

May

2021

**Executive Summary (English and Tamil) of Proposed
Fire clay & Red soil quarry over an extent of 1.43.08 ha**

For

PUBLIC HEARING

At

**S.F Nos : 191/3B2, 191/4B2 & 191/1C2
in Thazhampattu Village, Panruti Taluk,
Cuddalore District, Tamilnadu.**

**Project Proponent
Thiru.P.Ramakrishnan
S/o Pachakannu,
Thazhampattu village,
Keeliruppu Post, Panruti Taluk,
Cuddalore District-607103**

Project termed under schedule 1(a) Category B1 (Cluster)

**Prepared By:
Ecotech Labs Pvt. Ltd.**



**NABET Accredited EIA Consultant
No.48, 2nd Main road,
Ram nagar south extention,
Pallikaranai, Chennai-600100**

EXECUTIVE SUMMARY

1. Project Background:

The Proposed project is Fire Clay & Red Soil quarry over an extent of 1.43.08 Ha, Own patta land in Thazhampattu Village of Panruti Taluk, Cuddalore District. The category of project is B1 (cluster), The lease area exhibits plain terrain topography with gentle elevation of 1 or 2m above the ground level and sloping towards western side covered with red soil and fireclay.

The quarry operation is proposed to carry out with conventional open cast semi mechanized mining with 6.0 meter vertical bench with a bench width of 2.5 meter. The Quarry will be worked by opencast semi mechanized method. This a small Quarry, extraction of Mineral does not involve drilling, blasting of any sort, it does not involve deployment of heavy earth moving equipment. There will be no drilling or blasting. Only tippers will be used. Loading will be done by using excavators(JCB).

The quarry operation is proposed up to depth for 16.0m below ground level. The Total Geological reserve is about 307120 Tonnes of Fire Clay. The Mineable Reserves is and Proposed Yearwise production is carried out 50384 m³ of Fire Clay and Red soil is 63888 m³ of reserves to be mined for (Sixty months) Five years only.

Mining plan was approved, File Rc.No.3235/MM11/2018, dated 09.11.2018 by Deputy a Director, Geology and Mining Cuddalore from the date of execution of lease dead. The project area does not fall in Hill Area Conservation Authority region. There is no interstate boundary, CRZ zone, Western Ghats, notified Bird sanctuaries, wild life sanctuaries as per Wild life protection Act 1972, within the radius of 15Km.

2. Nature & Size of the Project

The proposed Fire Clay & Red Soil quarry over an extent of 1.43.08 Hectares land is located Thazhampattu Village of Panruti Taluk, Cuddalore District.

Mineral intends to quarry : Fire Clay & Red Soil
District :Cuddalore



Taluk :Panruti
 Village : Thazhampattu
 Survey Nos : 191/3B2, 191/4B2 & 191/1C2
 Extent : 1.43.08 hectares

Table 1: Brief Description of the Project

S. No	Particulars	Details
1	Latitude	11°43'31.93"N
2	Longitude	79°31'27.79"E
3	Site Elevation above MSL	60 m from MSL
4	Topography	Plain terrain
5	Land use of the site	Own Patta land
6	Extent of lease area	1.43.08 Ha
7	Nearest highway	NH -45C River Bridge road - 2.97 -E
8	Nearest railway station	Panruti Railway station - 6.26 Km -NE
9	Nearest airport	Trichy Airport - 140 Km-SW
10	Nearest town / city	Town - Panruti - 5.6 Km -NE City - Panruti - 5.6Km - NE District - Cuddalore - 27.6 Km -E
11	Rivers / Canal	Kedilam River - 2.03 km -NW
12	Lake	Semakottai Lake - 6.05 km -NW Purangani Lake - 5.92 km - SE Konjikuppam Lake - 5.75 km SE
13	Hills / valleys	Nil in 15 km radius
14	Archaeologically places	Nil in 15 kmradius
15	National parks / Wildlife Sanctuaries	Nil in 15 Km radius
16	Reserved / Protected Forests	Nil in 15 Km radius
17	Seismicity	Proposed Lease area come under Seismic zone-II (low risk area)
18	Defense Installations	Nil in 15 Km radius

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3. Need for the Project

- Due to the globalization and new ventures and faster development of infrastructure project, the requirement for raw material like Fireclay has been on the rise over the last few years.
- The excavated mineral will be dispatched to the industries located in the state and different parts in the country. Its strength and quality makes it suitable for a number of purposes.
- Mining industry play an important role in economic sector in India. The state is endowed with major and minor mineral resources. The project is situated in the Cuddalore district, It is commonly used for: manufacture of ceramics, especially fire brick, crucibles, glassware etc.
- Since the entire mined out minerals has been utilized by the refractory based industries and Ceramic manufacturing unit in Cuddalore and Pondicherry.

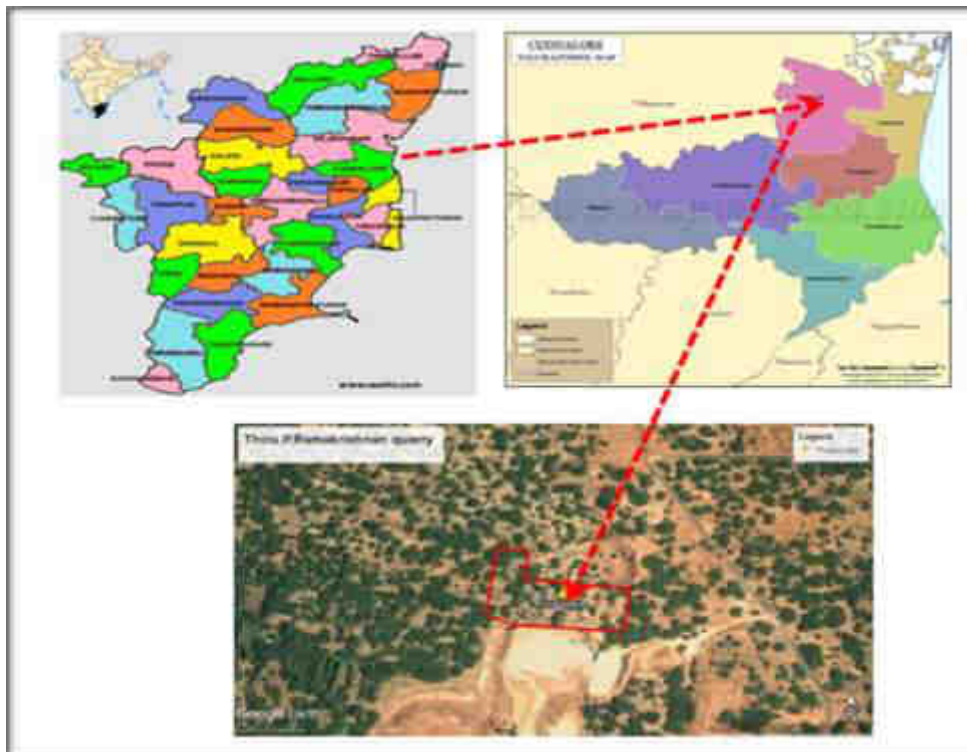


Figure 1: Location Map of the Project Site

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Figure 2: Google Image of the Project Site

4. Fire Clay

- ❖ Fire clay is a range of refractory clays used in the manufacture of ceramics, especially fire brick.
- ❖ Fire bricks are used in all places of heat generation and extensively in furnaces, kilns and ovens.
- ❖ Fire clay is a normal mud, but a mud with higher Alumina (AL) content. Has usually whiter-lighter color, Whitish to yellowish, pinkish, light brownish.
- ❖ The Cuddalore sand stone encloses valuable economic mineral deposits like lignite, fire clay as lensoid bodies at different levels below the ground level. The lensoidal ore bodies may also be of different magnitude. The largest one is at Neyveli where lignite and clay are being mined at levels 50 to 55 meters below the ground level.

5. Geological Resources

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

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TABLE 2. GEOLOGICAL RESOURCES

GEOLOGICAL RESERVES									
section	Bench	L (m)	W (m)	D (m)	Volume In M3	Bulk Density	Total Reserves (T)	Geological Reserves @ 100% (T)	Red Soil (cbm)
XY-AB	I	79	110	6	52140	-			52140
	II	79	110	10	86900	2	173800	173800	
TOTAL							173800	173800	52140
XY-CD	I	101	66	6	39996	-			39996
	II	101	66	10	66660	2	133320	133320	
TOTAL							133320	133320	39996
GRAND TOTAL							307120	307120	92136

TABLE 3. YEARWISE PRODUCTION PLAN

YEARWISE DEVELOPMENT & PRODUCTION									
Year	Bench	L (m)	W (m)	D (m)	Volume In M3	Bulk Density	Total Reserves (T)	Production @ 100% (T)	Red Soil (cbm)
I YEAR	I	121	88	6	63888	-			63888
	II	61	33	2.5	5033	2	10066	10066	
TOTAL							10066	10066	63888
II YEAR	III	61	33	2.5	5033	2	10066	10066	
TOTAL							10066	10066	
III YEAR	IV	61	33	2.5	5033	2	10066	10066	
TOTAL							10066	10066	
IV YEAR	V	61	33	2.5	5033	2	10066	10066	
TOTAL							10066	10066	
V YEAR	II	38	33	2.5	3135	2	6270	6270	
	III	27	22	2.5	1485	2	2970	2970	
	IV	16	11	2.5	440	2	880	880	
TOTAL							10120	10120	
GRAND TOTAL							50384	50384	63888

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6. Mining

Opencast mining

The Quarry will be worked by opencast semi mechanized method. This a small Quarry, extraction of Mineral does not involve drilling, blasting of any sort, it does not involve deployment of heavy earth moving equipment. There will be no drilling or blasting. Only tippers will be used. Loading will be done by using excavators(JCB).

7. Water Requirement

Total water requirement for the mining project is 5 kLD. The 90% water will be required for the suspension of dust and green belt development domestic water will be sourced from nearby Thazhampattu Village and other water will be source from nearby road tankers supply.

TABLE 4. Water Balance

S.No.	Description	Water in KLD	Source
1	Domestic water	1 KLD	Water will be sourced from the nearby Thazhampattu village
2	Green Belt	2 KLD	Other domestic activities through tankers supply
3	Dust suppression	2 KLD	From road tankers supply
Total		5.0 KLD	

8. Man Power

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

TABLE 5.Man Power

S.No	Name of the Employee		Total
1.	Skilled	Operator	2 No.
		Mechanic	1 No.
2.	Semi – skilled	Driver	3 Nos
3.	Unskilled	Musdoor / Labours	5 Nos
		Cleaners	3Nos
		Office Boy	1No
4.	Management & Supervisory staff		3No.
	Total		18Nos

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9. Solid Waste Management

TABLE .6 Solid Waste Management

S. No	Type	Quantity	Disposal Method
1	Organic	2.7 kg/day	Municipal bin including food waste
2	Inorganic	1.8 kg/day	TNPCB authorized recyclers

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

TABLE .7 500m Radius Cluster Mine

S. No.	Quarry detail	Village	S.F No	Extent (Ha)
I. Proposed Quarry				
1	P.Ramakrishnan	Thazhampattu	191/3B2, 191/4B2,191/1C2	1.43.08
II. Existing Non Operation				
2	K.Ramalingam	Thazhampattu	183/4	0.89.5
3	Pounambal	Thazhampattu	183/2, 191/5B,191/1,194/2	3.93.5
4	K.Ramalingam	Thazhampattu	183/1A2,183/1B	1.73.0
5	V.Vaithyalingam	Thazhampattu	180/5A,180/5B	1.10.0
III. Expired Quarry				
6	R.Thanickachalam	Thazhampattu	180/1	1.35.0
7	K.Ramalingam	Thazhampattu	193/2	1.08.5
8	P.Ramakrishnan	Thazhampattu	184/1B	1.59.0
9	K.Jayadevar	Thazhampattu	193/1	1.53.50
10	V.Arumugam	Thazhampattu	191/2,191/3	1.60.0
11	Sri.Venkaseswara and Company	Thazhampattu	192/1	3.24.0
Total				19.49.08

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10. Land Requirement

The total extent area of the Proposed project is 1.43.08 Ha, Own patta land in Thazhampattu Village of Panruti Taluk, Cuddalore District.

Table .8 Land Use Breakup

S.No.	Land Use	Lease Area (Ha)
1.	Proposed Quarry Area	0.76.58
2.	Proposed Infrastructure	0.01.00
3.	Proposed Dump area	0.18.50
4.	Roads	0.00.5
5.	Area Under Plantation	0.04.0
6.	Unutilized	1.38.58
	Total	1.43.08 Ha

11. Human Settlement

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

Table .9 Population density

S.No	direction	village	Population	Distance
1	North	Thazhampattu	700	1.0km
2	South	Keeliruppu	650	1.0km
3	East	Meliruppu	720	2.2km
4	West	Maligampattu	1100	2.0km

12. Power Requirement

This Fire Clay & Red Soil quarry project does not require huge water and electricity for the project.

16 Litre diesel per hour for excavator for mining and loading for fire clay and 10 litre diesel per hour for Red Soil needed.

The total diesel required for the project is **30810 Its**

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- i) Average Minimum Temperature : 19.9 °C
- ii) Average Maximum Temperature. : 36.8 °C
- iii) Average Relative Humidity (%) : 75 %
- iv) Average Annual Rainfall of the area : 1391.3 mm

13.2 Air Environment

Ambient air monitoring was carried out on monthly basis in the surrounding areas of the Mine Lease area to assess the ambient air quality at the source. To know the ambient air quality at a larger distance i.e. in the study area of 5 km. radius, air quality survey has been conducted at 5 locations over a period of Pre Monsoon Season. 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 (59-36 µg/m³), PM2.5 (29-16 µg/m³), SO₂ (17-5µg/m³), NO₂ (36-10 µg/m³), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from May 15th to June 15th 2020 and July, August 2020.

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 55 dB(A) and 46 dB(A) respectively in Kanttandi kuppam. The minimum Day Noise and Night noise were 51 dB(A) and 36 dB(A) respectively which was observed in Near Sathyamoorthy store Melampattu village.

13.4 Water Environment

- The average pH ranges from 7.06-8.22.
- TDS value varied from 122 mg/l to 428 mg/l
- Chloride ranges 15 mg/L to 77 mg/L
- Total Hardness as calcium carbonate values ranges from 49.5 mg/l – 109 mg/l
- Sulphates ranges (23.81 mg/l – 77.8 mg/l)

13.5 Land Environment

The analysis results show that soil is neutral in nature as pH value ranges from 4.50 to 5.59 with organic matter 0.29 % to 0.89 %. The concentration of Nitrogen, Phosphorus & Potassium has been found to be in good amount in the soil samples.

13.6 Biological Environment

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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.

13.7 Socio Economic Environment

- Population as per 2011 census was 3104 in thazhampattu village.
- Males population : 1578
- Female population: 1526
- The literacy rate is 59.5%.

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.

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, Cashew etc will be planted along the south side lease boundary and avenues as well as over Non-active dumps at a rate of 50 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
2021	Neem/Pungam	North	50	5m	80%
2022	Cashew	South	50	5m	80%
2023	Poovarasu/Pungam	East	50	5m	80%
2024	Naval/Pungam	South	50	5m	80%
2025	Neem/Cashew	West	50	5m	80%
Total			250		

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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.

Noise Environment and Mitigation Measures

1. Periodical monitoring of ambient noise will be done as per CPCB guidelines.
2. No other equipment except the transportation vehicles and excavator for loading will be allowed.
3. Noise generated by these equipments shall be intermittent and does not cause much adverse impact

17. Responsibilities for Environmental Management Cell (EMC)

The responsibilities of the EMC include the following:

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

18. Environmental Monitoring Program

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

19. Project Cost

The total project cost is Rs. **45,50,000** 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

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Table .11 Project Cost details

S.No.	Description	Cost
1	Project Cost	32,00,000
2	Expenditure Cost	10,00,000
3	EMP Cost	3,50,000
	Total	45,50,000

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 2% of the project cost (Rs)
1.	Developing Sports facilities and Providing Toilet, Water Filter facilities to Government Schools in Thazhampattu and Keeliruppu Villages	91,000

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 ceramic, fire brick 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.

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