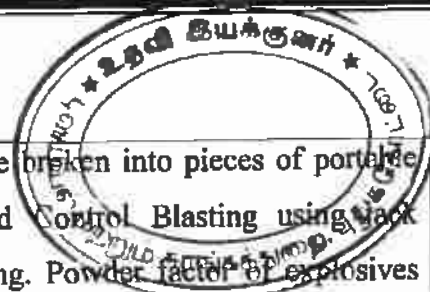
Per hour excavator will consume = 10 liters / hour
Per hour excavator will excavate = 60m³ of Gravel
For 17278m³ = 17278/ 60 = 288 hours
Diesel consumption 288 working hours = 288 x 10 liters
Total diesel consumption = **2880 liters of HSD will be utilized for Gravel.**

For Rough stone:

Per hour excavator will consume = 16 liters / hour
Per hour excavator will excavate = 20m³ of rough stone
For 125720m³ = 125720 / 20 = 6286 hours
Diesel consume 6286 working hours = 6286 hours x 16 liters
Total diesel consumption = **100576 liters of HSD will be utilized for Rough stone**

Total diesel consumption is around = 103456 liters of HSD for the entire period of life.

7.0 BLASTING:



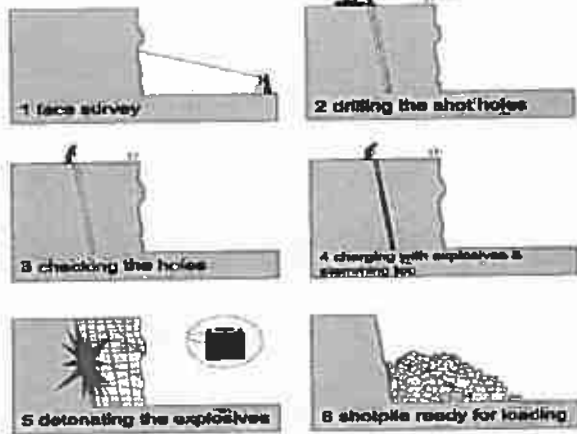
7.1 Proposed Control Blasting Pattern :

The massive formation shall be broken into pieces of portable size by drilling and Proposed Control 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.

Proposed Control Blasting parameters are as follows.

Diameter of the hole	: 32-36 mm
Spacing	: 60 Cms
Depth	: 1 to 1.5m
Charge / Hole	: D.Cord with water or 70 gms of gun powder or Gelatine.
Pattern of hole	: Zig Zag
Inclination of hole	: 70° from the horizontal.
Quantity of rock broken	: 0.45 MT x 2.6 = 1.17 MT
Control Blasting efficiency @90%	: 1.17 x 90% = 1.05MT / hole
Charge per hole	: 140 gms of 25mm dia cartridge
Quantity of rock broken per day	: 83.81m ³ .

ROCK BLASTING



7.2 Types of Explosives :

Following explosives are recommended for efficient blasting with safe practice.

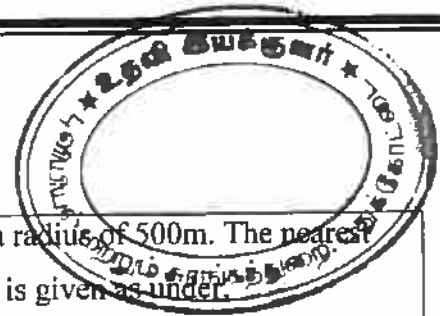
S. No	Description	Class / Division	Type	Size
1.	Slurry	Class - 3	Nitro Compound	25 x 200
2.	Detonators	Class - 3	Ordinary and elec (OD & ED)	6.5 x 32
3.	Safety fuse	Class - 6	Blue sump fuse coils of 10mts each	

7.3	Measures proposed to minimize ground vibration due to blasting	:	<p>The following steps are being adopted to control ground vibration due to blasting.</p> <ol style="list-style-type: none"> 1. The minimum recommended delay time of 8ms was introduced to minimize ground vibration to avoid constructive interference of blast vibration waves and hence its impact or amplitude is less. 2. Use of Ammonium nitrate fuel oil mixture for shot holes is avoided because which cause high fly of rocks in view critical diameter problem. Only high strength explosives like slurry are used in the form of cartridge. 3. Charge per hole will exceed the powder factor designed for each hole based on the quantum of blasting, strength of rocks, fracture pattern etc.
7.4	Storage of Explosives and safety measures to be taken while blasting.	:	<ol style="list-style-type: none"> 1. An authorized explosive agency is engaged to carry out blasting. 2. The blasting time in a day is between 5 PM to 6 PM. 3. First Aid Box is kept ready at all the time. 4. Necessary precautionary announcement is being carried out before the blasting operation.

8.0 MINE DRAINAGE:

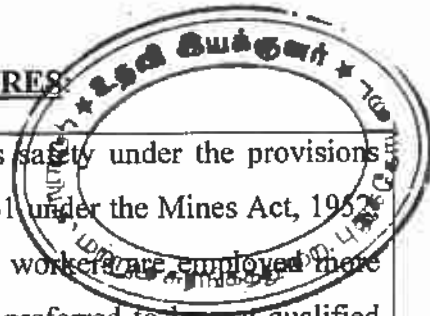
8.1	Depth of Water table	:	<p>The ground water table is reported as 57m below ground level in nearby open wells and bore wells of this area. Mining depth taken as 33m. Now, proposed quarry depth is above the water table. Hence, quarrying may not affect the ground water.</p>
8.2	Arrangement and Places where the mine water is finally proposed to be discharged	:	<p>The ground water may not rise immediately in this type of mining. However, the rain water percolation and collection of water from the seepage shall be less than 300 lpm and it shall be pumped about periodically by a stand by diesel powered Centrifugal pump motivated with 7.5 H.P. Motor. The quality of water is potable and it is not contaminated with any hazardous things.</p>

9.0 OTHER PERMANENT STRUCTURES:



9.1	Habitations / Village	:	<p>There are no villages within a radius of 500m. The nearest habitations with the population is given as under.</p> <table border="1"> <thead> <tr> <th>Direction</th> <th>Village</th> <th>Distance in kms</th> <th>Population</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>Sathiyamangalam</td> <td>4.0kms</td> <td>350</td> </tr> <tr> <td>East</td> <td>Muthudaiyanpatti</td> <td>2.0Kms</td> <td>260</td> </tr> <tr> <td>South</td> <td>Vagaipatti</td> <td>1.0Kms</td> <td>150</td> </tr> <tr> <td>West</td> <td>Madiyanallur</td> <td>1.3Kms</td> <td>280</td> </tr> </tbody> </table>	Direction	Village	Distance in kms	Population	North	Sathiyamangalam	4.0kms	350	East	Muthudaiyanpatti	2.0Kms	260	South	Vagaipatti	1.0Kms	150	West	Madiyanallur	1.3Kms	280
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9.2	Power lines (HT/LT)	:	There is no Power line is located in the lease area.																				
9.3	Water bodies (River, Pond, Lake, Odai, Channel etc)	:	There are no other Water bodies (River, Pond, Lake, etc) is located in this area.																				
9.4	Archeological / Historical Monuments	:	There are no Archeological / Historical Monuments within a radius of 500m.																				
9.5	Road (NH, SH, Village Road etc)	:	<p>Pudukkottai – Muthudaiyanpatti = 8.0 Kms.</p> <p>Quarry site is located in Western side at a distance of 2.0 kms from Muthudaiyanpatti village.</p>																				
9.6	Places of Worship	:	There are no Places of Worship within a radius of 500m.																				
9.7	Reserved Forest / Forest / Social Forest / Wild Life Sanctuary etc.,	:	There are no Reserved Forest/ Forest/ Social Forest within a radius of 10km. There are no Wild Life Sanctuary within a radius of 10km.																				
9.8	Any Interstate Border, Protected areas under the Wild Life (Protection) Act, 1972, Critically Polluted Areas as Identified by Central Pollution Control Board and Notified Eco sensitive areas	:	There are No inter State border within a radius of 10 kms.																				
9.9	Any Other Structures	:	Nil.																				

10.0 EMPLOYMENT POTENTIAL & WELFARE MEASURES



10.1	Employment Potential (Management & Supervisory personal)	<p>1. As per Mines safety under the provisions of MMR, 1961 under the Mines Act, 1952 whenever the workers are employed more than 10, it is preferred to have a qualified Mining Mate to keep all the production workers directly under his control and supervision.</p> <p>2. The following man power is proposed for quarrying Rough Stone & Gravel during the five years period to achieve the proposed production and to comply the provisions of the Government norms</p> <table border="1"> <tr> <td>1.</td> <td>Skilled</td> <td>Operator</td> <td>2 No.</td> </tr> <tr> <td></td> <td></td> <td>Mechanic</td> <td>1 No.</td> </tr> <tr> <td></td> <td></td> <td>Blaster/Mat</td> <td>1 No.</td> </tr> <tr> <td>2.</td> <td>Semi – skilled</td> <td>Driver</td> <td>2 Nos</td> </tr> <tr> <td>3.</td> <td>Unskilled</td> <td>Musdoor / Labors</td> <td>7 Nos</td> </tr> <tr> <td></td> <td></td> <td>Cleaners</td> <td>2Nos</td> </tr> <tr> <td></td> <td></td> <td>Office Boy</td> <td>1No</td> </tr> <tr> <td>4.</td> <td>Management & Supervisory staff</td> <td></td> <td>2No.</td> </tr> <tr> <td></td> <td colspan="2">Total =</td> <td>18Nos</td> </tr> </table>	1.	Skilled	Operator	2 No.			Mechanic	1 No.			Blaster/Mat	1 No.	2.	Semi – skilled	Driver	2 Nos	3.	Unskilled	Musdoor / Labors	7 Nos			Cleaners	2Nos			Office Boy	1No	4.	Management & Supervisory staff		2No.		Total =		18Nos
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10.2	Welfare Measures																																					
	a. Drinking Water	<p>Drinking water at the rate of 2Ltrs per person shall be provided as per the Mines Rules, 1960. It is proposed to make a borehole for providing uninterrupted supply of drinking water and other utilities.</p>																																				
	b. Sanitary facilities	<p>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, 1960 separately for males and females. Washing facilities shall also be arranged as per rule (36) of the Mines Rules, 1960.</p>																																				

c.	First Aid Facility	:	<p>Being a small mine First Aid station as per provisions under Rule (44) of the Mines Rules 1960 is provided with facilities as per the third schedule as prescribed. Qualified First Aid personnel should be appointed or nominated to attend emergency first aid treatment.</p>
d.	Labor Health	:	<p>As per Mines Rule, Periodic medical examination has been arranged for occupational health once in a year in addition to attending medical treatment of occupational injuries under the Rule 45 (A), MR, 1960.</p>
e.	Precautionary safety measures to the Laborers	:	<p>Safety provisions like helmet, goggles, safety shoes, Dust mask, Ear muffs etc have to be provided as per the circulars and amendments made for Mine labours under the guidance of DGMS being a mechanized operation.</p> <p>Necessary training will be conducted once in a year to all the employees with the help of qualified and experienced officers to train about the safe and system at quarrying operation.</p>

PART - B

11.0 ENVIRONMENTAL MANAGEMENT PLAN:

11.1	Area Land Use Pattern	:	The applied land use pattern is given as under.			
			SL. NO.	LAND USE	PRESENT AREA (HECT)	AREA IN USE DURING THE QUARRYING PERIOD (HECT)
			1.	Area under Quarrying	0.54.0	1.10.0
			2.	Infrastructure	Nil	0.01.0
			3.	Roads	0.01.0	0.01.0
			4.	Green Belt & Dump	Nil	0.41.5
			5.	Unutilized Area	0.98.5	Nil
				Grand Total =	1.53.5Ha	1.53.5Ha

11.2	Water Regime	: Water table in this area is noticed at a depth of 57m below the surface ground level and presently, the quarrying of Rough Stone & Gravel is proposed up to a depth of 33m. Hence, it will not affect the ground water depletion of this area.																				
11.3	Flora and Fauna	: Except acacia bushes, no other valuable trees are noticed in the Applied Lease area. Further, neither flora of botanical interest nor fauna of zoological interest is noticed in this area.																				
11.4	Climatic conditions	: Generally sub tropical climatic condition prevails throughout the year and this District receives rain both in South west and North east monsoon. The average rainfall is about 800mm to 900mm and the temperature ranges from 18 ^o C during winter and to a maximum of 40 ^o C during the summer.																				
11.5	Human Settlement	: The nearest habitations with the population. <table border="1"> <thead> <tr> <th>Direction</th> <th>Village</th> <th>Distance in Kms</th> <th>Population</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>Sathiyamangalam</td> <td>4.0kms</td> <td>350</td> </tr> <tr> <td>East</td> <td>Muthudaiyanpatti</td> <td>2.0Kms</td> <td>260</td> </tr> <tr> <td>South</td> <td>Vagaipatti</td> <td>1.0Kms</td> <td>150</td> </tr> <tr> <td>West</td> <td>Madiyanallur</td> <td>1.3Kms</td> <td>280</td> </tr> </tbody> </table>	Direction	Village	Distance in Kms	Population	North	Sathiyamangalam	4.0kms	350	East	Muthudaiyanpatti	2.0Kms	260	South	Vagaipatti	1.0Kms	150	West	Madiyanallur	1.3Kms	280
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11.6	Plan for Air, Dust Suppression	: Air or dust expected to be generated from drilling process, hauling roads, places of excavation etc., is being suppressed by periodical wetting of land by water spraying. For the sampling of air, high volume air sampler (Model VFC-PM10) was used (10 meter above and 5 meter away from road) and the particulates were collected on what man GFA glass fiber filters dried in a hot air oven at 105 ^o C for 1hr and weighed. The average flow rate was about 1.1 cubic meters.																				
11.7	Plan for Noise Control	: Quarrying of Rough Stone will be carried out by drilling and blasting by using low power explosives, and hence, noise is very minimum.																				

		<p>However, periodical noise level monitoring will be carried out to check the noise level in and around the quarry site. In order to assess the extent of noise pollution due to vehicular traffic different zones viz., Silence zone, Residential Zone, Commercial zone, Traffic signals and Industrial zones were identified in urban and suburban areas of Pudukkottai. Adequate number of observations were made in all the selected sites by using the sound level meter (LT Lutron SL-4001).</p>
11.8	Environmental Impact Assessment Statement Describing Impact on mining on the next Five Years.	<p>Factors to be considered for EIA are,</p> <ol style="list-style-type: none"> 1. Dust generation, 2. Land degradation 3. Stabilization and vegetation of dumps 4. Adverse effect on water regime 5. Socio economic benefits arising out of Mining. 6. Noise and Vibration.
	a. Dust	<p>Dust is expected to be generated from drilling, hauling roads; place of excavation etc and it will be suppressed by periodical wetting of lands.</p>
	b. Land degradation	<p>Land degradation is by means of cutting the trees and removal of fertile soil does not arise. Proposed usage of land for the five years shall be less than 1.53.5Ha. Afforestation will be started during the first year of mining operation itself.</p>
	c. Stabilization and vegetation of dumps	<p>The soil will be spread over the non-active dumps along the slope and edges to plant tree saplings to form vegetal cover over the dumps. Such vegetal cover will prevent erosion of dumps during rainy seasons.</p>
	d. Socio economic benefits arising out of mining	<ol style="list-style-type: none"> 1. To provide Employment opportunities of the nearby villagers. 2. For the cultural development of the nearby villagers.

	e. Noise and vibration	:	Since, no deep hole blasting is proposed with small dia explosives are used for breaking the hard rock and boulders, the noise and vibration is very minimum and are within the permissible limits.		
11.9	Proposal for Waste Management	:	Weathered rock will be dumped in the southwestern side boundary barrier of the lease area <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Proposed Weathered Rock Dump</td> </tr> <tr> <td style="text-align: center;">417.6 (L) X 7.5m(W) X 2.46m(H) = 7705m³</td> </tr> </table>	Proposed Weathered Rock Dump	417.6 (L) X 7.5m(W) X 2.46m(H) = 7705m ³
Proposed Weathered Rock Dump					
417.6 (L) X 7.5m(W) X 2.46m(H) = 7705m ³					
11.10	Proposal of Reclamation of Land affected during mining activities and at the end of mining.	:	The present mining is proposed to a depth of 33m. The mined out area will be fenced on top of open cast working with S1 fencing. Low lying areas with water logging shall be used for fish culture. No immediate proposals for closure of pit as the Rough Stone & Gravel persist still at deeper level.		
11.11	Program for Afforestation	:	Trees like Neem, Punga etc were planted along the lease boundary and avenues as well as over non active dumps at a rate 40 trees per year with an interval of 5m. The rate of survival expected to be 70% in this area.		
11.12	Proposed Financial Estimate / Budget for (EMP) Environment Management	:			
	Fixed Asset Cost:				
	1. Land Cost	:	Rs.14,00,000/- (Amount for Patta Land)		
	2. Labour Shed	:	Rs. 1,20,000/-		
	3. Sanitary Facility	:	Rs. 80,000/-		
	4. Fencing cost	:	Rs. 70,000/-		
	Total=	:	Rs.16,70,000/-		
	Operational Cost:				
	Machinery cost	:	Rs.30,00,000/-		

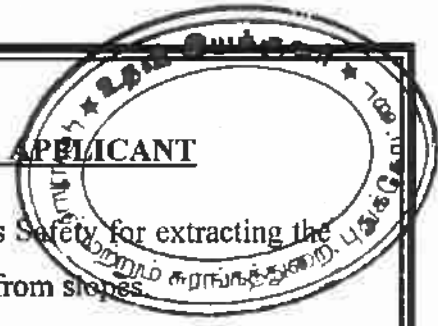
EMP Cost:		
1. Drinking water facility	:	Rs. 1,10,000/-
2. Safety kits	:	Rs. 50,000/-
3. Water sprinkling	:	Rs. 60,000/-
4. Afforestation	:	Rs. 25,000/-
5. Water quality test	:	Rs. 30,000/-
6. Air quality test	:	Rs. 30,000/-
7. Noise/vibration test	:	Rs. 30,000/-
Total=	:	Rs. 3,35,000/-
Total Project Cost	:	Rs.50,05,000/-



12.0 MINE CLOSURE PLAN:

12.1	Steps proposed for phased restoration, reclamation of already mined out area.	:	The present mining is proposed to a depth of 33m. The mined out area will be fenced on top of open cast working with S1 fencing to arrest the entry of cattle's and public in to the quarry site.
12.2	Measures to be under taken on mine closure as per Act & Rules	:	Measures will be taken as per the Acts and Rules. The quarried pit will be fenced by using Barbed wire fencing. Green belt development at the rate of 40 trees per year will be proposed.
12.3	Mitigation measures to be undertaken for safety and restoration/ reclamation of the already mined out area	:	The pits were already opened by earlier Quarrying. Hence, the quarrying operation will be continued in the existing pit after making proper benches within the lease Area.


13.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

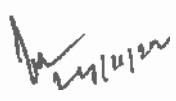


- (i) Permission will be obtained from the Director of Mines Safety for extracting the Rough Stone & Gravel from the Boundary barriers and from slopes.
- (ii) Care and precautionary measures will be taken for the safety of workers as per Rules and Acts.
- (iii) The applicant will endeavor every attempt to quarry the Rough Stone & Gravel economically without any wastage and to improve the environment and ecology.
- (iv) Accordingly, Mining Plan is prepared under Rule 41 & 42 as amended in Tamil Nadu Minor Mineral Concession Rules, 1959 by incorporating the conditions imposed in the precise area communication letter and by incorporating all the details proposed in the letter to obtain environment clearance from State Environment Impact Assessment Authority.
- (v) In the above circumstances, this Mining Plan is prepared for approval of Applied Rough Stone & Gravel Quarry for a period of Five Years.


S. ANASEKAR, M.Sc. (Geo)
Qualified Person

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: 368/22(L&M) Dated: 24-11-2022


ASSISTANT DIRECTOR
GEOLOGY AND MINING
PUDUKKOTTAI



அனுப்புநர்

திரு.கி.விஜயராசுவன், எம்.எஸ்.ஸி,
உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
புதுக்கோட்டை.

பெறுநர்

திரு.நல்லையா
த/பெ.மாரிக்கோணார்
எண்.8668/4, கோட்டாட்சியல் எஸ்டேட்,
திருவப்பூர்,
புதுக்கோட்டை



ந.க.எண்.368/2022(ப.ம.ச) நாள் 28.10.2022

அய்யா,

பொருள் : கனிமங்கள் மற்றும் சுரங்கங்கள் - புதுக்கோட்டை மாவட்டம் -
குளத்தூர் வட்டம் - மேலூர் கிராமம் - பட்டா புல எண்கள்.210/7C1 &
210/8A1B-ன் மொத்தப்பரப்பு 1.53.5 ஹெக்டேரில் கல்குவாரி குத்தகை
உரிமம் கோரி திரு.ம.நல்லையா த/பெ.மாரிக்கோணார் என்பவர்
விண்ணப்பம் செய்தது - வரைவு சுரங்கத்திட்டம் சமர்ப்பிக்க
அறிவுறுத்துதல் - தொடர்பாக தொடர்பாக.

- பார்வை :
1. திரு.மா.நல்லையா த/பெ.மாரிக்கோணார் என்பவரின் விண்ணப்பம்
நாள்: 19.05.2022.
 2. வருவாய் கோட்டாட்சியர், இலப்பூர், அவர்களின் கடிதம்
ந.க.3937/2022/அ5, நாள்: 30.08.2022.
 3. உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, புதுக்கோட்டை
அவர்களின் அறிக்கை நாள்: 20.10.2022.
 4. மற்றும் தொடர்புடைய ஆவணங்கள்.
-

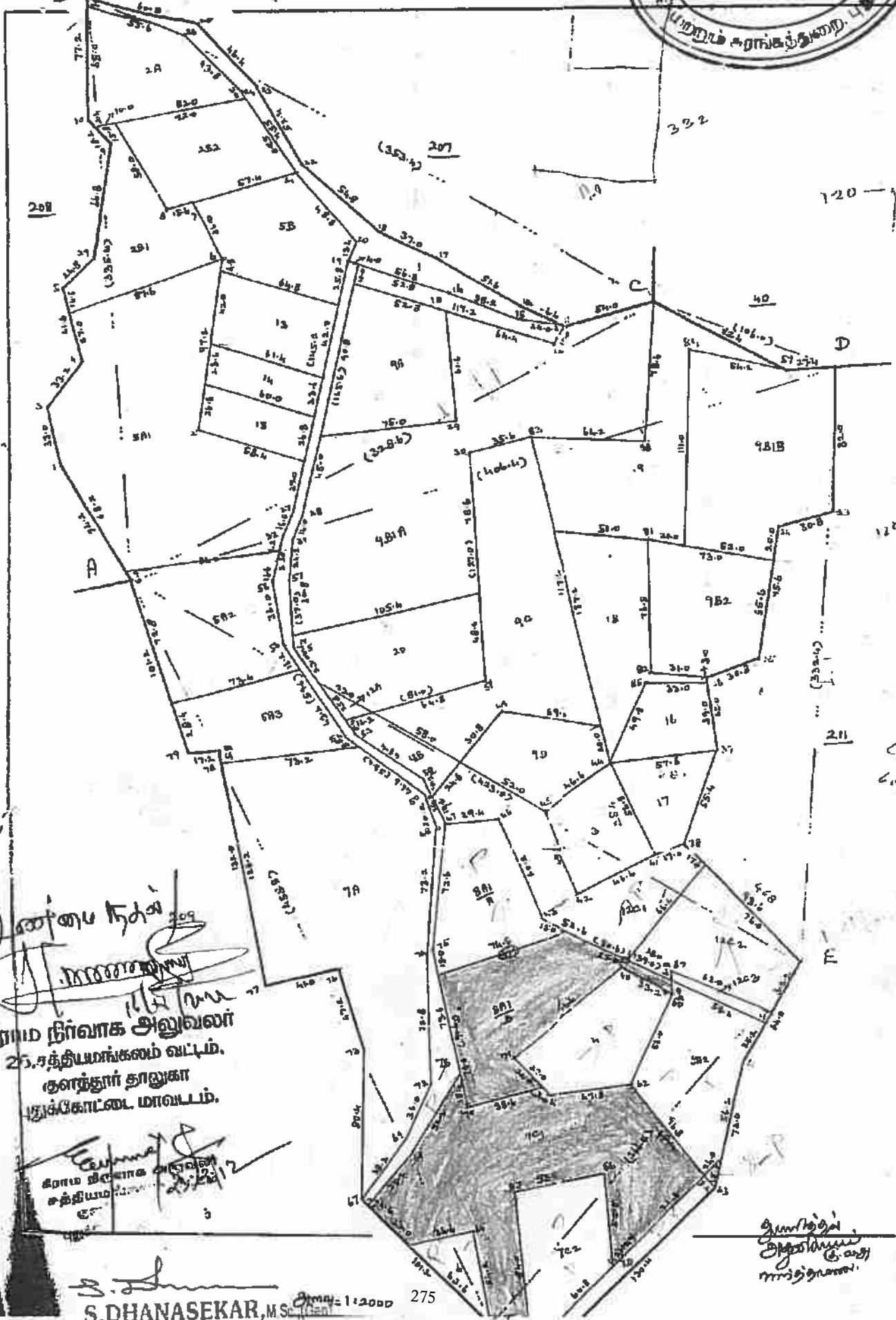
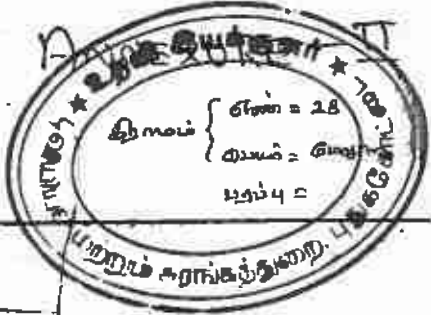
புதுக்கோட்டை மாவட்டம், குளத்தூர் வட்டம், நார்த்தாமலை சரகம், மேலூர் கிராமம்,
பட்டா புல எண்கள்.210/7C1 & 210/8A1B-ஆகியவற்றின் மொத்தப்பரப்பு 1.53.5
ஹெக்டேரில் கல்குவாரி குத்தகை உரிமம் கோரி திரு.மா.நல்லையா த/பெ.மாரிக்கோணார்
என்பவர் அனுமதி கோரி விண்ணப்பம் செய்துள்ளார்.

பார்வை 2 மற்றும் 3ல் கண்டுள்ளவாறு வருவாய் கோட்டாட்சியர், இலப்பூர், உதவி
புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, புதுக்கோட்டை மற்றும் தனிவருவாய்
ஆய்வாளர் (கனிமம்) ஆகியோர் புலத்தணிக்கை மேற்கொண்டு குளத்தூர் வட்டம், மேலூர்
கிராமம் பட்டா புல எண்கள். 210/7C1 (0.93.0) & 210/8A1B(0.60.5) ஆகியவற்றின்
மொத்தம் 1.53.5 ஹெக்டேரில் கல் மற்றும் கிராவல் குத்தகை உரிமம் வழங்க அனுமதி
வழங்கலாம் என பரிந்துரை செய்துள்ளனர்.

எனவே, திரு.மா.நல்லையா த/பெ.மாரிக்கோணார் என்பவருக்கு குளத்தூர் வட்டம்,
மேலூர் கிராமம் பட்டா புல எண்கள்.210/7C1 (0.93.0) & 210/8A1B(0.60.5)
ஆகியவற்றின் மொத்தம் 1.53.5 ஹெக்டேர் பரப்பினை 1959-ஆம் 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.

மாவட்டம்: புதுக்கோட்டை
 வட்டம்: குளத்தூர்

401600 = 210



சுயேச்சை நுட்பம்
 சான்றிதழ்
 அறியும் நிர்வாக அலுவலர்
 25, சத்தியமங்கலம் வீட்டம்,
 குளத்தூர் தாலுகா
 புதுக்கோட்டை மாவட்டம்.

S. DHANASEKAR, M.S.
 Qualified Person
 275

சுயேச்சை
 அலுவலர்
 ம. சி. சிவசுப்பிரமணியன்



120
NARAI KANNAN

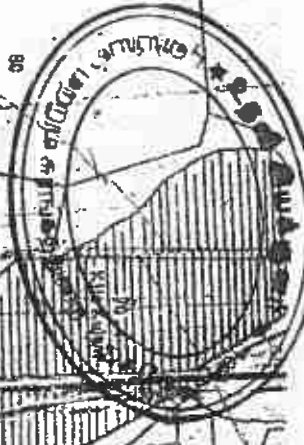
PANAMPATTI
Kudavattayan Kanthi

Panampatti M.R.

PANAMPATTI

MELUR

S. DHANASEKAR, M.S.I. (1900)
Overlaid Person





தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : புதுக்கோட்டை

வட்டம் : குளத்தூர்

வருவாய் கிராமம் : மேலூர்

பட்டா எண் : 1108

உரிமையாளர்கள் பெயர்

1. மாரிகோனார்

மகன்

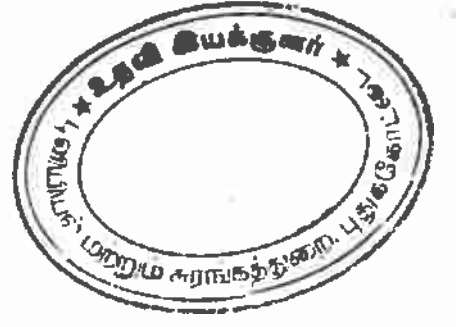
நல்லையா

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
210	6	0 - 9.50	0.35	--	--	--	--	PTR942/06--- - 13-07-2006
210	7C1	0 - 93.00	3.45	--	--	--	--	---- 04-08- 2006
210	8A1B	0 - 60.50	2.24	--	--	--	--	---- 04-08- 2006
		1 - 63.00	6.04					

குறிப்பு 2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 22/11/028/01108/10890 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 10-11-2022 அன்று 10:53:52 AM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



அ-பதிவேடு விவரங்கள்

மாவட்டம் : புதுக்கோட்டை

வட்டம் : குளத்தூர்

கிராமம் : மேலூர்

1. புல எண்	210	9. மண் வயனமும் ரகமும் 7 - 2
2. உட்பிரிவு எண்	8A1B	10. மண் தரம்
3. பழைய புல உட்பிரிவு எண்	210-8	11. தீர்வை (ரூ - ரெறு)
4. பகுதி	P	12. பரப்பு (ரெறுக்கடெர் - ஏர்)0 - 60.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - ரெறு)
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்
7. பாசன ஆதாரம்	-	15. குறிப்பு
8. இரு போகமா	-	16. பெயர்
		1.நல்லையா

குறிப்பு 1:

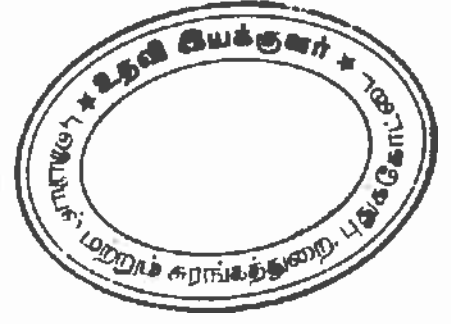


1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டன. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 20890 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.



அ-பதிவேடு விவரங்கள்



மாவட்டம் : புதுக்கோட்டை

வட்டம் : குளத்தூர்

கிராமம் : மேலூர்


1. புல எண்	210	9. மண் வயனமும் ரகமும் 7 - 2	
2. உட்பிரிவு எண்	7C1	10. மண் தரம்	4
3. பழைய புல உட்பிரிவு எண்	210-7	11. தீர்வை (ரூ - ரெற)	3.71
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)0 - 93.00	
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - ரெற)	3.45
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1108
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இடு போகமா	-	16. பெயர்	1.நல்லையா

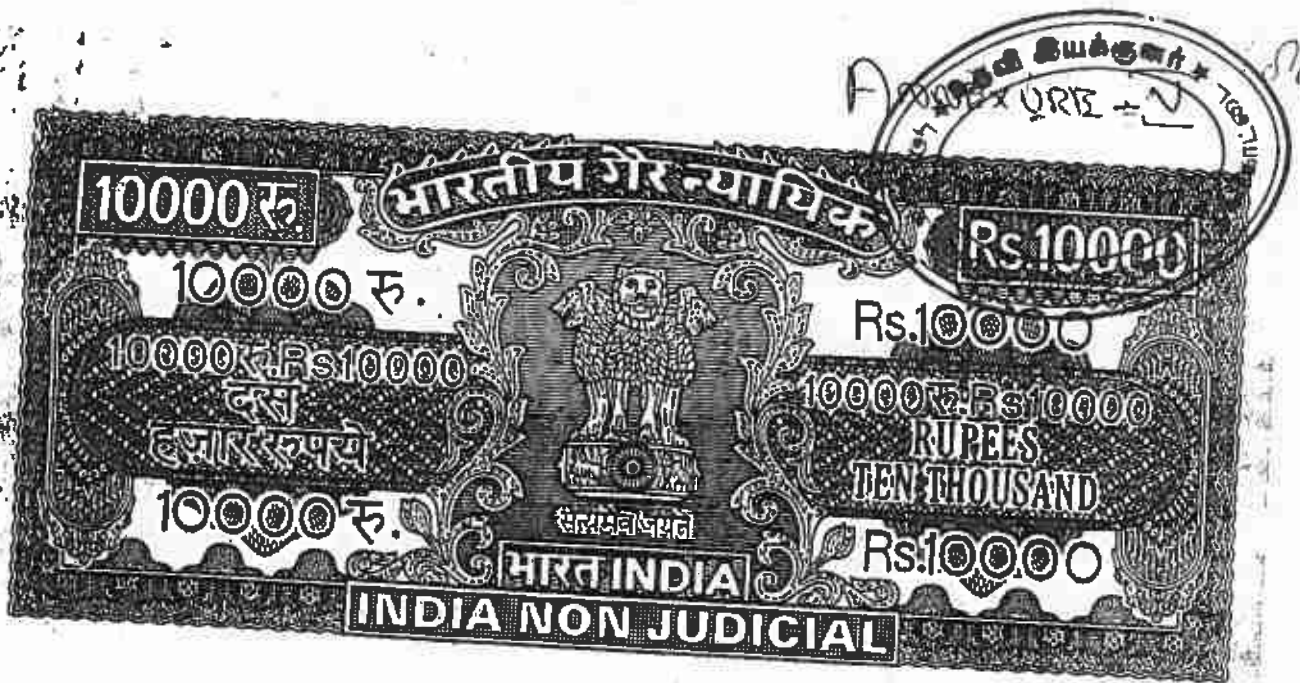
குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 20890 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.


S. S. KAR, M.Sc., (Gao)
Quarantine Person



உறுதிப்படுத்தப்பட்ட
 நாள் : 9955
 2006 வாங்குபவர் பெயர் : 23. 9. 2006
 இடம் : 17. தனித்தனியாக
 மதிப்பு : 10000/-
 வெட்டியதற்கான

05AA 922766
 N. முகுதன்,
 முத்திரைத்தாள் விற்பனையாளர்,
 உரிமம் எண்: 0/07,
 பொது அலுவலக வளாகம்,
 புதுக்கோட்டை

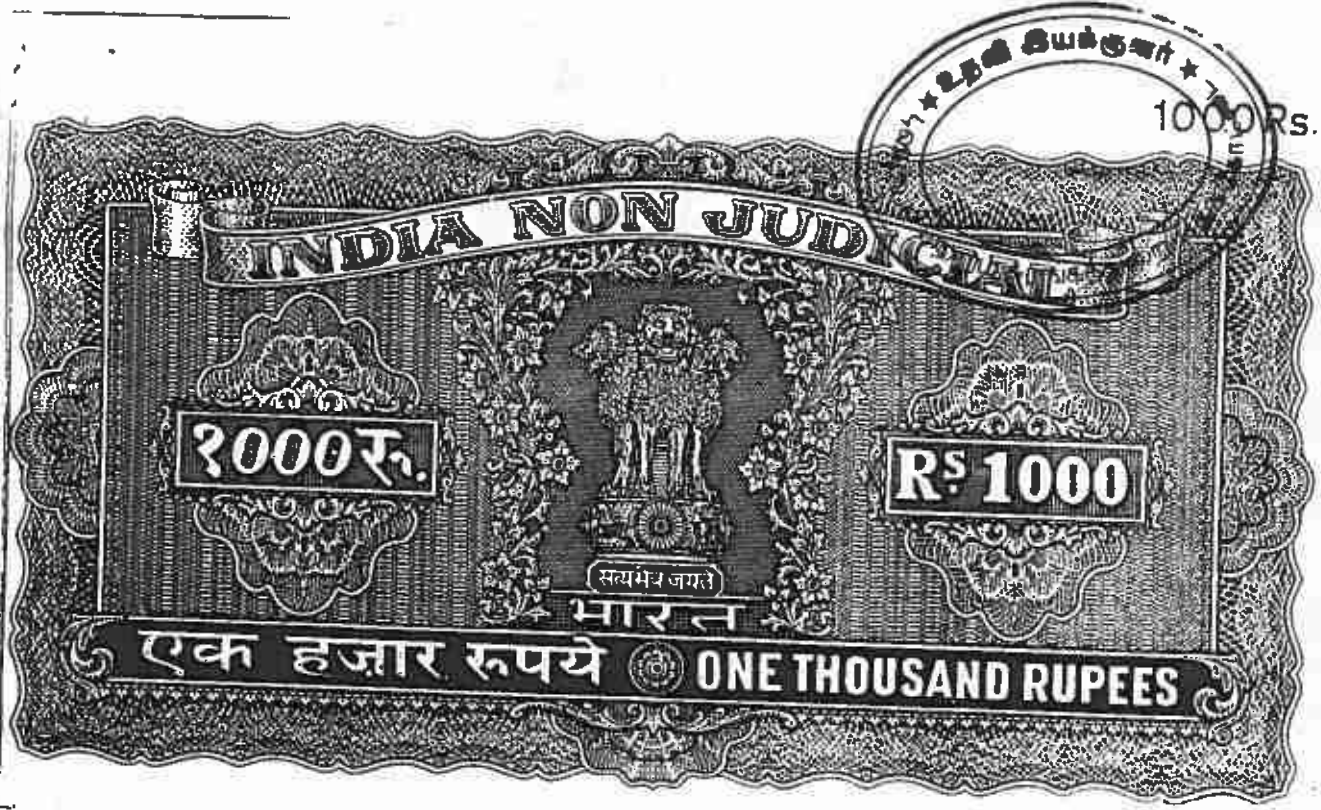
சிறப்பம் ரூ 2,20,000/- மதிப்பு ரூ 2,21,100/-

2006-ம் ஆண்டு பிப்ரவரி மாதம் 23-ம்
 தேதி தேனாடி தாள்,
 புதுக்கோட்டை லாடெட், துவாங்கிய தாலுகா,
 வயாக்கித்தலங்காடு-வட்டம், வெட்டியதற்கான சிறப்பம்
 மாண்புமிகு காவலர் அவர்களின் சிமார் விவரம்
 பக்கவாது அவர்களுக்கு,

சிவசாமிநாத லாடெட், காவலர்க்கு தாலுகா,
 வெட்டியதற்கான சிறப்பம், வெட்டியதற்கான
 தேதி சிமார் காவலர் கத்திரி ராஜ்: 151
 துவாங்கியவர்கள் கிணங்கியில் வசிக்கும்
 அண்ணாமலைச் செட்டியாடு அவர்களின் சிமார்
 வயாக்கித்தலங்காடு அவர்களுக்கு செட்டியாடு சிறப்பம்
 தாள் தாள் தேதியில் வெட்டியதற்கான சிறப்பம்
 பக்கவாது சிவ சாமிநாத சிவசாமிநாத சிறப்பம்

சிறப்பம் வெட்டிய சிமார்
 M. Jhr

சிறப்பம் வெட்டியதற்கான
 சி. சி. சி. சிமார் செட்டியாடு



இலிருந்து எண் : 9957
 நாள் : 29. 2. 2006
 வாங்குபவர் பெயர் : M. சின்னையா
 வகை : அடலாக்கை
 தொகை : 1000/-

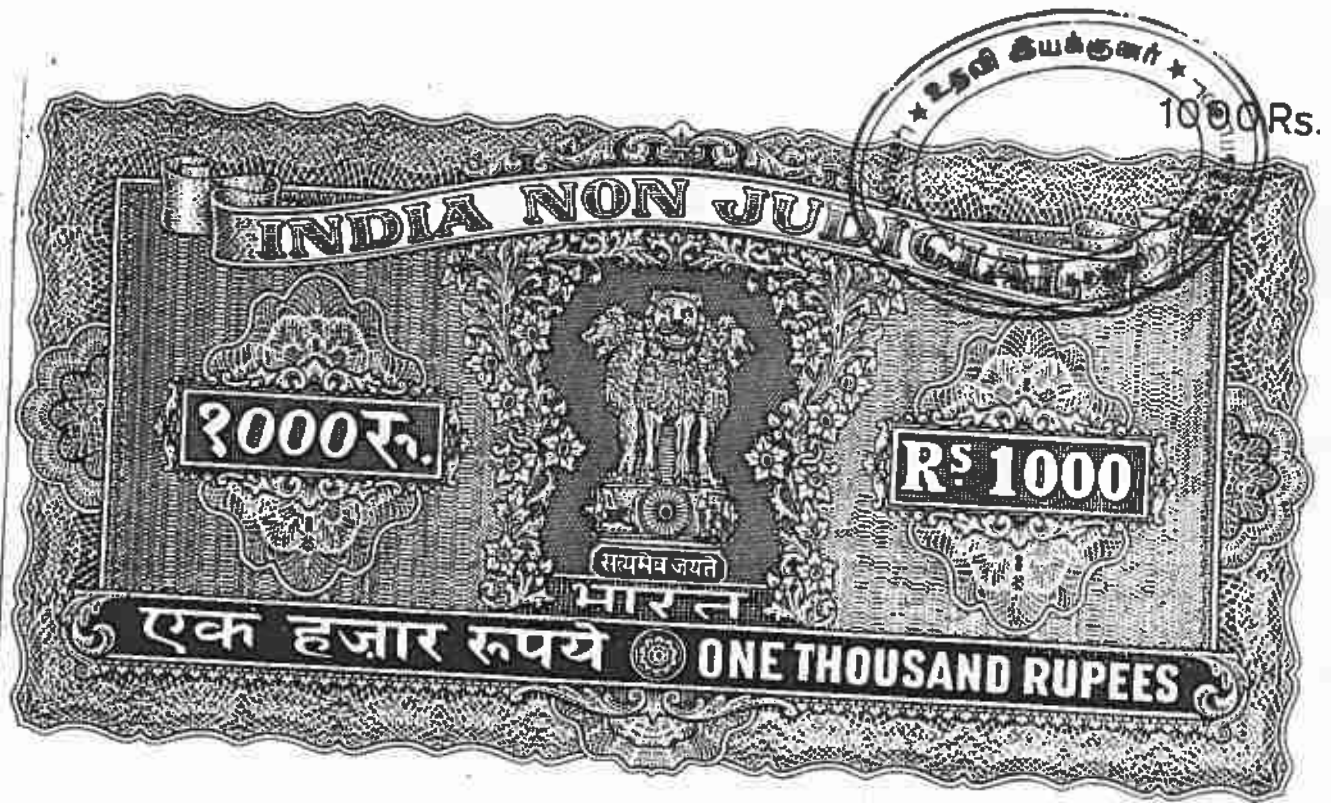
N. முத்து
 முத்திரைத்தாள் நிற்பனையாளர்.
 உரியம் எண்: 0/97,
 பொது அலுவலக வளாகம்,
 புதுக்கோட்டை.

தரன்-3

திருவிடைமருதூர் அகலாக்கைத் தரன் தரன்
 வசம் செய்யக்கூடிய வட்டில்.
 தரன் சித்தி திருவிடைமருதூர் தரன் வசம்
 வட்டிலாக்கைத் தரன் சித்தி திருவிடைமருதூர்
 பாக்கியத்தின் தரன் அகலாக்கைத் தரன்
 வட்டிலாக்கைத் தரன்.
 திருவிடைமருதூர் அகலாக்கைத் தரன் வட்டிலாக்கைத் தரன்
 யாவதான தரன் வட்டிலாக்கைத் தரன் வட்டிலாக்கைத் தரன்.
 அகலாக்கைத் தரன் தரன் வட்டிலாக்கைத் தரன் வட்டிலாக்கைத் தரன்
 தரன் பாக்கியத்தின் தரன் வட்டிலாக்கைத் தரன்
 வட்டிலாக்கைத் தரன் வட்டிலாக்கைத் தரன் வட்டிலாக்கைத் தரன்
 வட்டிலாக்கைத் தரன் வட்டிலாக்கைத் தரன் வட்டிலாக்கைத் தரன்

திருவிடைமருதூர் அகலாக்கைத் தரன் — திருவிடைமருதூர் அகலாக்கைத் தரன்.
 சி. அ. சி. அ. சி. அகலாக்கைத் தரன் வட்டிலாக்கைத் தரன்.

M. PL



தமிழ்நாடு எண் : 9958
 4 நாள் : 23.2.2006
 வாங்குபவர் பெயர் : Mr. நல்லையா
 ஊர் : மதுரை
 தொகை : 1000/-

N. சண்முகன்,
 முத்திரைத்தாள் நிற்பவையானார்,
 உரிமம் எண்: 0/07,
 பொது அலுவலக வளாகம்,
 புதுக்கோட்டை.

சுட்டி - 4 :

செலுத்தப்படும் :

புதுக்கோட்டை பதிவு மாவட்டம்,
 ஜனநாயகப் பதிவு துறை மாவட்டம்,
 சிவசிகரம் தாலுகா - சிவசிகரம் கிராமம்.

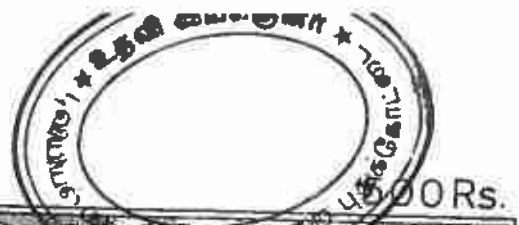
வ- எண்:	சுட்டி	பதிவு சுட்டி	சுட்டி எண்	வாங்குபவர் மதிப்பு	மதிப்பு
1.	210-6	410-6	410-6	0.09.5	0.23
2.	210-7C	210-7C	410-7C	0.93.0	2.30
3.	210-8A	210-8A1	410-8A1	0.60.5	1.49
			மொத்தம்	1.63.0	4.02

சிறப்பில் வாங்கியவர்

M. S. S.

சிறப்பில் வாங்கியவர்

சுட்டி - 284

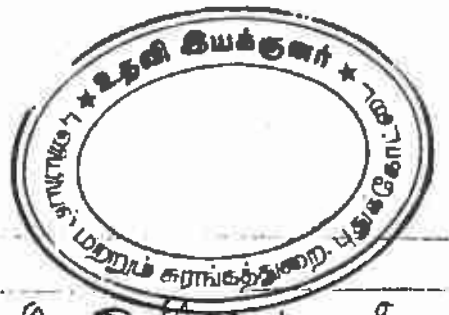


9959
 23.8.2006
 Mr. இரண்டாயர்
 வைபலிணிக்கு
 500/-

N. முத்துசன்,
 முத்திரைத்தாள் வீற்புளையாள்,
 உரிமம் எண்: 0/97,
 பொது அலுவலக வளாகம்,
 புதுச்சேரி.

சான்றி-5.

சிவசுப்பிர சார்பு ராணி:
 கிடைத்திருக்கிற பக்கத்தில் உட்பதவர்கள் முறைபடி
 சூதில் - கிடைத்திருக்கிற ரசனிடம்,
 ரூ-சி-யல் கிடைத்திருக்கிற ரசனிடம் இப்பகுதியில்,
 ரூ-சி-யல் கிடைத்திருக்கிற ரசனிடம் இப்பகுதியில்
 ரசனிடம்,
 சூதில் கிடைத்திருக்கிற ரூ 4.02-ம் கிடைத்திருக்கிற
 சூதில் கிடைத்திருக்கிற ரூ 4.02-ம் கிடைத்திருக்கிற
 சூதில் கிடைத்திருக்கிற ரசனிடம்:
 ரசனிடம் கிடைத்திருக்கிற,
 ரசனிடம் கிடைத்திருக்கிற ரசனிடம் கிடைத்திருக்கிற
 ரசனிடம், சூதில் கிடைத்திருக்கிற ரசனிடம்,
 ரசனிடம் கிடைத்திருக்கிற - கிடைத்திருக்கிற ரசனிடம்,
 A. பகுதியில் கிடைத்திருக்கிற ரசனிடம் கிடைத்திருக்கிற



பக்கம் 6

கீழ்க் குறிப்பிட்ட சொந்தக்காரர் பங்கிட்டுள்ள சொத்துக்கள்
சொந்தக்காரர் சொந்தப் பங்கிட்டுள்ள சொத்துக்கள்.
கிடைக்கக் கூடிய ரூ. 22,100/- ஆகும்.

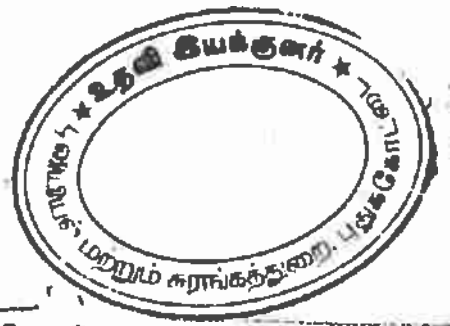
கிடைக்கக் கூடிய சொத்துக்கள் — கிடைக்கக் கூடிய சொத்துக்கள்
M. [Signature]

பங்கிட்டுள்ள:

1. A. [Signature] (A. LAKSHMIANAN) S/O ANNAMALAI, E. 75 II CROSS ST.
Thiruvalluvar nagar, Thiruvannamur. Chi-41
2. [Signature] (A. CHIDAMBARAM) S/O. ANNAMALAI CHETTIAR, 2A ORCHID
ARCOT. RD., VIRUGAMBARKKAM, CHENNAI-92

கீழ்க் குறிப்பிட்ட சொத்துக்கள். [Signature]

M.C. [Signature]
B.A., P.B. D. Co. op.
மாநில ஆய்வு அமைச்சர்
பிரிவு எண். A 29/PU/93
50, மேட்டுக்குடி தெரு.
அண்ணவரம்பல் - 622 101
பேரண். 30300



தரம் - 7

1965-ம் ஆண்டு கிடைத்த கிடைத்த தொகை
 கீழ்க்கண்ட கட்டுப்பாட்டு அட்டை 3(1) க்கீழ் கீழ்க்கண்ட

கட்டிடம்: கட்டிடம்.

அ- எண்:	கட்டிட	தொகை ரூ. ரூ.	மொத்த ரூ. ரூ.
1.	210-6	4 மீட்டர் 0.23	12650 . 00
2.	210-7c	4 மீட்டர் 2.30	126500 . 00
3.	210-8A	4 மீட்டர் 1.49	81950 . 00
		மொத்தம் 4.02	2,21,100 . 00

கட்டிடம் கட்டிடம் - கட்டிடம் கட்டிடம்

M. J. K.

கட்டிடம் கட்டிடம் கட்டிடம் கட்டிடம்

S. Jhanasekar
 S. DHANASEKAR, M.Sc. (Gen)
 Qualified Person



भारत सरकार
GOVERNMENT OF INDIA



பெயர்: மலையாள மர்க்கனார்
Mallayath Marikonaar
பிறப்பு நாள்: DOB: 26/01/1961
பாலினம்: MALE



2223 1776 4912

தமிழ்நாடு அரசு, திருச்சி, தமிழ்நாடு அரசு (அடையாள அட்டை).



भारतीय विशिष्ट पहचान प्राधिकरण

INDIAN IDENTIFICATION AUTHORITY

Address:

மலையாள மர்க்கனார்
365/104 - 3-ர்ப்பு வீடு
சென்னை - 600015
மதுரைகிராமம்
மலையாள மர்க்கனார்
மதுரை - 622002

Address:

W/O NATHAN 55884 CHOLA
REAL ESTATE THIRUVARUR
PUNJIKOTTA PUNJIKOTTA
Tamil Nadu - 622002

9596 3945 4524

MERA AADHAAR, MERI PEHACHAN

S. DIANASEKAR, M.Sc. (Geo)
Qualified Person

Reg. No 01BBB1005
Col Code 106 / 106



அறிவியல் புலம்

FACULTY OF SCIENCE

பெரியார் பல்கலைக்கழக ஆட்சிக்குழு 2003 ஆம் ஆண்டு ஏப்ரல் மாதம் நடந்த பயன்பாட்டு புலவியமைப்பியல் தேர்வில் S தனசேகர் என்பவர் முதல் வகுப்பில் தேர்ச்சி பெற்றார் என்று தக்க தேர்வாளர்கள் சான்றளித்தபடி அறிவியல் நிறைஞர் என்னும் பட்டத்தை அவருக்குப் பல்கலைக்கழக இலச்சிணையுடன் வழங்குகிறது.

The Syndicate of the Periyar University hereby makes known that **DHANASEKAR S** *has been admitted to the* **DEGREE OF MASTER OF SCIENCE in APPLIED GEOLOGY**

he/she having been certified by duly appointed Examiners to be qualified to receive the same and was placed in the **FIRST CLASS** *at the Examination held in* **APRIL 2003**

Given under the seal of this University

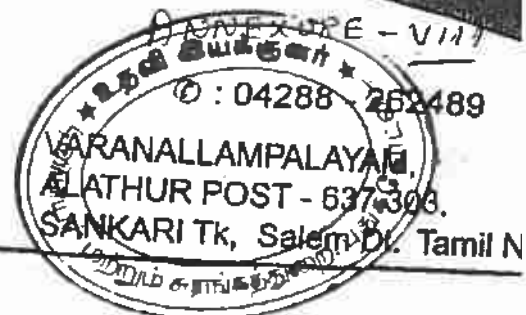
நாள்
Dated 15-09-2004
சேலம் 636011, தமிழ்நாடு, இந்தியா.
Salem 636011, TamilNadu, India.


பதிவாளர்
Registrar


துணைவேந்தர்
Vice-Chancellor


S. DHANASEKAR, M.Sc. (Geo)
Qualified Person

PRITHVI MINERALS,




Date :27.12.08.

TO WHOMSOEVER IT MAY CONCERN

This is to certify that SHRI S. DHANASEKAR, S/o. Shri A. Sundaram residing at No.8/3, Kullappan Street, Omalur Taluk, Salem District - 636 455 is working in our mines for the date of 15.10.2003 to till date as Geologist. During the above tenure of service his execution of the assigned work is exemplary and worth mentioning. We wish him success in his future endeavours.

For PRITHVI MINERALS,


(T.P. THANGAVEL.)
Partner


S.DHANASEKAR, M.Sc. (Geo)
Qualified Person

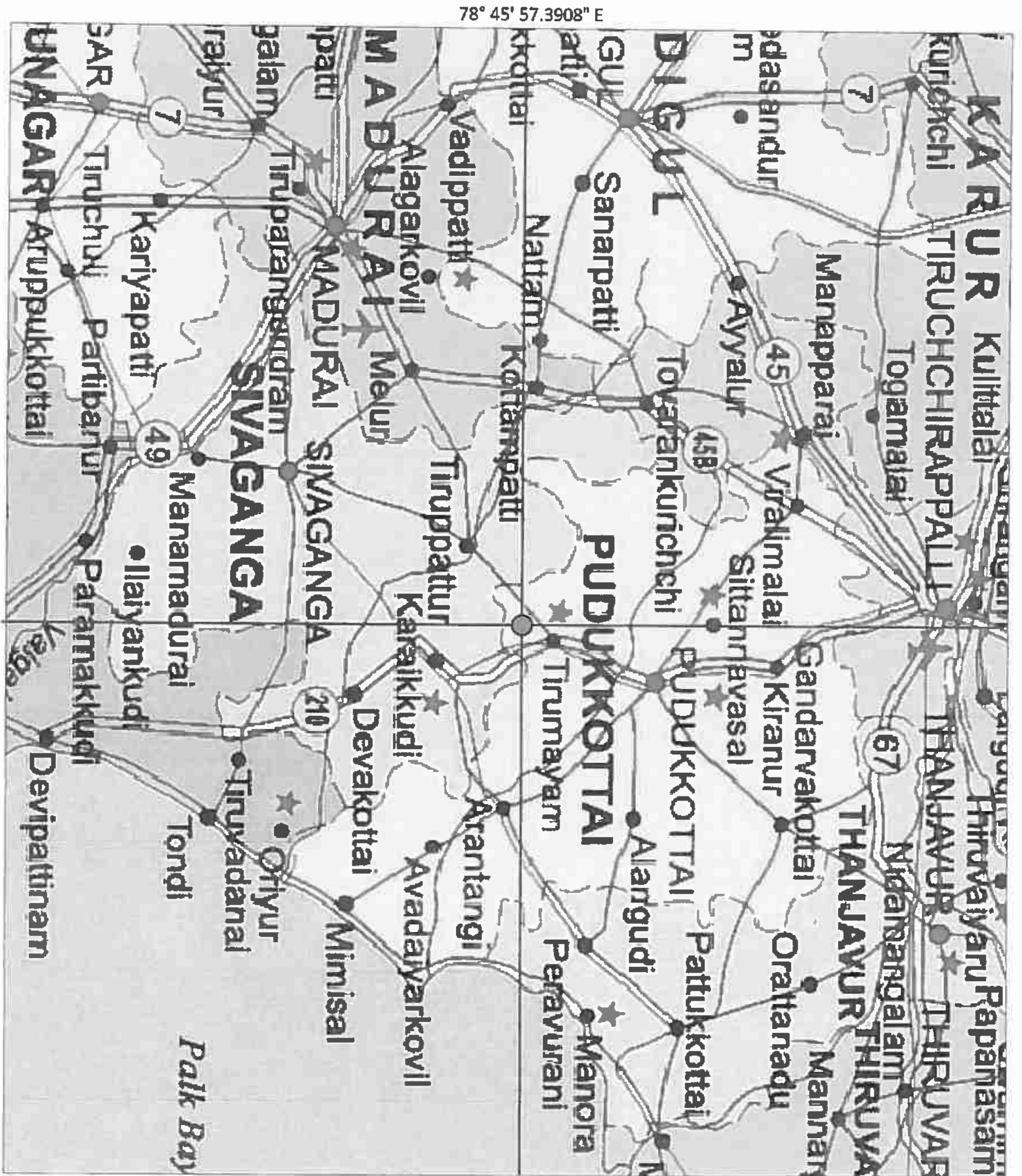
PHOTO SHOWN PROPOSED APPLIED LEASE AREA VIEW-1



PHOTO SHOWN PROPOSED APPLIED LEASE AREA VIEW-2




S.DHANASEKAR, M.Sc., (Geo)
Qualified Person



78° 45' 57.3908" E

10° 26' 41.1998" N

10° 26' 36.3638" N

78° 46' 3.0733" E



PLATE NO:1

DATE OF SURVEY: 09-11-2022

APPLICANT ADDRESS:

THIRU. M.NALLAIYAH,
S/o. MARIKONAR,
No.8668/4, CHOLA REAL ESTATE,
THIRUVAPPUR,
PUDUKKOTTAI TALUK,
PUDUKKOTTAI DISTRICT - 622 002.

LOCATION OF QUARRY

EXTENT : 1.53.50 Ha.
S.F. Nos : 210/7C1 & 210/8A1B
VILLAGE : MELUR,
TALUK : KULATHUR,
DISTRICT : PUDUKKOTTAI.

INDEX

QUARRY LEASE AREA : ●
TOPO SHEET NO.: 58-J/15,
LATITUDE : 10° 26' 41.1998" N to 10° 26' 36.3638" N
LONGITUDE : 78° 46' 3.0733" E to 78° 45' 57.3908" 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:


S.DHIANASEKAR, M.Sc.,
QUALIFIED PERSON

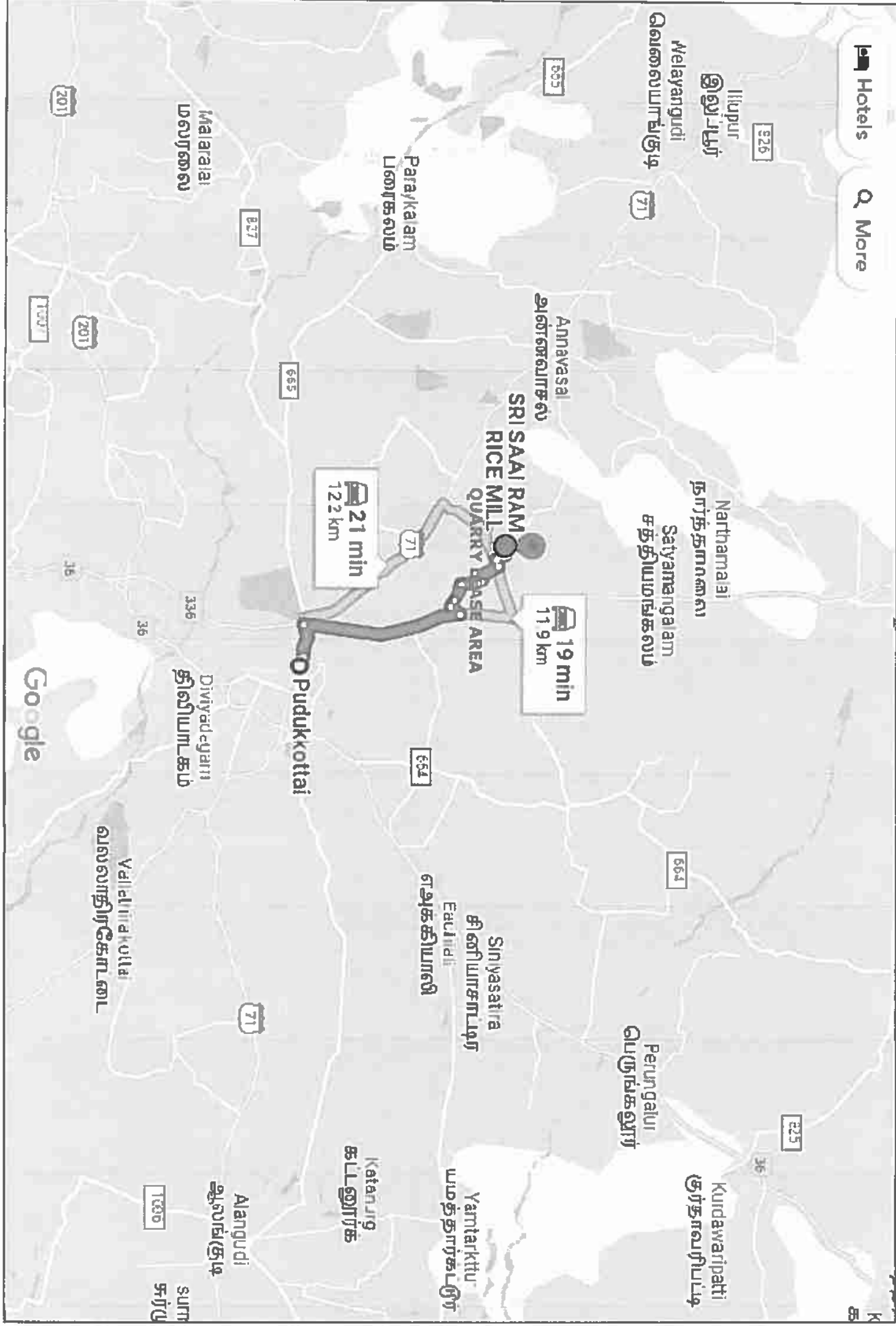
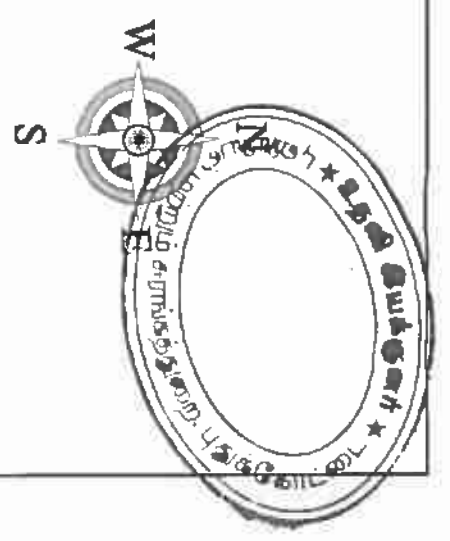


PLATE NO:1A

DATE OF SURVEY: 09-11-2022

APPLICANT ADDRESS:

THIRU. M.NALLAIYAH,
S/o. MARIKONAR,
No.8668/4, CHOLA REAL ESTATE,
THIRUVAPPUR,
PUDUKKOTTAI TALUK,
PUDUKKOTTAI DISTRICT- 622 002.

LOCATION OF QUARRY

EXTENT : 1.53.50 Ha.
S.F. Nos : 210/7C1 & 210/8A1B
VILLAGE : MELUR,
TALUK : KULATHUR,
DISTRICT : PUDUKKOTTAI.

INDEX

QUARRY LEASE AREA 

ROAD 

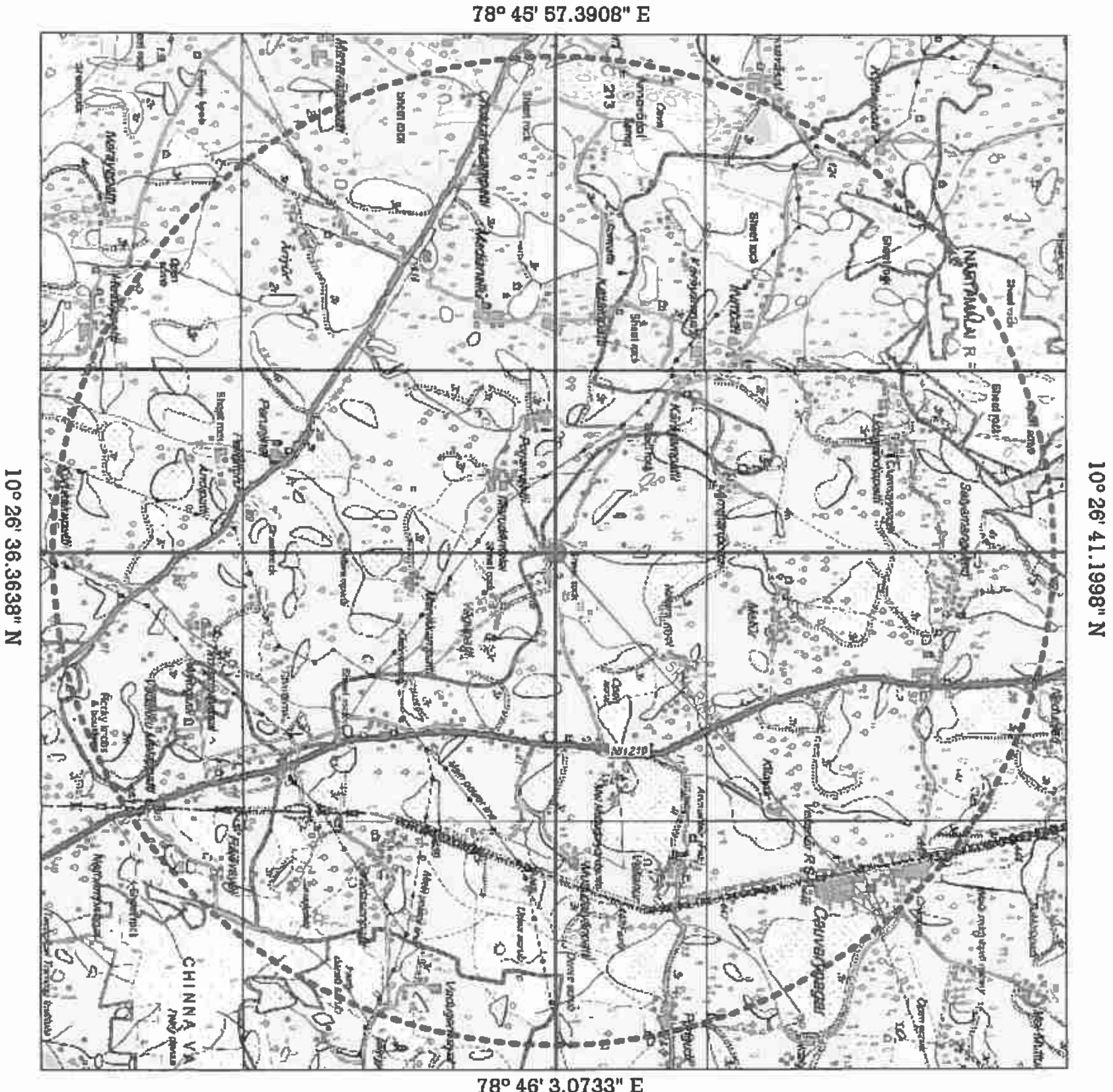
KEY MAP

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


S.DHANASEKAR,M.Sc.,
QUALIFIED PERSON



10° 26' 41.1998" N

10° 26' 36.3638" N

78° 45' 57.3908" E

78° 46' 3.0733" E

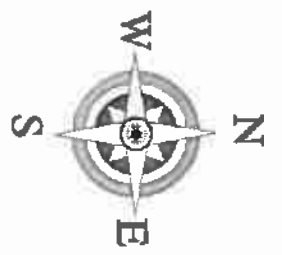


PLATE NO:IB

DATE OF SURVEY : 09-11-2022

APPLICANT ADDRESS:

THIRU. M.NALLATHAN,
S/O. MARIKONNAR,
No.8668/4, CHOLA ROAD ESTATE,
THIRUVAPPUR,
PUDUKKOTTAI TALUK,
PUDUKKOTTAI DISTRICT- 622 002.

LOCATION OF QUARRY

EXTENT : 1.53.50 Ha.
S.F. NOS : 210/7C1 & 210/8A1B
VILLAGE : MELUR,
TALUK : KULATHUR,
DISTRICT : PUDUKKOTTAI.

INDEX

QUARRY LEASE AREA :

5KM RADIUS :

TOPO SHEET NO. : 58-1/15,
LATITUDE : 10° 26' 41.1998" N to 10° 26' 36.3638" N
LONGITUDE : 78° 46' 3.0733" E to 78° 45' 57.3908" E

TAMIL NADU GOVERNMENT

TOPOGRAPHICAL SHEET

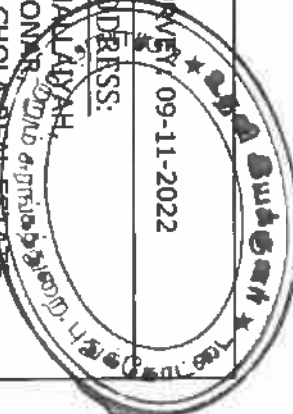
Scale: 1:50,000

Symbol	Description
	Quarry Lease Area
	5km Radius
	Proposed Quarry Boundary
	Proposed Road
	Proposed Fencing
	Proposed Boundary
	Proposed Road
	Proposed Road
	Proposed Fencing
	Proposed Boundary

TOPO SHEET MAP OF
THE LEASE AREA
SCALE-1:50,000

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

S. DHANASEKAR, M.Sc.,
QUALIFIED PERSON





PILLAR NO	LATITUDE	LONGITUDE
1	10° 26' 40.9715" N	78° 46' 2.9471" E
2	10° 26' 41.9334" N	78° 46' 2.4506" E
3	10° 26' 41.6160" N	78° 45' 59.7943" E
4	10° 26' 40.7499" N	78° 45' 59.9426" E
5	10° 26' 39.8997" N	78° 46' 1.2582" E
6	10° 26' 37.2527" N	78° 46' 1.2741" E
7	10° 26' 36.7232" N	78° 45' 59.3560" E
8	10° 26' 38.1946" N	78° 46' 0.2519" E
9	10° 26' 38.8119" N	78° 45' 58.6182" E
10	10° 26' 36.3638" N	78° 45' 57.3908" E
11	10° 26' 37.3403" N	78° 45' 56.8519" E
12	10° 26' 38.7248" N	78° 45' 57.5230" E
13	10° 26' 39.2336" N	78° 45' 56.2521" E
14	10° 26' 40.2924" N	78° 45' 56.0721" E
15	10° 26' 40.9227" N	78° 45' 57.5048" E
16	10° 26' 41.9254" N	78° 45' 58.7642" E
17	10° 26' 43.6515" N	78° 45' 59.5823" E
18	10° 26' 43.0267" N	78° 46' 1.9585" E
19	10° 26' 41.1998" N	78° 46' 3.0733" E

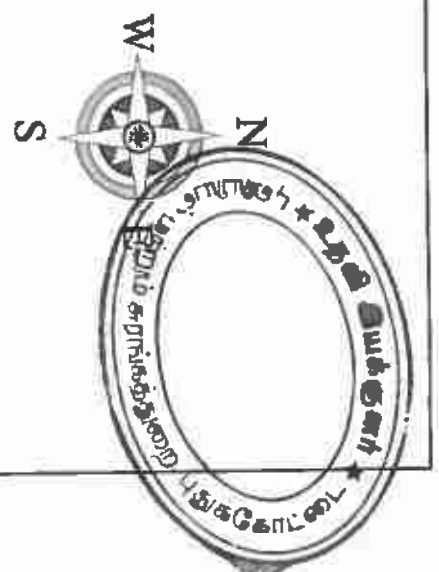


PLATE NO:IC

DATE OF SURVEY: 09-11-2022

APPLICANT ADDRESS:

THIRU. M.NALLAYAH,
S/o. MARIKONAR,
No.8668/4, CHOLA REAL ESTATE,
THIRUVAPPUR,
PUDUKKOTTAI TALUK,
PUDUKKOTTAI DISTRICT- 622 002.

LOCATION OF QUARRY

EXTENT : 1.53.50 Ha.
S.F. Nos : 210/77C1 & 210/8A1B
VILLAGE : MELUR,
TALUK : KULATHUR,
DISTRICT : PUDUKKOTTAI.

INDEX



SATELLITE IMAGE
(LEASE AREA)

SCALE 1 : 1000

PREPARED BY:

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HAS BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

S. Dhana Sekar
S.DHANASEKAR,M.Sc,
QUALIFIED PERSON

10° 26' 40.2924" N
78° 45' 56.0721" E

10° 26' 43.6515" N
78° 45' 59.5823" E



10° 26' 36.3638" N
78° 45' 57.3908" E

10° 26' 41.1998" N
78° 46' 3.0733" E

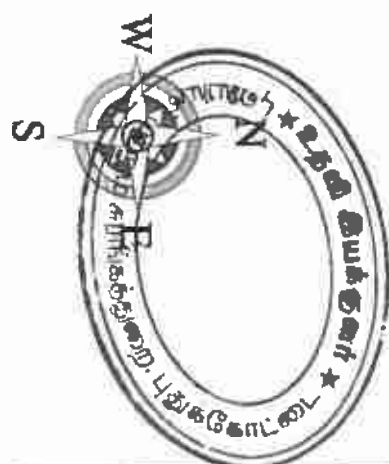


PLATE NO:ID

DATE OF SURVEY: 09-11-2022




APPLICANT ADDRESS:

THIRU. M.NALLAYAH,
S/O. MARIKONAR,
No.8668/4, CHOOLA REAL ESTATE,
THIRUVAPPUR,
PUDUKKOTTAI TALUK,
PUDUKKOTTAI DISTRICT- 622 002.

LOCATION OF QUARRY

EXTENT : 1.53.50 Ha.
S.F. Nos : 210/7C1 & 210/8A1B
VILLAGE : MELUR,
TALUK : KULATHUR,
DISTRICT : PUDUKKOTTAI.

INDEX

- QUARRY LEASE AREA 
- 500m RADIUS 
- 300M RADIUS 

SATELLITE IMAGE

(500m RADIUS)
SCALE 1 : 5000

PREPARED BY:

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


S.DHANASEKAR,M.Sc,
QUALIFIED PERSON

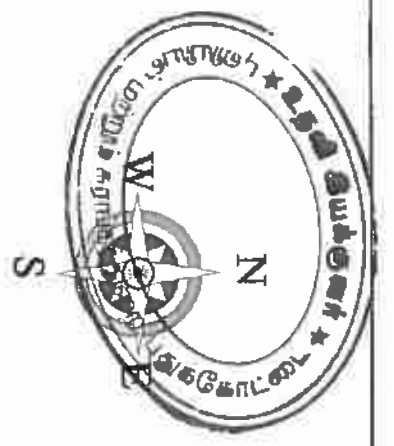


PLATE NO:11

DATE OF SURVEY: 09-11-2022

APPLICANT ADDRESS:

THIRU. M.NALLAIYAH,
S/O. MARIKONAR,
No.8668/4, CHOLA REAL ESTATE,
THIRUVAPPUR,
PUDUKKOTTAI TALUK,
PUDUKKOTTAI DISTRICT- 622 002.

LOCATION OF QUARRY

EXTENT : 1.53.50 Ha.
S.F. Nos : 210/7C1 & 210/8A1B
VILLAGE : MELUR,
TALUK : KULATHUR,
DISTRICT : PUDUKKOTTAI.

INDEX

- QUARRY LEASE BOUNDARY
- 7.5m & 10.0m SAFETY DISTANCE
- BOUNDARY PILLARS
- TEMPORARY BENCH MARK
- APPROACH ROAD

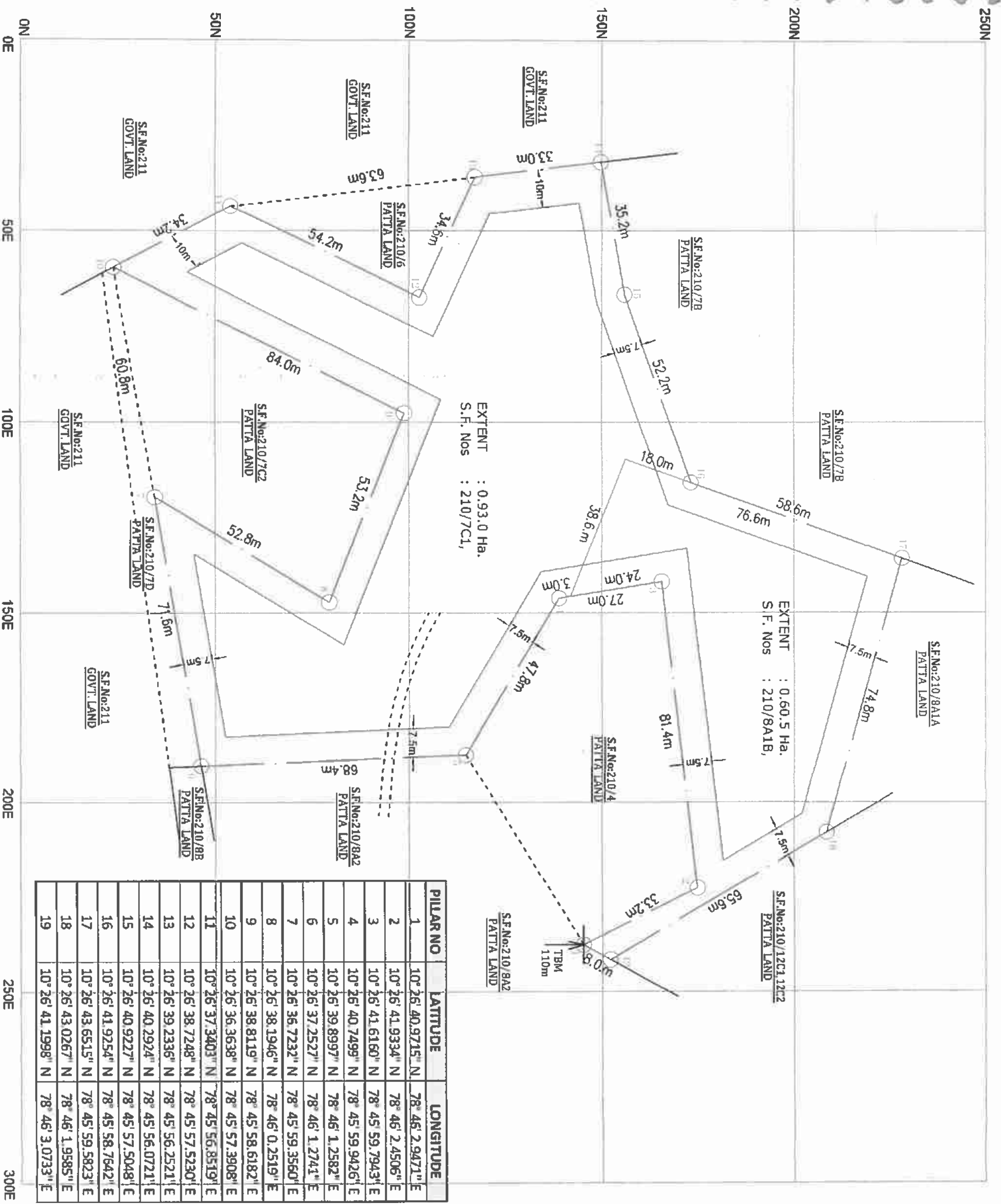
MINE LEASE PLAN

SCALE: 1:1000

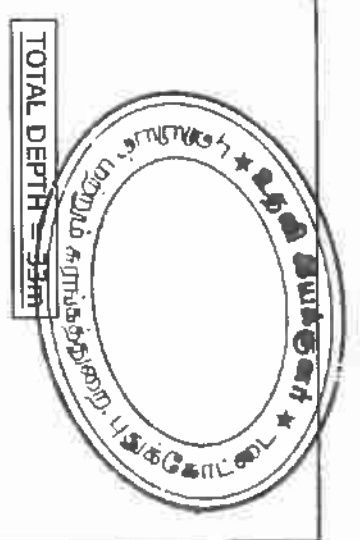
PREPARED BY:

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

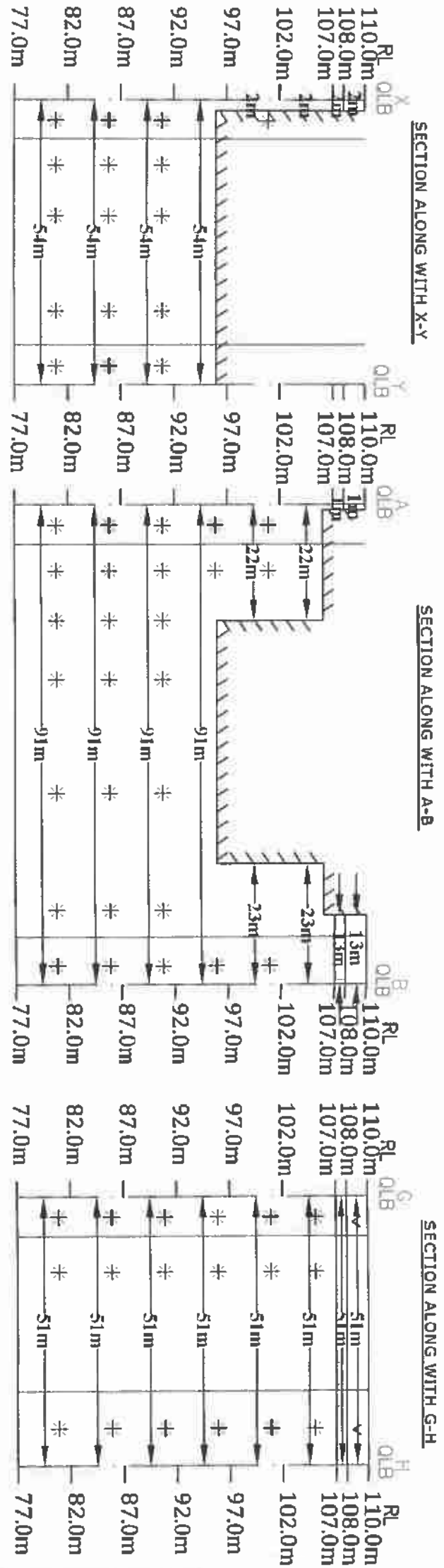
S.DHANASEKAR, M.Sc.,
QUALIFIED PERSON



PILLAR NO	LATITUDE	LONGITUDE
1	10° 26' 40.9715" N	78° 46' 2.9471" E
2	10° 26' 41.9334" N	78° 46' 2.4506" E
3	10° 26' 41.6160" N	78° 45' 59.7943" E
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18	10° 26' 43.0267" N	78° 46' 1.9585" E
19	10° 26' 41.1998" N	78° 46' 3.0733" E



TOTAL DEPTH = 33m



SECTION ALONG WITH X-Y

SECTION ALONG WITH A-B

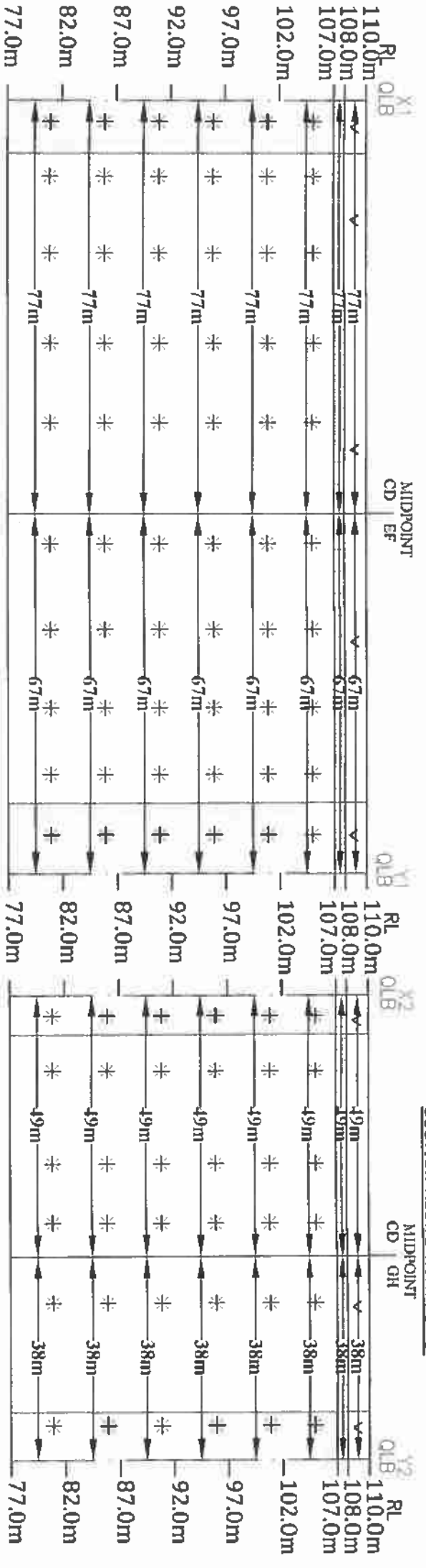
SECTION ALONG WITH G-H

PLATE NO: III-A

DATE OF SURVEY: 09-11-2022

APPLICANT ADDRESS:

THIRU. M. NALLAIYAH,
S/o. MARIKONAR,
No.8668/4, CHOLA REAL ESTATE,
THIRUVAPPUR,
PUDUKKOTTAI TALUK,
PUDUKKOTTAI DISTRICT- 622 002.

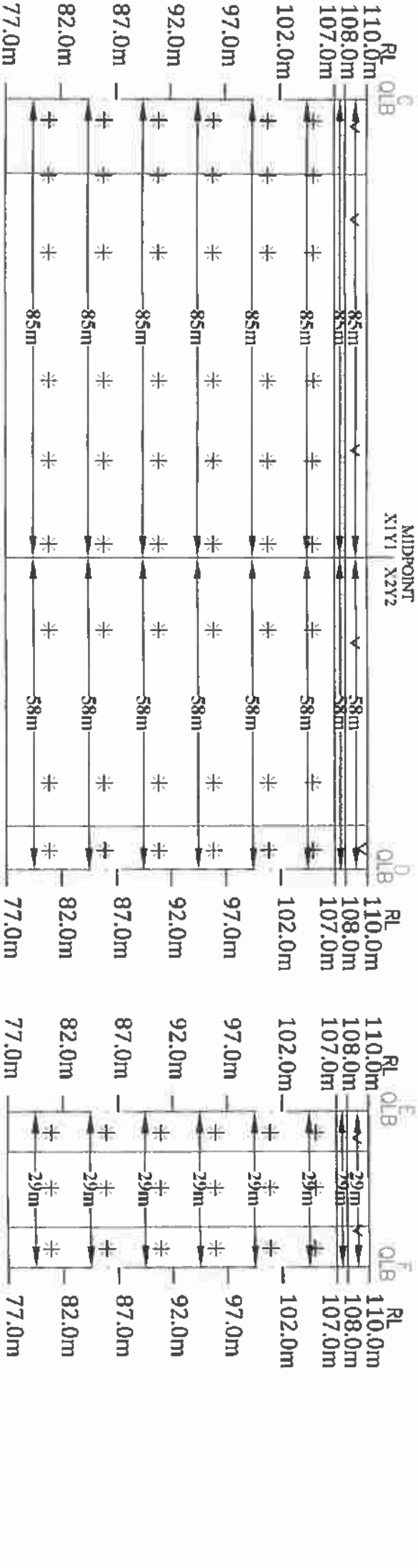


SECTION ALONG WITH X1-Y1

SECTION ALONG WITH X2-Y2

LOCATION OF QUARRY

EXTENT : 1.53.50 Ha.
S.F. Nos : 210/7C1 & 210/8A1B
VILLAGE : MELUR,
TALUK : KULATHUR,
DISTRICT : PUDUKKOTTAI.



SECTION ALONG WITH C-D

SECTION ALONG WITH E-F

INDEX

QUARRY LEASE BOUNDARY

7.5m & 10.0m SAFETY DISTANCE

GRAVEL

WEATHERED ROCK

ROUGH STONE

EXISTING PIT

GEOLOGICAL SECTIONS

SCALE: HOR-1:1000
VER-1:500

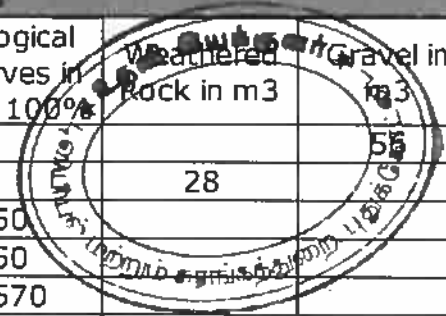
PREPARED BY:

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S. DHANASEKAR, M.Sc.
QUALIFIED PERSON

GEOLOGICAL RESERVES

Section	Bench	length in (m)	Width in (m)	Depth in (m)	Volume In M3	Geological Reserves in m3 @ 100%	Weathered Rock in m3	Gravel in m3
XY-AB	I	2	14	2				
	II	2	14	1			28	
	III	2	45	5	450	450		
	IV	2	45	5	450	450		
	V	54	91	5	24570	24570		
	VI	54	91	5	24570	24570		
	VII	54	91	5	24570	24570		
	VIII	54	91	5	24570	24570		
	TOTAL					99180	99180	28
X1Y1-CD	I	77	85	2				13090
	II	77	85	1			6545	
	III	77	85	5	32725	32725		
	IV	77	85	5	32725	32725		
	V	77	85	5	32725	32725		
	VI	77	85	5	32725	32725		
	VII	77	85	5	32725	32725		
	VIII	77	85	5	32725	32725		
	TOTAL					196350	196350	6545
X1Y1-EF	I	67	29	2				3886
	II	67	29	1			1943	
	III	67	29	5	9715	9715		
	IV	67	29	5	9715	9715		
	V	67	29	5	9715	9715		
	VI	67	29	5	9715	9715		
	VII	67	29	5	9715	9715		
	VIII	67	29	5	9715	9715		
	TOTAL					58290	58290	1943
X2Y2-CD	I	49	58	2				5684
	II	49	58	1			2842	
	III	49	58	5	14210	14210		
	IV	49	58	5	14210	14210		
	V	49	58	5	14210	14210		
	VI	49	58	5	14210	14210		
	VII	49	58	5	14210	14210		
	VIII	49	58	5	14210	14210		
	TOTAL					85260	85260	2842
X2Y2-GH	I	38	51	2				3876
	II	38	51	1			1938	
	III	38	51	5	9690	9690		
	IV	38	51	5	9690	9690		
	V	38	51	5	9690	9690		
	VI	38	51	5	9690	9690		
	VII	38	51	5	9690	9690		
	VIII	38	51	5	9690	9690		
	TOTAL					58140	58140	1938
GRAND TOTAL					497220	497220	13296	26592



PREPARED BY:


S. DHANASEKAR, M.Sc.,
QUALIFIED PERSON

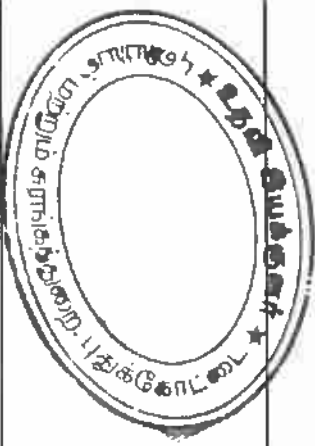


PLATE NO:IV

DATE OF SURVEY: 09-11-2022

APPLICANT ADDRESS:

THIRU. M.NALLAIYAH,
S/O. MARKONAR,
No.8668/4, CHOLA REAL ESTATE,
THIRUVAPPUR,
PUDUKKOTTAI TALUK,
PUDUKKOTTAI DISTRICT- 622 002.

LOCATION OF QUARRY

EXTENT : 1.53.50 Ha.
S.F. Nos : 210/7C1 & 210/8A1B
VILLAGE : MELUR,
TALUK : KULATHUR,
DISTRICT : PUDUKKOTTAI.

INDEX

QUARRY LEASE BOUNDARY	
7.5m & 10.0m SAFETY DISTANCE	
BOUNDARY PILLARS	
TEMPORARY BENCH MARK	
GRAVEL	
ROUGH STONE	
QUARRY PIT	
QUARRY ROAD	
PROPOSED DUMP	
SHRUB	

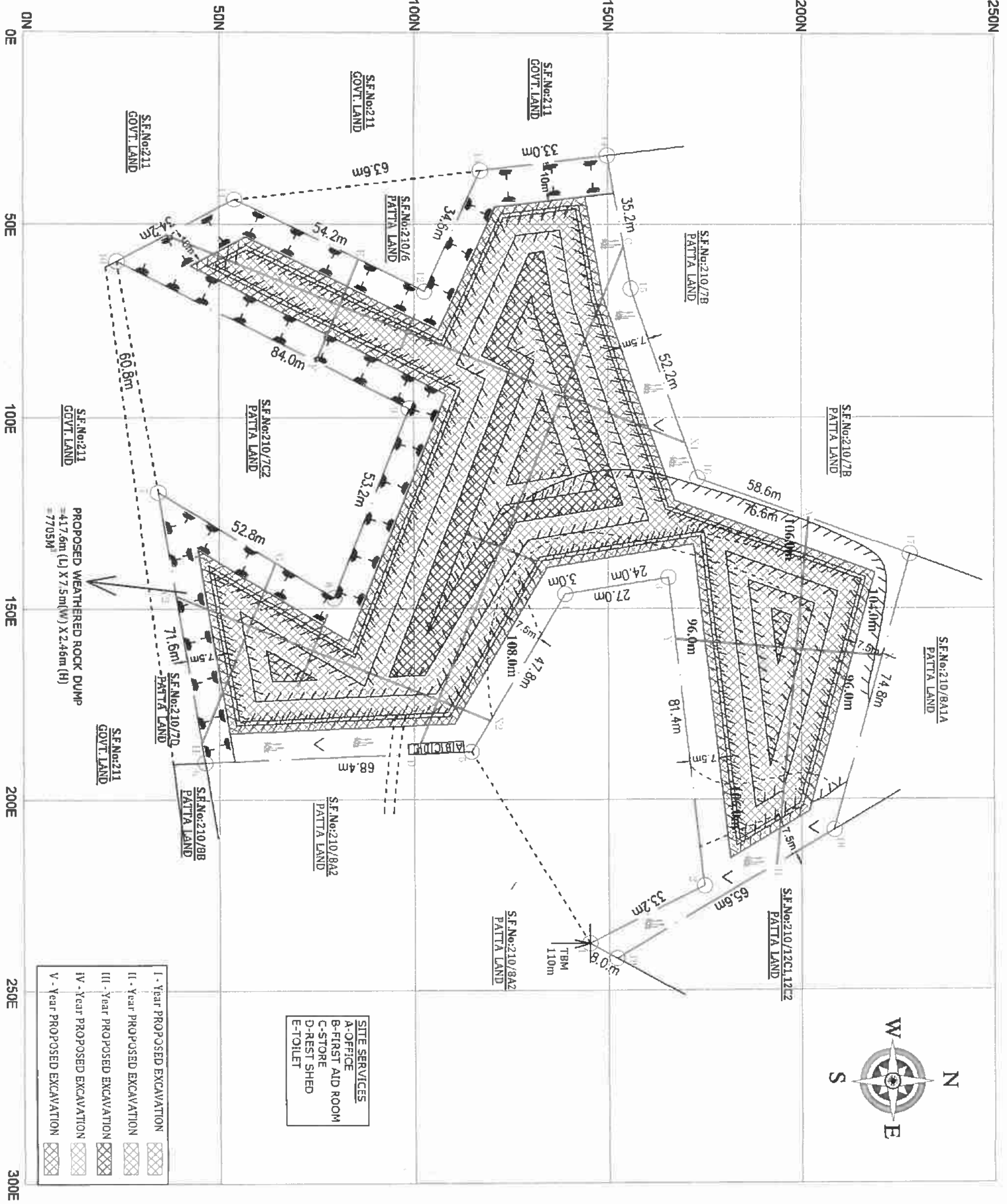
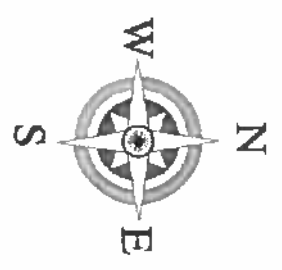
YEARWISE DEVELOPMENT AND PRODUCTION PLAN

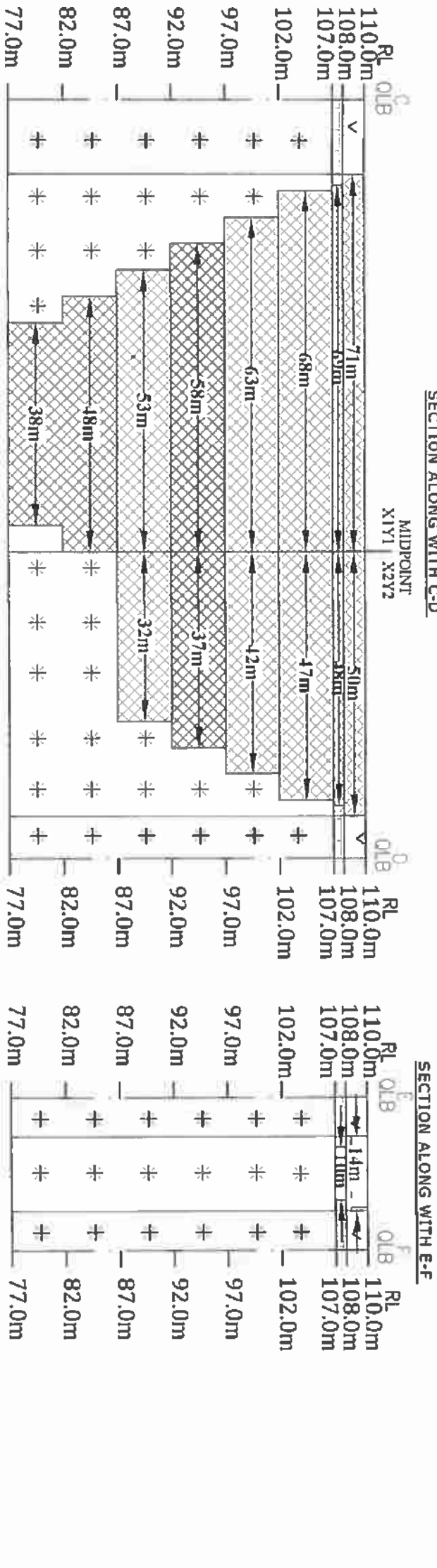
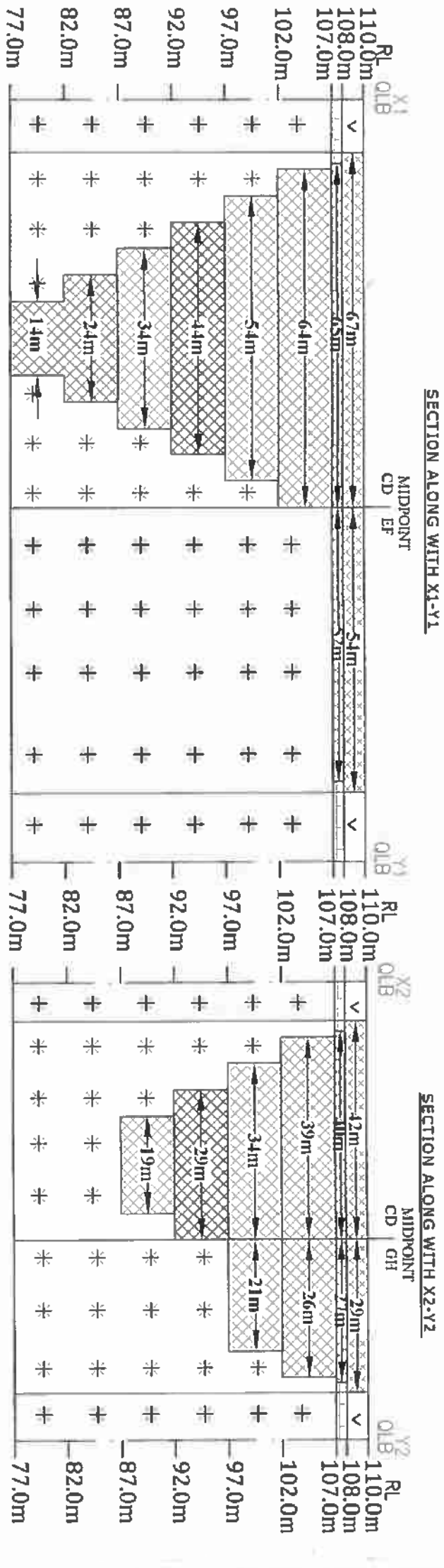
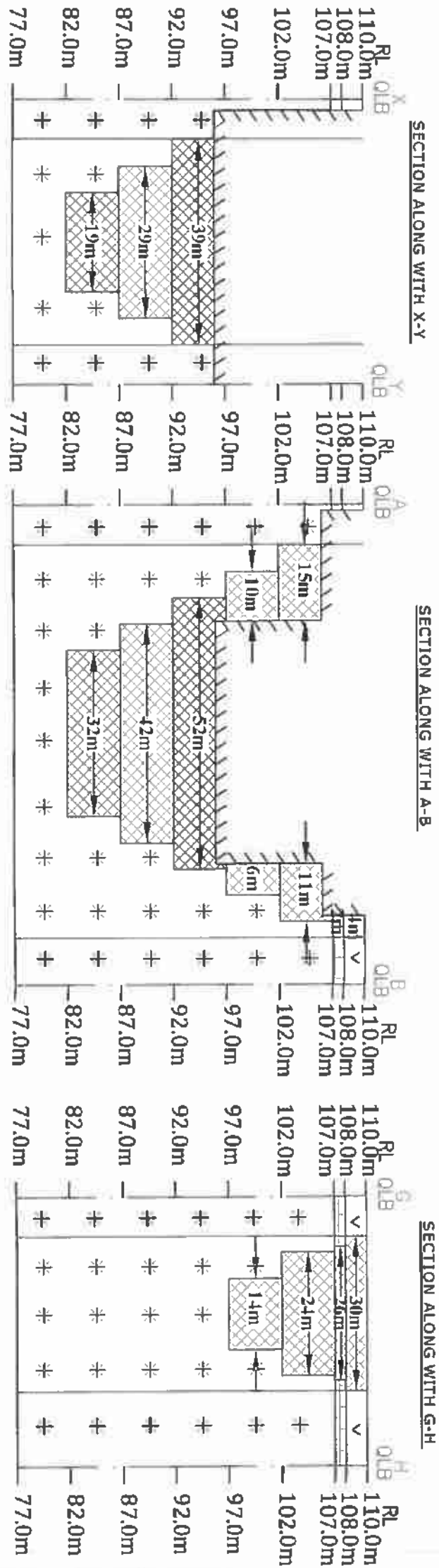
SCALE: 1:1000

PREPARED BY:

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S.DHANASEKAR, M.Sc.,
QUALIFIED PERSON





1 - Year PROPOSED EXCAVATION
 II - Year PROPOSED EXCAVATION
 III - Year PROPOSED EXCAVATION
 IV - Year PROPOSED EXCAVATION
 V - Year PROPOSED EXCAVATION

TOTAL DEPTH = 33m

PLATE NO: IV-A
 DATE OF SURVEY: 09-11-2022

APPLICANT ADDRESS:
 THIRU. M. NALLATHYAH,
 S/o. MARIKONAR,
 No. 8668/4, CHOLA REAL ESTATE,
 THIRUVAPPUR,
 PUDUKKOTTAI TALUK,
 PUDUKKOTTAI DISTRICT - 622 002.

LOCATION OF QUARRY

EXTENT : 1.53.50 Ha.
 S.F. Nos : 210/7C1 & 210/8A1B
 VILLAGE : MELUR,
 TALUK : KULATHUR,
 DISTRICT : PUDUKKOTTAI.

- INDEX**
- QUARRY LEASE BOUNDARY
 - 7.5m & 10.0m SAFETY DISTANCE
 - GRAVEL
 - WEATHERED ROCK
 - ROUGH STONE
 - QUARRY PIT

YEARWISE DEVELOPMENT AND PRODUCTION SECTIONS

SCALE: HOR-1:1000
 VER-1:500

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

S. DHANASEKAR, M.Sc.,
 QUALIFIED PERSON



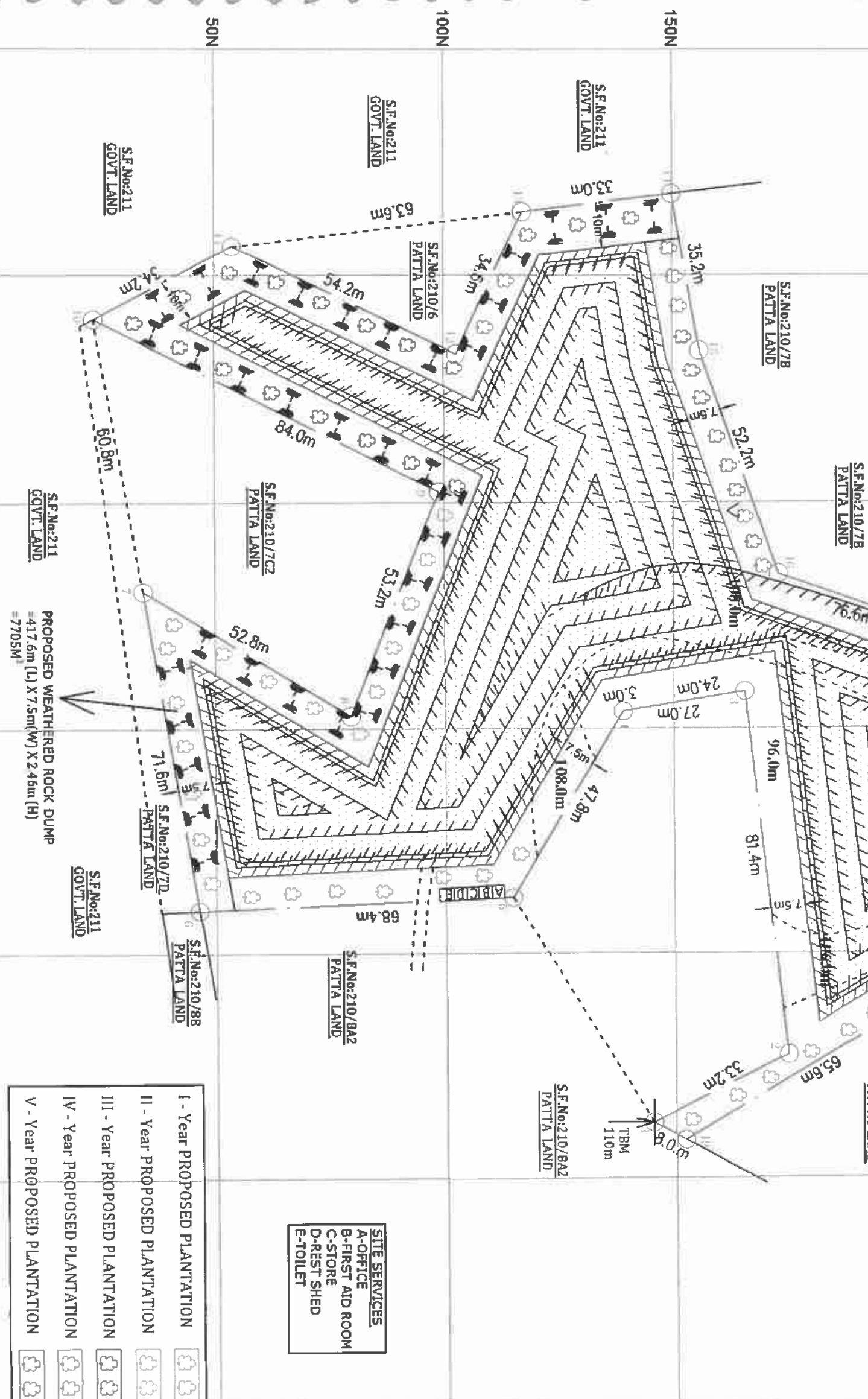
YEARWISE DEVELOPMENT AND PRODUCTION

YEAR	Section	Bench	length in (m)	Width in (m)	Depth in (m)	Volume In m3	Recoverable Reserves in m3 @ 100%	Weathered Rock in m3	Gravel in m3
I- YEAR	XY-AB	I	39	4	2				312
		II	39	2	1			78	
		III	39	26	5	5070	5070		
	X1Y1-CD	I	67	71	2				9514
		II	65	69	1			4485	
		III	64	68	5	21760	21760		
	X1Y1-EF	I	54	14	2				1512
		II	52	10	1			520	
	X2Y2-CD	I	42	50	2				4200
		II	40	48	1			1920	
		III	39	47	5	9165	9165		
	X2Y2-GH	I	29	30	2				1740
II		27	26	1			702		
III		26	24	5	3120	3120			
	TOTAL					39115	39115	7705	17278
II- YEAR	XY-AB	IV	39	16	5	3120	3120		
	X1Y1-CD	IV	54	63	5	17010	17010		
	X2Y2-CD	IV	34	42	5	7140	7140		
	X2Y2-GH	IV	21	14	5	1470	1470		
		TOTAL					28740	28740	
III- YEAR	XY-AB	V	39	52	5	10140	10140		
	X1Y1-CD	V	44	58	5	12760	12760		
	X2Y2-CD	V	29	37	5	5365	5365		
		TOTAL					28265	28265	
IV- YEAR	XY-AB	VI	29	42	5	6090	6090		
	X1Y1-CD	VI	34	53	5	9010	9010		
	X2Y2-CD	VI	19	32	5	3040	3040		
		TOTAL					18140	18140	
V- YEAR	XY-AB	VII	19	32	5	3040	3040		
	X1Y1-CD	VII	24	48	5	5760	5760		
		VIII	14	38	5	2660	2660		
		TOTAL					11460	11460	
GRAND TOTAL						125720	125720	7705	17278

PREPARED BY:


S.DHANASEKAR, M.Sc.,
QUALIFIED PERSON

DESCRIPTION	PRESENT AREA (Ha)	AREA IN USE DURING THE QUARRYING PERIOD (Ha)	COLOR CODE
AREA UNDER QUARRYING	0.54.00	1.10.00	
INFRASTRUCTURE	NIL	0.01.00	
ROADS	0.01.00	0.01.00	
GREEN BELT & DUMP	NIL	0.41.50	
UN-UTILIZED AREA	0.98.50	nil	
GRAND TOTAL	1.53.50	1.53.50	



PLANTATION TYPE	SYMBOL
I - Year PROPOSED PLANTATION	
II - Year PROPOSED PLANTATION	
III - Year PROPOSED PLANTATION	
IV - Year PROPOSED PLANTATION	
V - Year PROPOSED PLANTATION	

SITE SERVICES
 A-OFFICE
 B-FIRST AID ROOM
 C-STORE
 D-REST SHED
 E-TOILET



PLATE NO: V
 DATE OF SURVEY: 09-11-2022

APPLICANT ADDRESS:
 THIRU. M.NALLAIYAH,
 S/O. MARIKONAR,
 No.8668/4, CHOLA REAL ESTATE,
 THIRUVAPPUR,
 PUDUKKOTTAI TALUK,
 PUDUKKOTTAI DISTRICT- 622 002.

LOCATION OF QUARRY
 EXTENT : 1.53.50 Ha.
 S.F. Nos : 210/7C1 & 210/8A1B
 VILLAGE : MELUR,
 TALUK : KULATHUR,
 DISTRICT : PUDUKKOTTAI.

INDEX

QUARRY LEASE BOUNDARY	
7.5m & 10.0m SAFETY DISTANCE	
BOUNDARY PILLARS	
TEMPORARY BENCH MARK	
GRAVEL	
ROUGH STONE	
QUARRY PIT	
QUARRY ROAD	
MINE LAYOUT	
PROPOSED DUMP	

MINE LAYOUT, LAND USE PATTERN & AFFORESTATION PLAN

SCALE: 1:10000

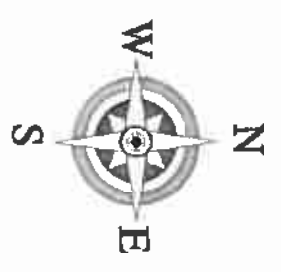
PREPARED BY:

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

S. DHANASEKAR, M.Sc.,
 QUALIFIED PERSON

10° 26' 43.6515" N
78° 45' 59.5823" E

OCTOBER TO DECEMBER



10° 26' 40.2924" N
78° 45' 56.0721" E

JULY TO SEPTEMBER

10° 26' 41.1998" N
78° 46' 3.0733" E

10° 26' 36.3638" N
78° 45' 57.3908" E

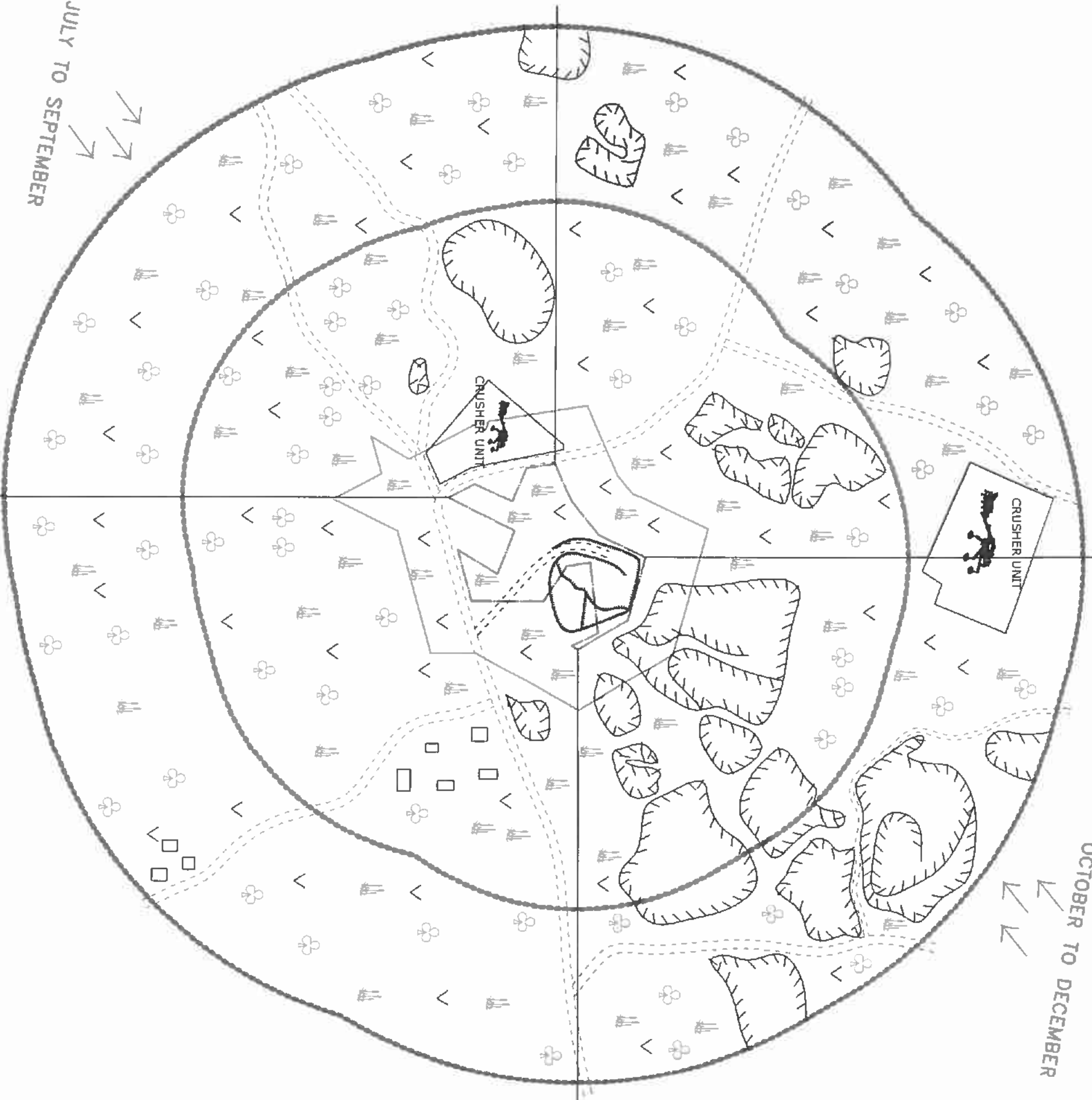


PLATE NO: VI

DATE OF SURVEY: 09-11-2022

APPLICANT ADDRESS:

THIRU. M. NALLAIYAH,
S/O. MARIKONDAI,
No. 8668/4, CHOLA REAL ESTATE,
THIRUVAPPUR,
PUDUKKOTTAI TALUK,
PUDUKKOTTAI DISTRICT - 622 002.

LOCATION OF QUARRY

EXTENT : 1.53.50 Ha.
S.F. Nos : 210/7C1 & 210/8A1B
VILLAGE : MELUR,
TALUK : KULATHUR,
DISTRICT : PUDUKKOTTAI.

INDEX

- QUARRY LEASE BOUNDARY
- 500M RADIUS
- 300M RADIUS
- 60m RADIUS
- TREES
- APPROACH ROAD
- QUARRY ROAD
- WIND DIRECTION
- INFRASTRUCTURES
- DRY AGRICULTURAL LAND
- SHRUB
- ADJACENT QUARRY
- CRUSHER UNIT

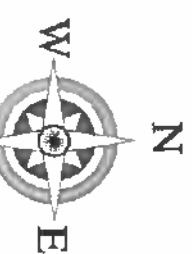
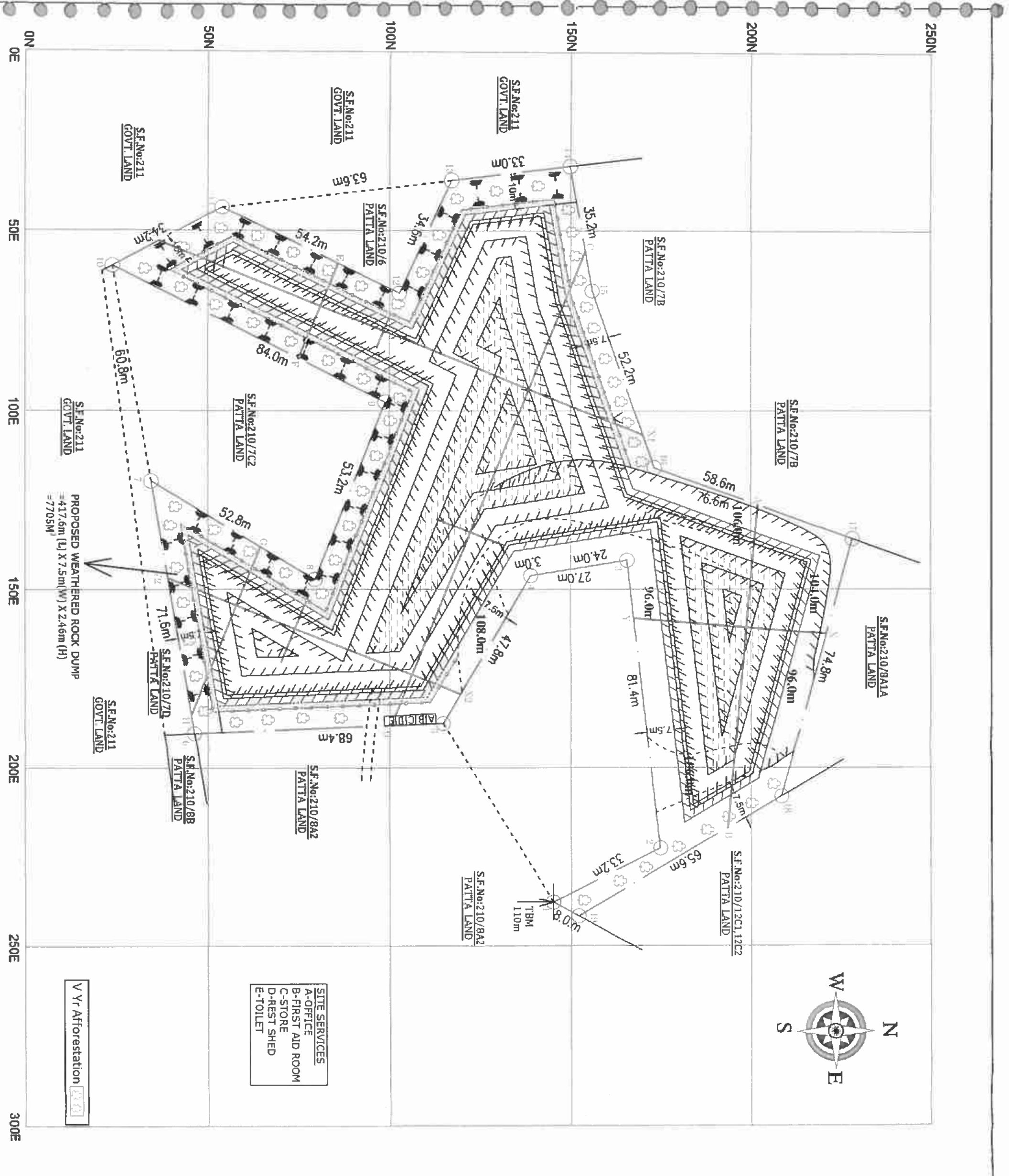
ENVIRONMENT PLAN

SCALE 1 : 5000

PREPARED BY:

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

S. DHANASEKAR, M.Sc.,
QUALIFIED PERSON



SITE SERVICES
 A-OFFICE
 B-FIRST AID ROOM
 C-STORE
 D-REST SHED
 E-TOILET

V V Afforestation

PLATE NO: VII
DATE OF SURVEY: 09-11-2022
APPLICANT'S ADDRESS:
 THIRU. MANJALAYAH,
 S/O. MARIKONDAI,
 No. 8668/4, CHOLA REAL ESTATE,
 THIRUVAPPUR,
 PUDUKKOTTAI TALUK,
 PUDUKKOTTAI DISTRICT - 622 002.

LOCATION OF QUARRY
EXTENT : 1.53.50 Ha.
S.F. Nos : 210/7C1 & 210/8A1B
VILLAGE : MELUR,
TALUK : KULATHUR,
DISTRICT : PUDUKKOTTAI.

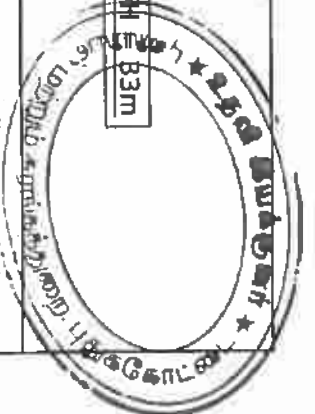
INDEX

- QUARRY LEASE BOUNDARY
- 7.5m & 10.0m SAFETY DISTANCE
- BOUNDARY PILLARS
- TEMPORARY BENCH MARK
- GRAVEL
- ROUGH STONE
- QUARRY PIT
- QUARRY ROAD
- FENCING
- PARAPET WALL
- PROPOSED WATER STORAGE
- ULTIMATE PIT LIMIT
- PROPOSED DUMP

CONCEPTUAL / FINAL MINE CLOSURE PLAN
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.

S. DHANASEKAR, M.Sc.,
 QUALIFIED PERSON



TOTAL DEPTH 8.33m

PLATE NO: VII-A

DATE OF SURVEY: 09-11-2022

APPLICANT ADDRESS:

THIRU. M. NALLAIYAH,
S/o. MARIKONAR,
No.8668/4, CHOLA REAL ESTATE,
THIRUVAPPUR,
PUDUKKOTTAI TALUK,
PUDUKKOTTAI DISTRICT- 622 002.

LOCATION OF QUARRY

EXTENT : 1.53.50 Ha.
S.F. Nos : 210/7C1 & 210/8A1B
VILLAGE : MELUR,
TALUK : KULATHUR,
DISTRICT : PUDUKKOTTAI.

INDEX

- QUARRY LEASE BOUNDARY
- 7.5m & 10.0m SAFETY DISTANCE
- GRAVEL
- WEATHERED ROCK
- ROUGH STONE
- QUARRY PIT
- PROPOSED WATER STORAGE

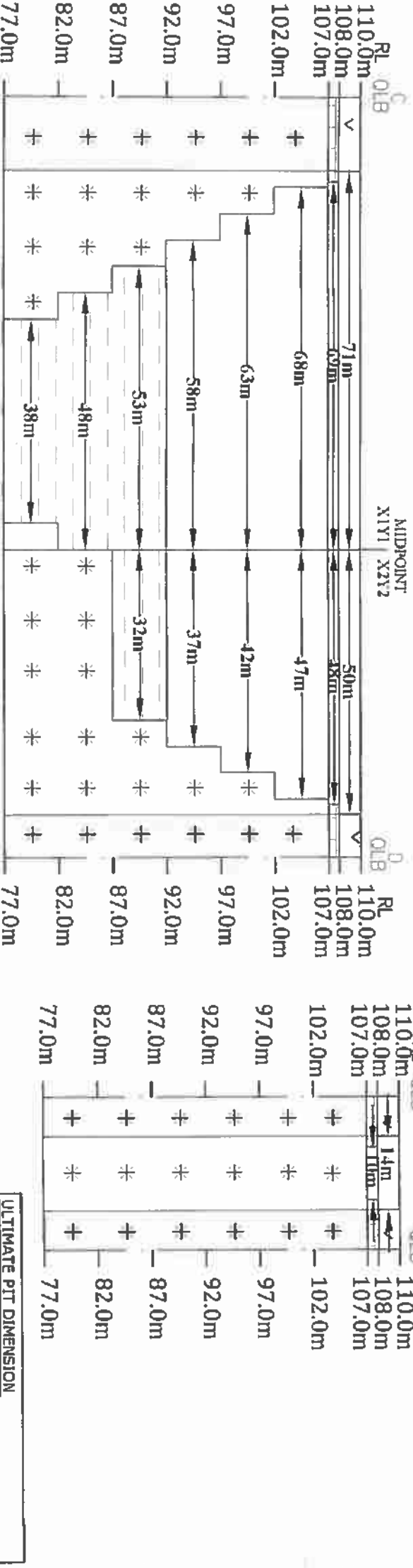
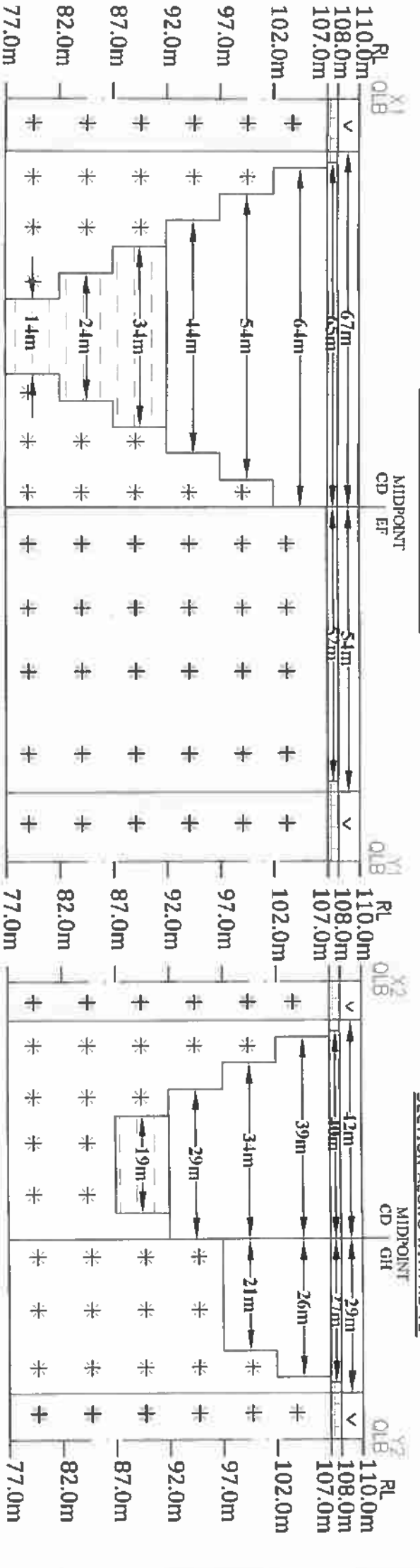
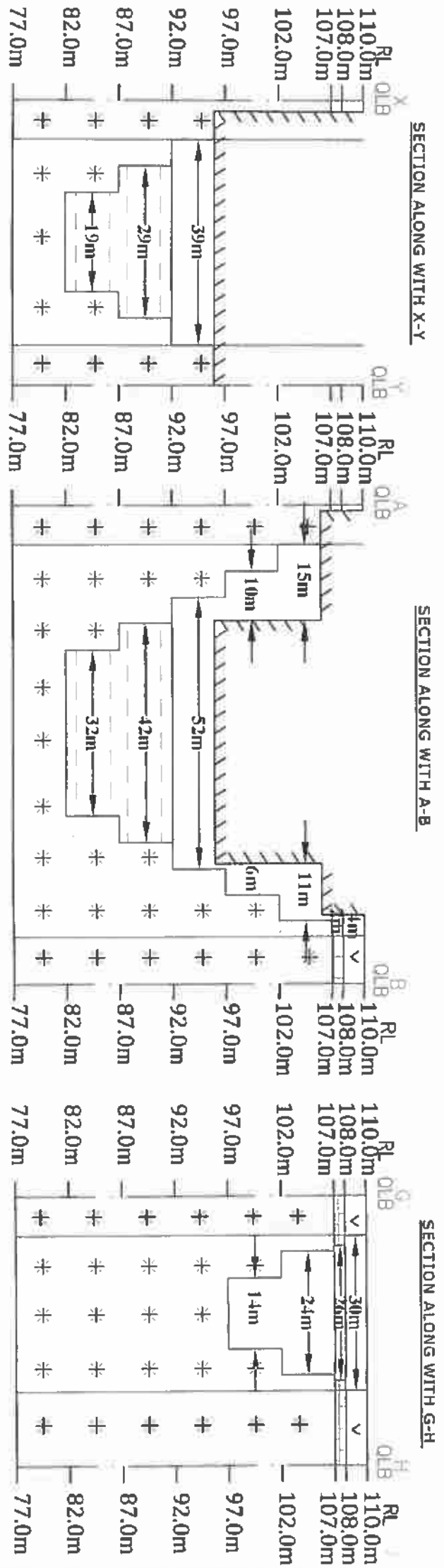
CONCEPTUAL / FINAL MINE CLOSURE SECTIONS

SCALE: HOR-1:1000
VER-1:500

PREPARED BY:

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

S. DHANASEKAR, M.Sc.,
QUALIFIED PERSON



ULTIMATE PIT DIMENSION
= 77.0m(L)(Avg) X 60.0m(W)(Avg) X 33.0m(D)



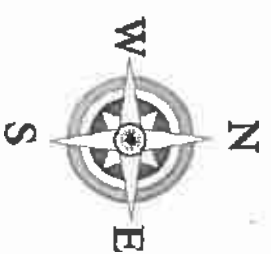
MINEABLE RESERVES

Section	Bench	length in (m)	Width in (m)	Depth in (m)	Volume In M3	Mineable Reserves in m3 @ 100%	Weathered Rock in m3	Gravel in m3
XY-AB	I	39	4	2				312
	II	39	2	1			78	
	III	39	26	5	5070	5070		
	IV	39	16	5	3120	3120		
	V	39	52	5	10140	10140		
	VI	29	42	5	6090	6090		
	VII	19	32	5	3040	3040		
TOTAL					27460	27460	78	312
X1Y1-CD	I	67	71	2				9514
	II	65	69	1			4485	
	III	64	68	5	21760	21760		
	IV	54	63	5	17010	17010		
	V	44	58	5	12760	12760		
	VI	34	53	5	9010	9010		
	VII	24	48	5	5760	5760		
	VIII	14	38	5	2660	2660		
TOTAL					68960	68960	4485	9514
X1Y1-EF	I	54	14	2				1512
	II	52	10	1			520	
TOTAL							520	1512
X2Y2-CD	I	42	50	2				4200
	II	40	48	1			1920	
	III	39	47	5	9165	9165		
	IV	34	42	5	7140	7140		
	V	29	37	5	5365	5365		
	VI	19	32	5	3040	3040		
TOTAL					24710	24710	1920	4200
X2Y2-GH	I	29	30	2				1740
	II	27	26	1			702	
	III	26	24	5	3120	3120		
	IV	21	14	5	1470	1470		
TOTAL					4590	4590	702	1740
GRAND TOTAL					125720	125720	7705	17278

PREPARED BY:


S.DHANASEKAR, M.Sc.
QUALIFIED PERSON

DESCRIPTION	PRESENT AREA (Ha)	AREA IN USE DURING THE QUARRYING PERIOD (Ha)	COLOR CODE
AREA UNDER QUARRYING	0.54.00	1.10.00	
INFRASTRUCTURE	NIL	0.01.00	
ROADS	0.01.00	0.01.00	
GREEN BELT & DUMP	NIL	0.41.50	
UN-UTILIZED AREA	0.98.50	nil	
GRAND TOTAL	1.53.50	1.53.50	



- I - Year PROPOSED PLANTATION
- II - Year PROPOSED PLANTATION
- III - Year PROPOSED PLANTATION
- IV - Year PROPOSED PLANTATION
- V - Year PROPOSED PLANTATION

- SITE SERVICES**
- A-OFFICE
 - B-FIRST AID ROOM
 - C-STORE
 - D-REST SHED
 - E-TOILET

PROPOSED WEATHERED ROCK DUMP
= 417.6m (L) X 7.5m (W) X 2.46m (H)
= 7705M³

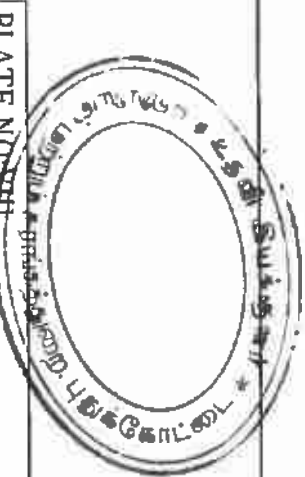


PLATE NO: ~~111~~
DATE OF SURVEY: 09-11-2022

APPLICANT ADDRESS:
THIRU. M.NALLAIYAH,
S/O. MARIKONAR,
No.8668/4, CHOLA REAL ESTATE,
THIRUVAPPUR,
PUDUKKOTTAI TALUK,
PUDUKKOTTAI DISTRICT- 622 002.

LOCATION OF QUARRY
EXTENT : 1.53.50 Ha.
S.F. Nos : 210/7C1 & 210/8A1B
VILLAGE : MELUR,
TALUK : KULATHUR,
DISTRICT : PUDUKKOTTAI.

INDEX

- QUARRY LEASE BOUNDARY
- 7.5m & 10.0m SAFETY DISTANCE
- BOUNDARY PILLARS
- TEMPORARY BENCH MARK
- GRAVEL
- ROUGH STONE
- QUARRY PIT
- QUARRY ROAD
- MINE LAYOUT
- PROPOSED DUMP

PROGRESSIVE MINE CLOSURE PLAN

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

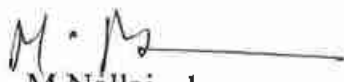
S. DHANASEKAR, M.Sc.,
QUALIFIED PERSON

ANNEXURE-VII
VAO CERTIFICATE

Thiru. M. NALLAIYAH, Rough stone & Gravel quarry in the S.F.Nos.210/7C1 & 210/8A1B over an extent of 1.53.5ha. in Melur Village, Kulathur Taluk, Pudukkottai District.

GENERAL VIEW OF THE APPLIED LEASE AREA




M.Nallaiyah
(Deponent)



ஜி.சங்கரநாராயணன்
26.3 ந்தியமங்கலம் வீதி,
குளத்தூர் தாலுகா
புதுக்கோட்டை மாவட்டம்.

சான்று

புதுக்கோட்டை மாவட்டம், குளத்தூர் வட்டம், சீத்தியமங்கலம் கிராம
நிர்வாக அலுவலர் அளிக்கும் சான்று.

புதுக்கோட்டை மாவட்டம், புதுக்கோட்டை வட்டம், கதவு எண் 86668/4
சோழ நியம் ரிஸ்ட்ரீட்டி கிளப்பின் புதுக்கோட்டை 622002 என்ற முகவரியில்
வசிக்கும் திரு. மாத் கோணர் என்பவரின் மகன் திரு. நவீன்யா
என்பவர், புதுக்கோட்டை மாவட்டம் குளத்தூர் வட்டம் பேரூர் கிராமம்,
சர்வேஎண்: 210/701 மீளும் 210/8A1B
பட்டா நிலத்தில் மொத்தபரப்பு 1.53.5 ஹெக்டர்
பரப்பளவில் சீதல்கல் வெட்டியெடுக்க குவாரி குத்தகை அனுமதி
சீதல்கல்
கோரியுள்ளார்.

மேற்கண்ட குவாரி குத்தகை அனுமதி கோரியுள்ள இடத்தை சுற்றி
சுமார் 500 மீட்டர் 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
26, சீத்தியமங்கலம் வட்டம்,
குளத்தூர் தாலுகா
புதுக்கோட்டை மாவட்டம்.

ANNEXURE-VIII
BLASTING AGREEMENT



GOVERNMENT OF INDIA
MINISTRY OF COMMERCE & INDUSTRY
PETROLEUM AND EXPLOSIVES SAFETY ORGANISATION (PESO)
(Formerly Department of Explosives)
A & D - Wing, Block 1-8, 11nd Floor, Shastri Bhavan
26 Haddous Road, Nungambakkam Chennai 600006
Tele: 28281023 Fax: 28284848
Email: jtccechennai@explosives.gov.in

23 JUL 2018

No. E/SC/TN/30/2144(E110442)

Dated : 17/07/2018

To: **C. ANANDHAN S/O. CINNARASU,**
NO 112/2, GURUSAMY NAIDU STREET, ILUPUR POST AND TALUK 622102
DASH PUDUKKOTTAI, State Tamil Nadu, Pincode-622102

Subject: **Shotfirer's Certificate No. E/SC/TN/30/2144(E110442) issued to C. ANANDHAN S/O. CINNARASU, NO.112/2, GURUSAMY NAIDU STREET, ILUPUR POST AND TALUK 622102 granted in Form LE-10 of Explosives Rules, 2008 - Issue of Certificate regarding.**

Sir(s),

Please refer to your letter No. xx dated 16/07/2018 and the subsequent examination held on 25/06/2018. Please find enclosed herewith Shotfirer's Certificate No. E/SC/TN/30/2144(E110442) valid upto 17/07/2023 for the purpose of Class : (B), Category : General aboveground, All phases of aboveground blasting operation as per the provisions of Rule 107 of Explosives Rules, 2008.

Conditions:

i) Blasting work in connection with well Sinking/Road Construction/Agricultural work etc.

It may please be noted that no explosives should be purchased on the strength of the above certificate. You are advised to strictly follow Rules 89 to 98 of Explosives Rules 2008 while undertaking blasting operations

- In case of validity of the certificate to be extended, application with following documents shall be submitted
 - a. Application in Form AE-10.
 - b. Original Shot firer's Certificate in Form LE-10.
 - c. Scrutiny fee of revalidation Rs. 400/- DD shall be drawn in favour of **Jt. Chief Controller of Explosives, Chennai** payable at Chennai
 - d. Five copies of holder's colour passport size photographs duly signed 'in front' by 'black color indelible ink'.
 - e. A physical fitness certificate from Registered medical practitioner.
 - f. A consent letter from the present employer holding Licence in Form LE-3 and intending to hire the services of Certificate holder
 - g. The shot firer certificate holder has to present himself physically before reviewing/revalidating Authority
 - h. This certificate is liable to be cancelled/withdrawn on contravention of provisions of Explosive Rules, 2008 committed during blasting operations, resulting in loss of human life.

An amount of Rs. 100/- balance is in your credit, which may be utilized for future transaction by quoting this reference.

Enclosures :

Yours faithfully,

(C.G.Kalambhe)
Deputy Chief Controller of Explosives
For Joint Chief Controller of Explosives
South Circle, Chennai

Copy Forwarded to:

1. Police Station, ILLUPPUR PS, PUDUKKOTTAI, Tamil Nadu with reference to his Noc No: XX Dated: 24/02/2018

For Joint Chief Controller of Explosives
 South Circle, Chennai

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

अनुमति प्रमप एल.ई.-10 | Form LE-10
 शॉट फायर कर्ता प्रमाण-पत्र | Shot Firer's Certificate
 (अनुसूची IV के भाग I का अनुच्छेद 10 देखें | See article 10 of Part I of Schedule IV)
 (विस्फोटक विषय, 2008 का नियम 107(5) देखें | see rule 107(5) of Explosives Rules, 2008)

(खान अधिनियम, 1952 के अधीन न आने वाले क्षेत्र में विस्फोट करने के लिए सक्षमता प्रमाणपत्र)
 (Certificate of competency to carry out blasting of explosives in area not coming under t



संख्या | No.: E/SC/TN/30/2144(E110442)

उत्पादित किया जाता है कि श्री C. ANANDHAN S/O. CINNARASU,
 जन्म तिथि: 07/05/1981 को हुआ था, जो NO.112/2, GURUSAMY NAIDU STREET, ILUPUR POST AND TALUK 622102, PUDUKKOTTAI, Tamil
 Nadu - 622102 के निवासी हैं ने विस्फोटक नियंत्रक, चेन्नई द्वारा तारीख 25/06/2018 को आयोजित शॉट फायर की परीक्षा तारीख को 25/06/2018 उत्तीर्ण कर ली है और वह विस्फोटक अधिनियम, 1884 और
 उसके अधीन विहित विधियों के उपबंधों के अधीन रहते हुए खान अधिनियम, 1952 की परिधि के अधीन आनेवाले खानों में भीचे तथा उल्लिखित विस्फोटकों का उपयोग करते हुए विस्फोटक प्रमाणपत्र करने के लिए सक्षमता

This is to certify that **Sri C. ANANDHAN S/O. CINNARASU**,
 born on 07/05/1981, resident of NO.112/2, GURUSAMY NAIDU STREET, ILUPUR POST AND TALUK 622102, PUDUKKOTTAI, Tamil
 Nadu - 622102 passed the shotfirer's examination held on 25/06/2018 conducted by Controller of Explosives, Chennai and is authorised to
 conduct blasting operations as mentioned below using explosives in areas other than mines coming under the purview of the Mines Act 1952,
 subject to the provisions of the Explosives Act, 1884 and the rules framed thereunder.

विस्फोट करने के प्राधिकृत वर्ग, प्रकार और प्रकार :
 वर्ग: (B), श्रेणी: सामान्य अधीन के ऊपर, जमीन के ऊपर क्लास्टिंग आपरेटर

Authorised class, category and type of blasting :
 Class : (B), Category : General aboveground, All phases of aboveground blasting operation

§ विषय 107 का उप-नियम (5) का स्पष्टीकरण देखें | See explanation of sub-rule (5) of rule 107

यह प्रमाणपत्र 17/07/2023 (जारी करने की तारीख से पांच वर्षों) तक विधिमानीय होगा |
 This certificate shall remain valid till 17/07/2023 (five years from the date of issue)

यह प्रमाण-पत्र, अधिनियम या उसके अधीन विहित विधियों अथवा इस प्रमाण-पत्र की शर्तों का कोई अधिकांश करने या यदि आवेदन दस्तावेजों में कोई त्रुटि या विचलन होता है तो विधिमानीय या
 निलंबित कर दिया जाएगा।

This certificate is liable to be suspended or revoked for any violation of the Act or rules framed thereunder or the conditions of this certificate
 or if there is any discrepancy or deviation in the information or suppression of facts furnished by the applicant in his application form.

स्थान: Place | चेन्नई | Chennai
 दिनांक: Date | 17/07/2018

संयुक्त मुख्य विस्फोटक नियंत्रक | Joint Chief Controller of Explosives
 दक्षिणक्षेत्र, चेन्नई | South Circle, Chennai

पुनर्विधिमानीकरण के लिए पृष्ठांकन
 Endorsement for revalidation

पुनर्विधिमानीकरण की तारीख Date of Revalidation	समाप्ति की तिथि Date of Expiry	अनुमति प्राधिकारी के हस्ताक्षर Signature of licensing authority
---	-----------------------------------	--

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

शर्तें | CONDITIONS

संख्या | No.: E/SC/TN/30/2144(E110442)

1. यह परमिट प्राप्त करने के लिए सब तथ्य अपिभूत करता है जब तक कि यह विस्फोटक नियम, 2008 के अंतर्गत फॉर्म एलई-3 में वैध अनुमति धारक (अनुमति संख्या: E/SC/TN/22/145(E10423)), R.BHUVANASUNDARI M/S BUYANA EXPLOSIVES के नीकरी/अनुबंध के अधिन कार्य भर रहा है।
This permit authorizes the permit holder to conduct blasting so long as he is working under the employment/contract of R.BHUVANASUNDARI M/S BUYANA EXPLOSIVES holding valid licence (Licence No. E/SC/TN/22/145(E10423)) in Form LE-3 of Explosives Rules, 2008.
2. विस्फोटक सामग्री प्राप्त करने, उसके स्थायित्व परीक्षण संभारण, उठाई धाराई और उपयोग करने के लिए सभी स्थानीय विधियों और विनियमों का अनुसरण किया जाएगा।
All local laws and regulations applicable for obtaining, owning, transporting, storing, handling and using explosive materials shall be followed.
3. विस्फोटक सामग्री को अप्रामाणिक कब्जे से संरक्षित किया जाएगा तथा उसे परित्यक्त नहीं किया जाएगा।
Explosive materials shall be protected from unauthorised possession and shall not be abandoned.
4. विस्फोटक सामग्री का उपयोग केवल ऐसे अनुभवी व्यक्तियों द्वारा किया जाएगा जो उसमें अंतर्गत परिसंकेत को जानते हों और जिनके पास अपेक्षित अनुमति हों।
Explosive materials shall be used only by experienced persons who are familiar with the hazards involved and who hold all required permits.
5. लदाई और फायरिंग या उसका पर्यवेक्षण केवल ऐसे व्यक्ति द्वारा किया जाएगा जिसके पास समुचित शाट फायरिंग प्रमाणपत्र और विस्फोटक के लिए अनुमति हों।
Loading and firing shall be performed or supervised only by a person possessing an appropriate shot firer certificate and permit to blast.
6. प्रशिक्षार्थी सहायक और अन्य व्यक्ति, जिनके पास अपेक्षित शाट फायरिंग प्रमाणपत्र या अनुमति नहीं है, केवल ऐसे अनुमति धारक करने वाले व्यक्तियों के पर्यवेक्षण के अधीन काम करेंगे।
Trainees helpers and other persons who do not hold the required shot firer certificate or permits shall work only under the supervision of persons holding such permits.
7. ऐसे स्थान पर जहाँ विस्फोटक सामग्री अवस्थित या भंडारित नहीं की जाएगी जहाँ अत्यधिक गर्मी या उसके प्रभाव से उनका विस्फोट हो सकता है।
No explosive materials shall be located or stored where they may be exposed to flame excessive heat sparks or impact.
8. ऐसे स्थान के 15 मीटर के भीतर धूम्रपान करने की अनुमति नहीं दी जाएगी जहाँ विस्फोटकों को जमा किया गया है या उनका उपयोग किया गया है।
No smoking shall be permitted within 15 metre of any location where explosive are being handled or used.
9. कोई व्यक्ति ऐसे स्थान के 15 मीटर के भीतर कोई भी मचिस, बिजली या अन्य प्रकार की अग्नि या चिंगनी नहीं चलाएगा, जहाँ विस्फोटकों को जमा किया गया है या उनका उपयोग किया जा रहा है। तथापि इन अपेक्षा से सुरक्षित प्रयुक्त जलाने के लिए उपयुक्त सुक्तियों को छूट प्राप्त होगी।
No person within 15 metres of any location where explosive are being handled or used shall carry any matches open light or other fire or flame. However, suitable devices for lighting safety fuse are exempted from this requirement.
10. मादक, शराब, स्तनक या अन्य खतरनाक औषधियों से प्रभावित किसी व्यक्ति को विस्फोटक सामग्री के उपयोग की अनुमति नहीं होगी।
No person under the influence of intoxicating liquors narcotics or other dangerous drugs shall be allowed to handle explosive materials.
11. भंडारण मैगजीन और विस्फोटक स्थान के बीच परिवहन के दौरान विस्फोटक सामग्री मंद अनुमोदित पात्र या पैकेज में रखे जाएंगे।
Explosive materials shall be kept in close approved containers or packages while being transported between the storage magazine and the blasting site.
12. विस्फोटक करने का शाट फायरिंग प्रमाणपत्र और अनुमति धारक द्वारा प्राप्त की गई और फायर की गई या इससे निबटाई गई सभी विस्फोटक सामग्री का दैनिक अभिलेख रखा जाएगा। ऐसा अभिलेख पांच वर्ष तक प्रतिधारित किया जाएगा।
A holder of a shot firer certificate and Permit to Blast shall keep a daily record of all explosive materials received and fired or otherwise disposed of by the permit holder. Such records shall be retained for five years.
13. शॉट फायरिंग और कर्मचारी आपदाकाल के दौरान बचती जानेवाली प्रक्रिया से अवगत होंगे।
The shot firer and the employee shall be conversant with procedure to be taken during the emergency.
14. शॉट फायरिंग प्रमाणपत्र धारक को सुरक्षा के हित में निषेधक स्वरूप समय-समय पर दिए गए उन सभी या किन्हीं निर्देशों का पालन करना होगा।
The holder of the shot firer certificate shall comply with all or any of the directions as may be given by the Controller from time to time in the interest of safety.
15. अग्नि या विस्फोटक के कारण होने वाली क्षति और विस्फोटकों की हानि, कमी या चोरी के बारे में निकटतम पुलिस स्टेशन और अनुमति धारक प्राधिकारी तथा अनुमति प्राप्ति के स्थानीय कार्यालय में तुरंत रिपोर्ट की जाएगी।
Accidents by fire or explosion and losses, shortage or theft of explosives shall be immediately reported to the nearest police station and the Controller of Explosives having jurisdiction over the area.

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



भारत सरकार | Government of India
वाणिज्य और उद्योग मंत्रालय | Ministry of Commerce & Industry
पेट्रोलियम तथा विस्फोटक सुरक्षा संगठन (पेसो) | Petroleum & Explosives Safety Organisation (PESO)
पूर्व नाम- विस्फोटक विभाग | Formerly- Department of Explosives
पाँचवां तल, ए-ब्लॉक, सी.जी.ओ. कॉम्प्लेक्स | 5th Floor, A-Block, CGO Complex,
सेमिनरी हिल्स नागपुर | Seminary Hills, Nagpur 440006
फोन (Phone):- 2510248 | फैक्स (Fax):- 2510577

संख्या (No.) E/SC/TN/22/764(E132294)

दिनांक (Date): 08/12/2022

सेवा में | To,

M/S BUVANA EXPLOSIVES,
112 2,GURUSAMY NAIDU ST. ILUPPUR POST, Town/Village - PUDUKKOTTAI
District-PUDUKKOTTAI, State-Tamil Nadu, Pincode - 622102

विषय: Survey No.275/4 UDAIYALIPATTI, ग्राम UDAIYALIPATTI, जिला PUDUKKOTTAI, राज्य Tamil Nadu में मेसर्स M/S BUVANA EXPLOSIVES द्वारा विस्फोटक के मैगजीन में उपयोग के लिए कब्जा हेतु विस्फोटक नियम, 2008 के अंतर्गत LE-3 में जारी अनुज्ञप्ति से E/SC/TN/22/764(E132294) के संशोधन संदर्भ में।
(विस्फोटक की मात्रा / मासिक खरीद सीमा में परिवर्तन)

Subject: Possession for Use of of Explosives from magazine situated at Survey No.:275/4 UDAIYALIPATTI, UDAIYALIPATTI, Dist. PUDUKKOTTAI, Tamil Nadu -Licence No.: E/SC/TN/22/764(E132294) granted in Form LE-3 of Explosives Rules, 2008 -
(Amendment of Quantity of Explosives/Monthly Purchase Limit).

महोदय | Sir,

आपका उपर्युक्त विषय पर पत्र संख्या 72964 दिनांक 28/11/2022 का संदर्भ ग्रहण करें।
Please refer to your letter no. 72964 dated 28/11/2022.

अनुज्ञप्ति संख्या E/SC/TN/22/764(E132294) विस्फोटक की मात्रा / मासिक खरीद सीमा में परिवर्तन के संदर्भ में यथा संशोधित कर भेजी जा रही है।
The Licence No. : E/SC/TN/22/764(E132294) is forwarded herewith duly amended in respect of followings ;

Quantity of Explosives/Monthly Purchase Limit

किसी भी एक समय में लाइसेंस क्षमता निम्नलिखित वर्ग तथा मात्रा से अधिक नहीं होगी।
The licence capacity at any one time shall not exceed the kinds and quantities mentioned below ;

संख्या No	विस्फोटक Explosive(s)	वर्ग Class	प्रभाग Div	उप-प्रभाग Sub Div	क्षमता Capacity	इकाई Unit
1	Nitrate mixture - Slurry and Emulsion Explosives	2	0	0	10000	Kg
2	Detonators	6	3	0	44000	Nos.
3	Detonating Fuse	6	2	0	30000	Mtrs
4	Safety Fuse	6	1	0	10000	Mtrs

किसी एक कलेंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा (अनुच्छेद 3 (ख) और (ग) के अधीन अनुज्ञप्ति के लिए लागू) : 10 गुना
Quantity of explosives to be purchased in a calendar month[applicable for licence under article 3(b) and (c)] : 10 times as above.

यह अनुज्ञप्ति दिनांक 31 मार्च 2027 तक प्रवृत्त रहेगी।
This licence shall remain valid till 31st day of March 2027.

अनुज्ञप्ति के आगामी नवीकरण हेतु कृपया विस्फोटक नियम, 2008 के नियम 112 के अंतर्गत प्रक्रिया का पालन करें। कृपया पावती दें।
For further revalidation(if required), please follow the procedure under Rule 112 of Explosives Rules, 2008. Receipt of this letter may please be acknowledged.

भवदीय | Your's faithfully

(एम. के. पाण्डेय | Mridul Kumar Pandey)
उप मुख्य विस्फोटक नियंत्रक | Deputy Chief Controller of Explosives
कृते मुख्य विस्फोटक नियंत्रक | For Chief Controller of Explosives

प्रतिलिपि प्रेषित | Copy Forwarded to:

- संयुक्त मुख्य विस्फोटक नियंत्रक, दक्षिणांचल चैत्रे
The Jt. Chief Controller of Explosives, South Circle, Chennai
- District Magistrate, PUDUKKOTTAI, Tamil Nadu with reference to his Noc No: R.DIS27440/2021/C5 Dated: 30/11/2021
- Superintendent of Police, PUDUKKOTTAI, Tamil Nadu.

कृते मुख्य विस्फोटक नियंत्रक | For Chief Controller of Explosives

(अधिक जानकारी जैसे आवेदन की स्थिति, शुल्क आदि के लिए हमारी वेबसाइट <http://peso.gov.in> देखें।)
(For more information regarding status, fees and other details please visit our website <http://peso.gov.in>)

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

Digitally signed by MRIDUL KUMAR PANDEY
Reason: Licence No. : E/SC/TN/22/764
Location:Nagpur [E132294]
Date:08-12-2022 11:25:46 AM

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

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

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

अनुज्ञप्ति सं. (Licence No.): E/SC/TN/22/764(E132294)

वार्षिक फीस रुपए (Annual Fee Rs): 16400/-

1. Licence is hereby granted to



M/S BUVANA EXPLOSIVES (अधिभोगी / Occupier : R. BUVANASUNDARI), 112/2, GURUSAMY NAIDU ST. ILUPPUR POST,
Town/Village - PUDUKKOTTAI, District-PUDUKKOTTAI, State-Tamil Nadu, Pincode - 622102

को अनुज्ञप्ति अनुदत्त की जाती है।

2. अनुज्ञप्तिधारी की प्रास्थिति | Status of licensee : Proprietorship Firm

3. अनुज्ञप्ति निम्नलिखित प्रयोजनों के लिए विधिमाम्य है।
Licence is valid only for the following purpose

possess for use of Nitrate mixture - Slurry and Emulsion Explosives, Detonators,
Detonating Fuse, Safety Fuse, - के उपयोग के लिए

4. अनुज्ञप्ति विस्फोटकों के निम्नलिखित किस्मों, प्रकार और मात्रा के लिए विधिमाम्य है।
Licence is valid for the following kinds and quantity of explosives: -- (क) (a)

क्र Sr. No	नाम और विवरण Name and Description	वर्ग और प्रभाग Class & Division	उप-प्रभाग Sub-division	मात्रा किसी एक समय में Quantity at any one time
1	Nitrate mixture - Slurry and Emulsion Explosives	2,0	0	10000 Kg
2	Detonators	6,3	0	44000 Nos
3	Detonating Fuse	6,2	0	30000 Mtrs
4	Safety Fuse	6,1	0	10000 Mtrs

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

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

10 times
as above.

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञप्त परिसर की पुष्टि होती है।
The licensed premises shall conform to the following drawing(s):

रेखाचित्र क्र. (Drawing No.) E/SC/TN/22/764(E132294)
दिनांक (Dated) 08/12/2022

6. अनुज्ञप्ति परिसर निम्नलिखित पते पर स्थित हैं। The licensed premises are situated at following address:
Survey No. 275/4 UDAIYALIPATTI, ग्राम (Town/Village) : UDAIYALIPATTI

पुलिस थाना (Police Station) : UDAIYALIPATTI

जिला (District)	PUDUKKOTTAI	राज्य (State)	Tamil Nadu	पिनकोड (Pincode)	622502
दूरभाष (Phone)	09003301114	ई.मेल (E-Mail)	guru.rajamannar@gmail.com	फैक्स (Fax)	

7. अनुज्ञप्ति परिसर में निम्नलिखित सुविधाएं अंतर्विष्ट हैं।
The licensed premises consist of following facilities.

a main magazine room, a detonator annexe and a lobby

8. अनुज्ञप्ति समय - समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विरचित विस्फोटक नियम, 2004 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपाबंधों के अधीन रहते हुए अनुदत्त की जाती है।
The licence is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2004 framed there under and the conditions, additional conditions and the following Annexures.

- उपयुक्त क्रम सं. 5 में यथा कथित रेखाचित्र (स्थान, सन्निर्माण संबंधी और अन्य विवरण दर्शित करते हुए।)
Drawings (showing site, constructional and other details) as stated in serial No. 5 above.
- अनुज्ञप्ति प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञप्ति की शर्तों और अतिरिक्त शर्तों।
Conditions and Additional Conditions of this licence signed by the licensing authority.
- दूरी प्ररूप DE-2 | Distance Form DE-2.

9. यह अनुज्ञप्ति तारीख 31 मार्च 2027 तक विधिमाम्य रहेगी। This licence shall remain valid till 31st day of March 2027.

यह अनुज्ञप्ति, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट-VII के अधीन तथा उपवर्णित इस अनुज्ञप्ति की शर्तों का अतिक्रमण करने या यदि अनुज्ञप्त परिसर योजना या उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिसंहत की जा सकती है, जहां वह लागू हो।
This licence is liable to be suspended or revoked for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Set VII, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plats and Annexures attached hereto.

तारीख | The Date - 27/04/2022

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

Amendments :

- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 21/10/2022
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 08/12/2022

नवीनीकरण के पृष्ठांकन के लिए स्थान
Space for Endorsement of Renewal

नवीनीकरण की तारीख
Date of Renewal

समाप्ति की तारीख
Date of Expiry

अनुज्ञापन प्राधिकारी के हस्ताक्षर और स्टाम्प
Signature of licensing authority and stamp

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

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

Form DE-2
(See 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/22/764(E132294) in form LE-3 granted to M/S BUYANA EXPLOSIVES, 112/2, GURUSAMY NAIDU ST. ILUPPUR POST., Tamil Nadu-622502 .

Type of Structure(s)	Safety distances meters	
Inside Safety Distances(ISD)		
	M	UM
1 Room or Workshop used in Connection with the Magazine	56	
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		255
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, Sprit, gas, or other inflammable or hazardous substances		510
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 : 27/04/2022

For Joint Chief Controller of Explosives
South Circle, Chennai

Amendments :

- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 21/10/2022
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 08/12/2022

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

मैगजीन में वर्ग 1, 2, 3, 4, 5, 6, और 7 के विस्फोटकों को बिक्री या प्रयोग हेतु रखने के लिए प्ररूप एल.ई. 3 [अनुच्छेद 3 (ख) से (ग)] में मुख्य विस्फोटक नियंत्रक या विस्फोटक नियंत्रक द्वारा प्रदान किए जाने वाले अनुज्ञप्ति सं. E/SC/TN/22/764(E132294) की शर्तें निम्नलिखित हैं।
The following are the conditions of licence number E/SC/TN/22/764(E132294) to possess for sale or use, explosives of Class 1, 2, 3, 4, 5, 6 and 7 in a magazine in Form LE-3 (articles 3(b) to (c)) granted by Chief controller of Explosives or Controller of Explosives.

- परिसर में किसी भी समय विस्फोटकों की मात्रा अनुज्ञापन योग्य सामर्थ्य से अधिक नहीं होगी।
The quantity of explosives on the premises at any one time shall not exceed the licensable capacity.
- विस्फोटकों के भंडारण के लिए प्रयुक्त होने वाली मैगजीन अनुसूची III और अनुज्ञप्ति के उपाबंध में विनिर्दिष्ट सुरक्षा दूरी बनाए रखना होगा।
The magazine used for storage of explosives shall maintain safety distance specified in Schedule III and annexure to the licence.
- मैगजीन का प्रयोग उन सभी विस्फोटकों के, जो इस अनुज्ञप्ति में विनिर्दिष्ट हैं, रखे जाने के लिए और ऐसे रखे जाने से संबद्ध आधान या औजार या उपकरणों के रखे जाने के लिए ही किया जाएगा; अन्यथा नहीं।
The magazine shall be used only for keeping all explosives specified in this licence and of receptacles for, or tools or implements for work connected with the keeping of such explosives.
- पैकजों को खोलने का कार्य और विस्फोटकों को तोलने तथा पैक करने का कार्य मैगजीन में नहीं किया जाएगा।
The opening of packages and the weighing and packing of explosives shall not be carried on in the magazine.
- दो या दो से अधिक वर्णन के विस्फोटकों को, जिन्हें मैगजीन में रखे जाने की अनुज्ञा दी जा सकती है, मैगजीन में तभी रखे जाएंगे जब उनमें से प्रत्येक को, ऐसे पदार्थ या स्वरूप का कोई मध्यवर्ती विभाजक लगाकर या उनके बीच ऐसा मध्यवर्ती स्थान छोड़कर, परस्पर पृथक् कर दिया जाए कि किसी वजह से विस्फोटक में लगने वाली आग या होने वाला विस्फोट किसी अन्य वर्णन के विस्फोटक तक न पहुंच सके - परंतु -
(घ) 2 (नाइट्रेट मिश्रण), वर्ग 3 (नाइट्रो यौगिक) के विभिन्न विस्फोटक, वर्ग 6 प्रथम प्रभाग के अंतर्गत आने वाले सुरक्षा पत्ती और वर्ग 6 प्रभाग 2 के अंतर्गत आने वाले विस्फोटक प्रेरक पत्ती, जिनमें कोई खुला लोहा या इस्पात नहीं है, एक दूसरे के साथ बिना किसी मध्यवर्ती विभाजक या स्थापन के रखे जा सकते हैं।
(ङ) वर्ग 6 प्रभाग 3 के अंतर्गत आने वाले विस्फोटक प्रेरक अलग रखे जाएंगे।
(च) वर्ग 1 के अंतर्गत आने वाले बारूद को अलग रखा जाएगा।
Two or more description of explosives which may be permitted to be kept in the magazine shall be kept only if they are separated from each other by an intervening partition of such substance or character, or by such intervening space, as will effectually prevent explosion or fire in the one communicating with the other; Provided that—
(d) the various explosives of Class 2 (nitrate-mixture), Class 3 (nitro-compound), safety fuses belonging to Class 6 Division 1 and detonating fuses belonging to Class 6 Division 2 as do not contain any exposed iron or steel, may be kept with each other without any intervening partition or space ;
(e) Detonators belonging to Class 6 Division 3 shall be kept separately.
(f) Gun powder belonging to Class 1 shall be kept separately.
- वर्ग 3 (नाइट्रो यौगिक) के विस्फोटकों को, उनके विनिर्माण की तारीख से एक वर्ष बीत जाने के पश्चात सिवाय अनुज्ञापन प्राधिकारी की विशेष मंजूरी के मैगजीन में नहीं रखा जाएगा।
Explosives of Class 3 (nitro compound) shall not be kept in the magazine after the expiration of one year from the date of their manufacture except with the special sanction of licensing authority.
- वर्ग 3 (नाइट्रो यौगिक) के विस्फोटकों को, उनके विनिर्माण की तारीख से एक वर्ष बीत जाने के पश्चात मैगजीन में तभी रखा जाएगा जब कि किसी विस्फोटक नियंत्रक ने इसके लिए विशेष मंजूरी दे दी हो।
(i) जब ऐसी मंजूरी दे दी गई हो तो प्रत्येक निरीक्षण पर किसी विस्फोटक नियंत्रक से ऐसा लिखित प्रमाणपत्र अभिप्राप्त कर लिया जाए जिसमें दी गई मंजूरी के अंतर्गत आनेवाली अवधि दर्शाई गई हो और ऐसे प्रमाणपत्र के अनुज्ञप्तिधारी अपने पास रखेगा और मांग की जाने पर प्रस्तुत करेगा।
(ii) जब कोई विस्फोटक मानक शुद्धता का न रह जाने के कारण या द्रवणीकरण या नाइट्रो स्टीअसरीन या द्रव नाइट्रो यौगिक के निकल जाने के विन्म एहत होने के कारण मैगजीन में भण्डारित किए जाने के उपयुक्त नहीं रह जाता है तो अनुज्ञप्तिधारी अपने ही व्यय पर ऐसे विस्फोटक के निपटारे के लिए ऐसे निदेशों का अनुपालन करेगा जो मुख्य नियंत्रक या विस्फोटक नियंत्रक जारी करें।
Explosives of Class 3 (nitro compound) shall not be kept in the magazine after the expiration of one year from the date of their manufacture except with the special sanction of the Controller of Explosives.
(i) When such sanction has been given, a written certificate showing the period covered by the sanction shall be obtained from the Controller of Explosives at each inspection, and shall be kept by the licensee and produced on demand.
(ii) When an explosive owing to its being no longer of standard purity or owing to signs of liquefaction or of exuded nitro-glycerin or liquid nitro-glycerin or liquid nitrocompound is no longer fit for storage in the magazine or store house the licensee shall comply, at his own expense, with such directions as to its disposal as the Chief Controller or Controller of Explosives may issue.
- मैगजीन के भीतरी भाग या उसमें लगी बेंचो, शेल्फो और फिटिंग का इस प्रकार सत्रिमाण किया जाएगा या उन्हें इस प्रकार अंतरित या अवतरित किया जाएगा कि विस्फोटक का किसी लोहे या इस्पात के साथ संपर्क रोका जा सके। भीतरी भाग में लगी बेंचो, शेल्फो और फिटिंग यथासाध्य ग्रिट से मुक्त एवं साफ रखे जाएंगे तथा ऐसे विस्फोटक, जो जल से खतरनाक रूप में प्रभावित हो सकते हैं, इस बावत सम्यक सावधानी बरती जाएगी कि वहां कोई जल मौजूद न रहे; परंतु किसी लोहे या इस्पात के खुले होने के विरुद्ध सावधानी से संबंधित दूर शर्त का वह भाग ऐसे किसी भवन में बाध्यकर नहीं होगा जिसमें वर्ग 6 (गोला बारूद) के प्रथम के विस्फोटक से निम्न कोई विस्फोटक रखा गया है।
The interior of the magazine and the benches, shelves and fittings therein shall be so constructed or so lined or covered as to prevent the exposure of any iron or steel contact with the explosives. Such interior, benches, shelves and fittings shall so far as is reasonably practicable, be kept free from grit and shall otherwise be clean, and in the case of any explosives liable to be dangerously affected by water, due precautions shall be taken to exclude water there from.
Provided that so much of this condition as relates to precautions against the exposure of any iron or steel shall not be obligatory in a building in which no explosive other than explosive of the 1st Division 6th (Ammunition) Class is kept.
- यदि तड़ित चालक का परीक्षण विस्फोटक नियंत्रक करता है तो अनुज्ञप्तिधारी ऐसे परीक्षण के लिए विहित फीस का संदाय करेगा यदि परीक्षण असमाधानकारी साबित होता है तो उसनी ही फीस अनुज्ञप्तिधारी द्वारा पश्चात्तर्ती प्रत्येक परीक्षण के लिए तब तक दी जाती रहेगी जब तक कि गरीक्षण अधिकारी तड़ित चालक को समाधानप्रद घोषित नहीं कर देता परंतु किसी एक परीक्षण के लिए देय फीस किसी एक दिन के दौरान किसी चालक के लिए गए सभी परीक्षणों के लिए प्रभार्य होगा।
परंतु यह और कि यदि दो या अधिक तड़ित चालक एक ही मैगजीन से संबद्ध हैं तो ऐसे सभी चालकों के परीक्षण के लिए फीस ऐसी किसी फीस से अधिक नहीं होगी जो किसी एक तड़ित चालक के परीक्षण के लिए हर स्थिति में विहित की गई है।
If the lightning conductor is tested by the Controller of Explosives, the licensee shall pay the fees prescribed for test. In the even of the test proving unsatisfactory, the same fees shall be payable by the licensee for each subsequent test until the lightning conductor is passed by the testing officer as satisfactory.
Provided that the fees payable for a single test shall be charged for all tests made on a conductor during any one day.
Provided further that where two or more lightning conductors are attached to one and the same magazine, the fee for the testing of all such conductors shall not exceed the fee prescribed in this condition for testing a single lightning conductor.
- उपयुक्त तथा जब रहित कार्यकरण वस्तु, उपयुक्त जूतों के प्रयोग द्वारा तथा तलाशी लेकर या अन्यथा अथवा ऐसे किन्हीं साधनों द्वारा इस बावत सम्यक उपबंध किया जाएगा कि फैक्ट्री परिसर में अग्नि, दियासलाई अथवा ऐसी कोई वस्तुएं या पदार्थ, जिससे विस्फोट हो सकता है या आग लग सकती हो, किन्तु इस शर्त के कारण ऐसी संरचना, स्थिति या स्वरूप में किसी कृत्रिम बत्ती का प्रवेश वर्जित नहीं है जिससे आग लगने या विस्फोट होने का खतरा न हो।
परंतु इस शर्त का वह भाग, जो लोहे या इस्पात के अपवर्जन को लागू होता है, ऐसे किसी भवन के संबंध में बाध्य कर नहीं होगा जिससे भिन्न कोई विस्फोटक नहीं रखा गया है।
Due provisions shall be made, by the use of suitable working clothes without pockets, suitable shoes and by searching or otherwise or by such means, for preventing the introduction into danger area of the factory premises of fire, Lucifer matches or any substance or article likely to cause explosion or fire, but this condition shall not prevent the introduction of an artificial light of such construction, position or character as not to cause any danger of fire or explosion.
Provided that so much of this condition as applies to the exclusion of iron or steel, shall not be obligatory in a building in which no explosive other than an explosive of the 1st Division of the 6th (Ammunition) Class is kept.

- 11 अनुज्ञापितधारी प्ररूप आर ई -3 और आर ई -4 या आर ई -5, जैसा स्थिति हो, में सभी विस्फोटकों का अभिलेख और लेखा रखेगा और विस्फोटक नियम, 2008 के अधीन प्राधिकृत किसी भी अधिकारी के समक्ष उसके द्वारा ऐसा करने की मांग की जाने पर स्टॉक पुस्तक और अभिलेख प्रस्तुत करेगा। स्टॉक पुस्तक विहित प्रोफार्मा में पृष्ठ संख्यांकित होगी।
The licensee shall keep records and accounts of all explosives in Forms RE-3 and RE-4 or RE-5, as the case may be, and exhibit the stock books and records to any of the officers authorised under the Explosives Rules, 2008 whenever such officer may call upon him to do so. The stock books in the prescribed proforma shall be page numbered.
- 12 परिसरों में कोई परिवर्तन या तबदीली अनुज्ञापन प्राधिकारी के पूर्वानुमोदन बिना नहीं की जाएगी और अनुज्ञापितधारी ऐसी किसी शर्त का अनुपालन करेगा जो इस निमित्त अनुज्ञापन प्राधिकारी विनिर्दिष्ट करें।
No changes or alterations shall be carried out to the premises without prior approval of the licensing authority and the licensee shall comply with any condition that may be specified by the licensing authority in this behalf.
- 13 मैगजीन सभी समयों पर अच्छी मरम्मत की स्थिति में बनाई रखी जाएगी (या अच्छी हालत में बनाई रखी जाएगी)। यदि किसी कारणवश किसी विस्फोटक के भण्डारण के लिए मैगजीन अनुपयुक्त हो जाती है तो अनुज्ञापितधारी इस बात की सूचना अनुज्ञापन प्राधिकारी को तुरंत देगा।
Magazine shall at all times be kept in state of good repair (or maintained in good condition). The licensee shall report to licensing authority forthwith, if the magazine becomes unfit for storage of any explosives for any reason whatsoever.
मैगजीन का अनुज्ञापितधारी इन नियमों के नियम 24 के उप-नियम 3 के अनुसार त्रैमासिक विवरणी प्रस्तुत करेगा।
The licensee of the magazine shall submit quarterly return as per sub-rules (3) and (4) of rule 24 of these rules.
- 14 यदि सुरक्षा दूरी का कोई अधिकरण होता है तो उसकी सूचना अनुज्ञापन प्राधिकारी को आवश्यक सलाह और कार्यवाही के लिए तुरंत दी जाएगी।
Any encroachment of the safety distance shall be immediately communicated to the licensing authority for necessary advice and action.
- 15 यदि कोई विस्फोटक विनष्ट हुआ अथवा अनुपयोगी जाया जाता है तो उसकी सूचना अनुज्ञापन प्राधिकारी को, सलाह प्राप्त करने के लिए, तुरंत दी जाएगी।
The licensing authority shall be immediately informed for advice if any explosive is found deteriorated or unserviceable.
- 16 विस्फोटकों के पैकेटों के चूटे इस प्रकार लगाए जाएंगे कि कम से कम एक व्यक्ति भण्डार किए गए सभी पैकेजों की हालत की जांच करने और प्रत्येक पैकेज की विनिर्माण विधिओं को पढ़ने के लिए उनके बीच से होकर आ जा सके।
The explosive packages shall be stocked in such a way so as to allow movement of at least one person to check the condition of all packages stored and to read the manufacture particulars of each package.
तडित चालकों की भूमि के लिए प्रतिरोध यथासंभव न्यूनतम होगा और किसी भी दशा में 10 ओह्म से अधिक नहीं होगा।
The resistance of the lightning conductor to earth shall be as low as possible and in no case be more than 10 ohms.
- 17 मैगजीन के चारों ओर 15 मीटर की दूरी के अंतर्गत कोई शुल्क घास या झाड़ी या ज्वलनशील सामग्री नहीं रहने दी जाएगी।
A distance of 15 meters surrounding the magazine or store house shall be kept clear of dried grass or bush or flammable materials.
- 18 विस्फोटकों के प्रत्येक पैकेट की, जब उसे मैगजीन के भीतर लिया जा रहा हो, ठीक दशा जानने के लिए परीक्षा की जाएगी।
Every package of explosive at the time of bringing inside the magazine shall be examined for its sound condition.
- 19 किसी मैगजीन / भंडारगृह में किसी एक समय में चार व्यक्तियों से अधिक को नहीं रहने दिया जाएगा।
Not more than 4 persons shall be allowed inside the magazine or store house at any one time.
- 20 विस्फोटकों के खाली पैकेजों को शीघ्रतः हटा दिया जाएगा और नष्ट कर दिया जाएगा।
Empty packages of the explosives shall be removed at the earliest and destroyed.
- 21 अनुज्ञापितधारी और कर्मचारियों को परिसर के भीतर आपातकाल के दौरान की जाने वाली प्रक्रियाओं से अवगत होना चाहिए।
The licensee and the employee shall be conversant with procedure to be taken during the emergency within the premises.
- 22 निरीक्षण या नमूना अधिकारी को सभी सुविधयुक्त समयों पर अनुज्ञापन परिसर में अबाध रूप से पहुंचने दिया जाएगा और यह सुनिश्चित करने के लिए कि अधिनियम और इन नियमों के उपबंधों और सुरक्षा स्थितियों को सम्यक्तः अनुपालन किया जा रहा है, अधिकारी को प्रत्येक सुविधा प्रदान की जाएगी।
Free access to the licensed premises shall be given at all reasonable times to any inspecting or sampling officer and every facility shall be afforded to the officer for ascertaining that the provisions of the Act and these rules and the safety conditions are duly observed.
- 23 यदि अनुज्ञापन प्राधिकारी या विस्फोटक नियंत्रक अनुज्ञापितधारी को अनुज्ञापन परिसरों या मशीनरी, टूल या उपकरण में ऐसी कोई मरम्मत या परिवर्तन या परिवर्तन करने या रिफार्मिशन को लागू करने को लिखित रूप में सूचित करता है जो परिसर के अंदर या बाहर या व्यक्तियों की सुरक्षा के लिए आवश्यक है, अनुज्ञापितधारी रिफार्मिशन को निष्पादित करेगा और विनिर्दिष्ट अवधि के भीतर अनुपालन रिपोर्ट ऐसे प्राधिकारी को देगा।
If the licensing authority or a Controller of Explosives informs in writing, the holder of the licence to execute any repairs or to make any alterations or to the licensed premises or machinery, tools or apparatus or carry out recommendations, which are in the opinion of such authority may pose unacceptable risk and so necessary for the safety of either on-site or off-site of the premises or persons, the holder of the licence shall execute the recommendations and report compliance within the period specified by such authority.
- 24 अनुज्ञापितधारी मैगजीन में रखने और बिक्री के लिए प्राधिकृत विस्फोटक सूची में उल्लिखित अनुज्ञापन फेक्टरी या कंपनी से प्राधिकृत विस्फोटक / आदिशबाजों या सुरक्षा पत्ती खरीदेगा।
The licensee shall purchase authorised explosives/ fireworks or safety fuse as mentioned in the list authorised explosives from a licensed factory or company for possession and sale from the magazine.
- 25 निम्न से अधिक ध्वनि स्तर उत्पन्न करने वाले आदिशबाजियों पटाखों की बिक्री और रखने के लिए –
(क) जो फटने की जगह से चार मीटर की दूरी पर है, 125 डीबी(ए1) या 145 डीबी(सी)पी के प्रतिबंधित होंगे;
(ख) श्रृंखला (जुड़े हुए पटाख) को गठन करने वाले व्यक्तिगत पटाखों के लिए उपयुक्त उल्लिखित सीमा 5 लॉग.10(एन) डी बी. (सी) पी के प्रतिबंधित होंगे;
The possession and sale of fire-crackers generating noise level exceeding:
a) 125 dB(A) or 145 dB(C)pk at 4 meters distance from the point of bursting shall be prohibited;
b) For individual fire-cracker constituting the series (joined fire-crackers), the above mentioned limit be reduced by 5 log₁₀ (N) dB, where N = number of crackers joined together.
- 26 आग या विस्फोट द्वारा दुर्घटना या नुकसान पटाखों की कमी या चोरी, तुरंत पास के पुलिस थाने और अनुज्ञापन प्राधिकारी और अनुज्ञापन प्राधिकारी के स्थानीय कार्यालय को रिपोर्ट की जाएगी।
Accidents by fire or explosion and losses, shortage or theft of explosives shall be immediately reported to the nearest police station and the licensing authority and local office of the licensing authority.

अतिरिक्त शर्तें / Additional Conditions :

1. अनुज्ञापितधारी विदेशी मूल के आदिशबाजों को ना प्रदर्शित करेगा, ना रखेगा और ना ही उसकी बिक्री करेगा। The licensee shall not exhibit, possess and sell fireworks of foreign origin.

कृते संयुक्त मुख्य विस्फोटक नियंत्रक
For Joint Chief Controller of Explosives
दक्षिणांचल, चैन्नै / South Circle, Chennai

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



தமிழ்நாடு தமில்நாடு TAMIL NADU

88AB 956063

தமிழ்நாடு எண் : 9.12.2020
நாள் :
வாங்குபவர் பெயர் : R. புவனசுந்தரி
உள் :
கொடை : கிழக்கு

BLASTING WORK CONTRACT AGREEMENT

THE Day Of 24th DECEMBER 2022

S. அகிலா
மத்திரைத்தாள் விநியோகியாளர்,
உரிமம் எண்: 8/2011,
கடைவீதி, கிழக்கு-அஞ்சல்,
புதுக்கோட்டை மாவட்டம்.

R.Bhuvanasundari M/S BHUVANA Explosives, Illuppur having explosive License No: E132294 and Explosives Magazine situated at Udaiyalipatti hereinafter referred as Part-1 entered into an Blasting Contract agreement with, M.Nallaiyah, S/O.Marikonar, NO:8668/4,Chola real Estate, thiruvappur , pudukkottai Taluk, Pudukkottai district Having their Mines/Quarry in S.E. No 210/7C1&210/8A1B over on extent of 1.53.5 hets Melur village, kulathur Taluk, Pudukkottai district Hereinafter referred as Party 2 on and both the parties agreed for the following.

R. Buvana Sundari
For BUVANA EXPLOSIVES

M. Nallaiyah

- 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

R. Buvana Sundari
For BUVANA EXPLOSIVES



R. Bhuvanasundari,
M/S Buvana Explosives,
Explosives Dealers & Blasting Contractors,
kulathur Taluk,
Pudukkottai District

Witness

1.

2.

**ANNEXURE-IX AFFIDAVIT AND CER
DETAILS**



தமிழ்நாடு தமிழ்நாடு TAMILNADU

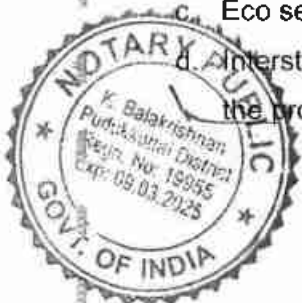
நாள் : 19.12.2022
வாங்குபவர் பெயர் : Mr. மாரிகொனார்
ஊர் : மதுரை
தொகை : 50/-

no. BH 733655
N. முருகன்
மதுரைத்தான் கிறிபுரணையாள்,
உரிமம் எண்: 9/97,
பொது சிவசுவலக வளாகம்,
புதுக்கோட்டை.

AFFIDAVIT TO SEIAA, TAMIL NADU

I, **M. Nallaiyah**, S/o. Marikonar residing at No.8668/4, Chola Real Estate, Thiruvappur, Pudukkottai Taluk, Pudukkottai District-622 002, do hereby solemnly declare and sincerely affirm that, I have applied for getting environment clearance to SEIAA, Tamil Nadu for quarry lease for Rough Stone & Gravel quarry over an extent of 1.53.5 Ha with Survey No. 210/7C1 & 210/8A1B in Melur village, Kulathur Taluk, Pudukkottai District, Tamil Nadu.

- I swear to state and confirm that none of the following is situated within 10km radius of the quarry site for which, I have applied for environmental clearance,
 - Notified Protected areas under the wild life (Protection) Act, 1972 (NBWL).
 - Critically polluted areas as notified by the central pollution control board constituted under water (Prevention and control of Pollution) Act 1974.
 - Eco sensitive area as notified.
 - Interstate boundaries and international boundaries within 10km radius from the boundary of the proposed quarry site.



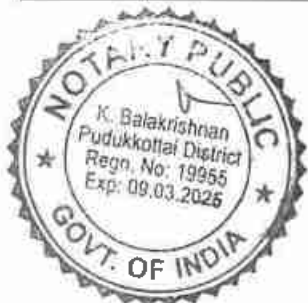
K. Balakrishnan 22/12/22 M. N.
K. BALAKRISHNAN, M.A., B.L.,
Advocate & Notary Public
Govt. of India, Regn. No 19965 / 2020
741, Periyar Nagar, Marthandu
PUDUKKOTTAI DISTRICT 622 005.
Cell: 96986 31040 325

CER Activity	Project cost (Rs)	CER cost (Rs)
Carrying out various developmental works in the nearby region based on the need of the locals.	Rs.50,05,000/-	Rs.2,00,000/-
Total cost Allocation	Rs.50,05,000/-	Rs.2,00,000/-

3. Details of quarry within 500m radius from the applied area:

1. Existing Quarries					
S.No	Name of the lessee / Permit Holder	Village & Taluk	SF.No.	Extent	Lease Period
1.	Thiru. M. Rajamohamed, S/o. Mohamed Ibrahim, No.9884, Kalif Nagar, 4 th Street, Pudukkottai.	Melur Village & Kulathur Taluk	210/21	0.91.0 Ha.	21.01.2019 To 20.01.2024
2.	Thiru. Ramesh Babu, S/o. Jayaraman, T.S. No.7166/2 of Maharajapuram, Thirukokarnam, Pudukkottai District.	Melur Village & Kulathur Taluk	210/19 & 210/9B1B	1.50.5 Ha.	06.11.2019 To 05.11.2024

2. Proposed Area				
S.No	Name of the lessee / Permit Holder	Village & Taluk	SF.No.	Extent in Hectare
1	Thiru.M. Nallaiyah, S/o. Marikonar, No.8668/4, Chola Real Estate, Thiruvappur, Pudukkottai Taluk, Pudukkottai District-622 002	Melur Village & Kulathur Taluk	210/7C1 & 210/8A1B	1.53.5 Ha.



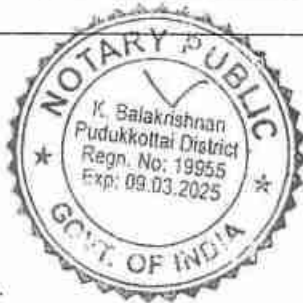
22/12/22

K. BALAKRISHNAN, M.A.,B.L.,
Advocate & Notary Public
Govt. of India, Regn. No19965 / 2020
741, Periyar Nagar, Narimedu
PUDUKKOTTAI DISTRICT 622 005,
Cell: 96986 31040

M. N.

	Vellanur, Kulathur Taluk, Pudukkottai District.			
3.	Thiru. Arockiya Raj, S/o. Rethinam Pillai, No.297/7, Sathiyamoorthi Nagar, Pudukkottai.	Melur Village & Kulathur Taluk	210/7A	1.68.0 Ha.
Total				5.34.5 Ha.

c. Lease Expired Quarries					
S.No	Name of the lessee / Permit Holder	Village & Taluk	SF.No.	Extent in Hectare	Lease Period
1	Thiru. A. Palanivel, S/o. Arumugam, Melamuthudaiyanpatti, Vellanur Post, Pudukkottai District.	Melur Village & Kulathur Taluk	210/12B.. etc.,	1.73.0 Ha.	29.05.2015 To 29.05.2020
2	Thiru. R. Jaffer Ali, S/o. Raja Mohamed, T.S. No.9884, Kalif Nagar 4 th Street, Pudukkottai.	Melur Village & Kulathur Taluk	211 (Q.No.1)	0.60.0 Ha.	20.01.2017 To 19.01.2022
3	Bagavathi Amman Mahalir Ponvizha Grama Suya Velai Vaippu Thitta Sangam, Melur, Kulathur Taluk, Pudukkottai District.	Melur Village & Kulathur Taluk	211 (Part)	1.00.0 Ha.	15.11.2017 To 14.11.2022
4	Thiru.M. Nallaiyah, S/o. Marikonar, Vettanviduthi, Alangudi Taluk.	Melur Village & Kulathur Taluk	210/7C1 & 210/8A1B	1.53.5 Ha.	05.02.2007 To 04.02.2012
Total				4.86.5 Ha.	

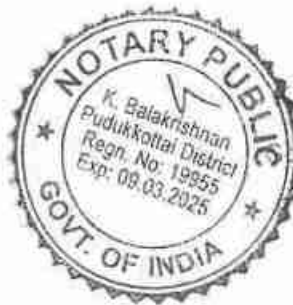


22/12/22
K. BALAKRISHNAN, M.A.,B.L.,
Advocate & Notary Public
Govt. of India, Regn. No. 19955 / 2020
741, Periyar Nagar, Marthandu
PUDUKKOTTAI DISTRICT 622 005.
Cell: 96986 31040

M. B.

- site while transporting the mineral and due to quarrying activities.
5. There is no approved habitation within 300m radius from the periphery of my applied quarry.
 6. I swear that afforestation will be carried out during the course of quarrying operation and maintained.
 7. Insurance coverage will be arranged for the laborers working in my quarry site.
 8. The existing road from the main road to quarry is in good condition and the same will be maintained and utilized for Transportation of Rough Stone & Gravel.
 9. I will not engage any child labor in my quarry site and I am aware that engaging child labor is punishable under the law.
 10. All types of safety / protective equipment will be provided and used by all the laborers working in my quarry.
 11. No permanent structures, temple etc., are located within 500m radius from the periphery of my quarry.

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



[Signature] 22/12/22
BALAKRISHNAN, M.A.,B.L.,
Advocate & Notary Public
Govt. of India, Regn. No 19955 / 2020
741, Pertyar Nagar, Narlmedu
PUDUKKOTTAI DISTRICT 622 005.
Cell: 96986 31040

[Signature]

M. Nallaiyah

(Deponent)

ANNEXURE-X
NABET CERTIFICATE



National Accreditation Board for Education and Training



Certificate of Accreditation

Eco Tech Labs Pvt Ltd.,

48, 2nd Main Road, Ram Nagar South Extension, Pallikaranai, Chennai- 600100, T.N.

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 Open cast only	1	1 (a) (i)	B
2	Thermal power plants	4	1(d)	A
3	Coal washeries	6	2 (a)	B
4	Metallurgical industries - Ferrous only	8	3 (a)	B
5	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
6	Airports	29	7 (a)	A
7	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes	31	7 (c)	A
8	Building and construction projects	38	8 (a)	B
9	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 Apr. 20, 2021 and supplementary minutes dated Oct.19, 2021 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/22/2217 dated Jan. 19, 2022. The accreditation needs to be renewed before the expiry date by Eco Tech Labs Pvt. Ltd., Chennai following due process of assessment.

NABET

Sr. Director, NABET
Dated: Jan. 19, 2022

Certificate No.
NABET/EIA/2124/SA 0147

Valid up to
Sep. 15, 2023

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website.





QCI/NABET/ENV/ACO/24/3167

March 07, 2024

To,

Eco Tech Labs Pvt Ltd.,
48, 2nd main road, Ram Nagar South Extn,
Pallikaranai, Chennai-600100, Tamil Nadu
(**Kind Attention:** Mr. A Dhamodharan)

Sub.: Extension of Validity of Accreditation till June 06, 2024– regarding
Ref.: 1. Certificate no. NABET/EIA/2124/SA 0147
2. Request e-mail dated March 02, 2024

Dear Sir,

This has reference to the Accreditation of your organization under the QCI-NABET EIA Scheme and your request email dated March 02, 2024. It is to inform your good self that the validity of **Eco Tech Labs Pvt Ltd.**, is hereby extended till **June 06, 2024**, or the completion of the accreditation process, whichever is earlier.

2. The above extension is subject to the submission of required documents/information concerning your existing application, timely submission/closure of NC/Obs (if any), and applicable fee (pending if any) during the application process.
3. You are requested not to use this letter after the expiry of the above-stated date.

With best regards.

(A K Jha)
Senior Director
QCI-NABET