

OCTOBER

2022

**Executive Summary for Conducting Public Hearing
FOR**

**“Thiru.V.Sekaran Rough Stone and Gravel Quarry
over a total extent of 1.48.0 Ha”**

At

**S.F.No. 196/1 of Perumanadu Village, Illuppur Taluk,
Pudukkottai District, Tamilnadu State**

Project Proponent:

**Thiru.V.Sekaran,
S/o. Veerappan,
No.137, Keelaveethi,
Thiruvappur,
Pudukkottai District – 622 003**

Project termed under schedule 1(a) Category B₁

Prepared By:

Ecotech Labs Pvt. Ltd.



NABET Accredited EIA Consultant

**48, 2nd Main Road, Ram Nagar South Extension,
Pallikaranai
Chennai -600100**

EXECUTIVE SUMMARY

1. Project Background:

The Proposed project total extent area is 1.48.0 Ha, Patta land in Perumanadu Village of Illuppur Taluk, Pudukkottai District. The category of project is B1, It is a Existing Rough stone and Gravel quarry in Perumanadu village. The area is situated on Plain terrain sloping towards Eastern side covered with Rough Stone which does not sustain any type of vegetation.

The quarry operation is proposed to carry out with conventional open cast mechanized mining with 5.0-meter vertical bench with a bench width of 5.0 meter. The Quarry operation involves shot hole drilling with the help of compressor, jack hammer, smooth blasting, loading and transportation.

The quarry operation is proposed up to depth for 38 m (2.0 m Earth + 36 m Rough Stone). The Total Geological reserve is about 5,43,780 m³ of Rough Stone, 18,602 m³ of Gravel and 9,301 m³ of Weathered Rock. The Mineable Reserves of Rough stone is 1,71,015 m³, Gravel is 13,272 m³ and Weathered Rock is 6,094 m³. The yearwise production/recoverable resources of rough stone for 5 years are 1,71,015 m³, Gravel is 13,272 m³ and Weathered Rock is 6,094 m³.

Mining Plan was approved by The Assistant Director, Dept. of Geology & Mining, Pudukkottai vide Rc No: 676/2021 (G&M) dated 23.03.2022. The project area does not fall in Hill Area Conservation Authority region. There is no interstate boundary, CRZ zone, Western Ghats, notified Bird sanctuaries, wildlife sanctuaries as per Wild life protection Act 1972, within the radius of 15 Km.

2. Nature & Size of the Project

The Existing Rough Stone Quarry over an extent of 1.48.0 Hectares land is located at Perumanadu Village of Illuppur Taluk, Pudukkottai District.

Mineral intends to quarry	: Rough stone and Gravel
District	: Pudukkottai
Taluk	: Illuppur

Village : Perumanadu
S. F. Nos. : 196/1
Extent : 1.48.0 Hectares

Table 1: Brief Description of the Project

S. No	Particulars	Details
1	Latitude	10° 22' 51.6009" N to 10° 22' 48.1562" N
2	Longitude	78° 44' 3.9156" E to 78° 43' 59.7973" E
3	Site Elevation above MSL	100 m from MSL
4	Topography	Plain terrain
5	Land use of the site	Patta land
6	Extent of lease area	1.48.0 Ha
7	Nearest highway	NH-336 Tiruchirappalli to Pudukkottai is about 5.77 Kms on E of the area SH-71 Manapparai to Pudukkottai is about 4.89 Kms on NE of the area
8	Nearest railway station	Pudukkottai Railway Station – 7.44 km, E
9	Nearest airport	Tiruchirappalli International Airport – 41.96 km - N
10	Nearest town / city	Town - Illuppur - 18.63 km - NW City - Pudukkottai - 7.19 km - E District- Pudukkottai - 7.19 km – E
11	Rivers / Canal	Vellar River – 2.40 kms, SE
12	Lake	<ul style="list-style-type: none"> • Senthamangalam Check Dam – 2.11 kms – SE • Kavinadu Kanmai – 4 kms – E • Melathemuthupatti Pond – 5.70 kms – SE • Kotti Kanmoi – 5.61 kms – SE • Thekkathur Pond – 8.23 kms – SE

		<ul style="list-style-type: none"> • Ariyur Lake – 4.96 kms – N • Perunjunai Lake – 5.21 kms – NE • Ponnappan Orani – 6.90 kms, E • Akkachiyar Kulam – 8.48 kms, E • Adappan Kulam – 8.80 km, NE • Keerankudi Kanmai – 6.30 km, W • Old Keerankudi Kanmai – 6.48 kms, SW • Eerakanmai – 9.9 kms, SW • Holdsworth Anaicut – 12.46 kms, SE
13	Hills / valleys	Nil in 15 km radius
14	Archaeologically places	Nil in 15 km radius
15	National parks / Wildlife Sanctuaries	Nil in 15 Km radius
16	Reserved / Protected Forests	<ul style="list-style-type: none"> • Pulvayal Fairly Dense Shrub – 1.67 kms – W • Fairly Dense Shrub – 7.30 kms – SW • Vellar R.F – 4.57 kms – SE • Mallangudi R.F – 4.10 kms – SE • Kudimiyamalai R.F – 5.97 kms – NW • Chinna Valakkad R.F – 8 kms – NE • Perambur R.F – 8.33 kms, NW • Pudukkottai R.F – 11.15 kms, E • Oorlal Malai R.F – 11.48 kms, N
17	Seismicity	Proposed Lease area come under Seismic zone-II(low risk area)
18	Defense Installations	Nil in 15 Km radius

3. Need for the Project

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

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

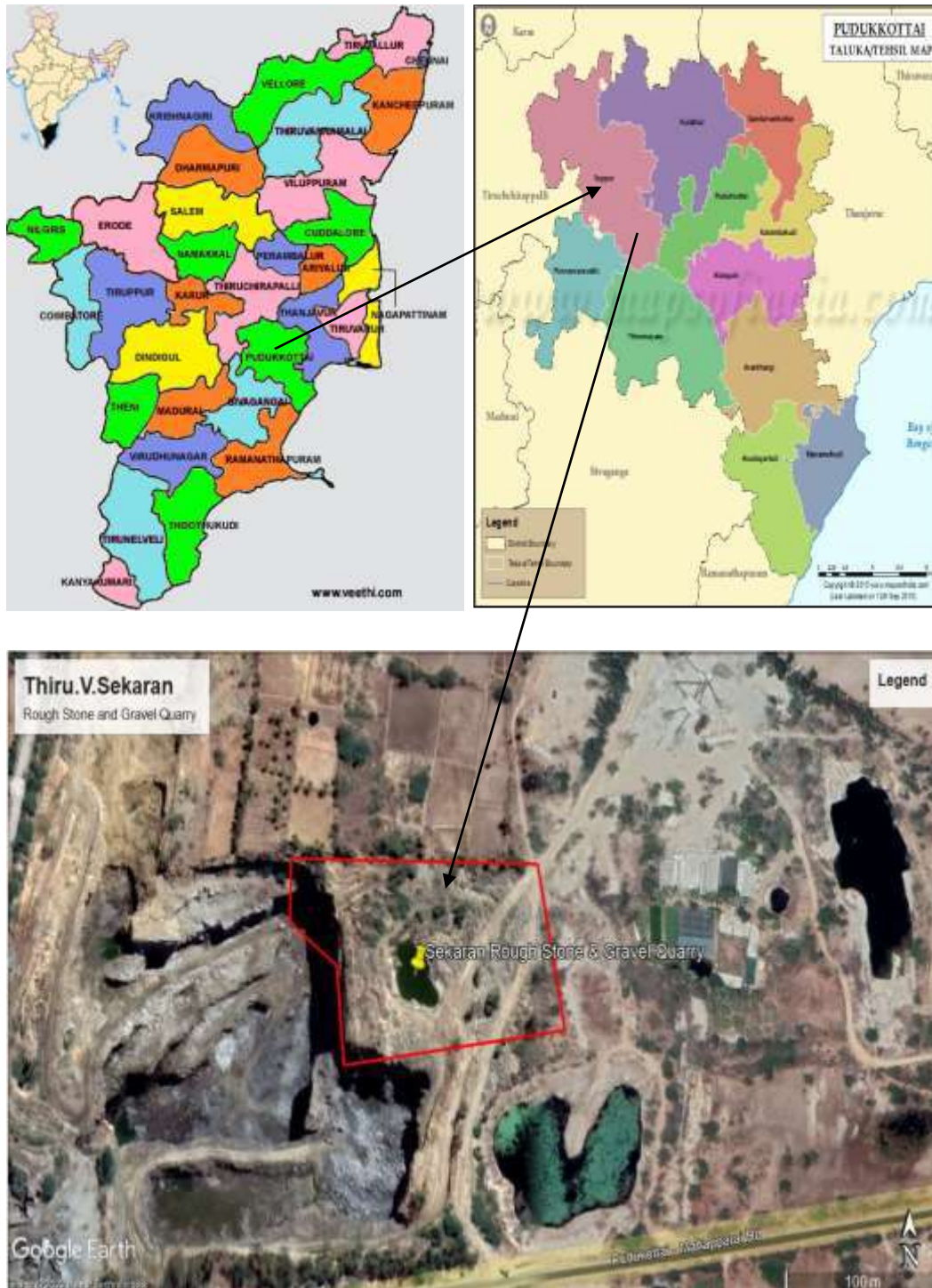


Figure 1: Location Map of the Project Site

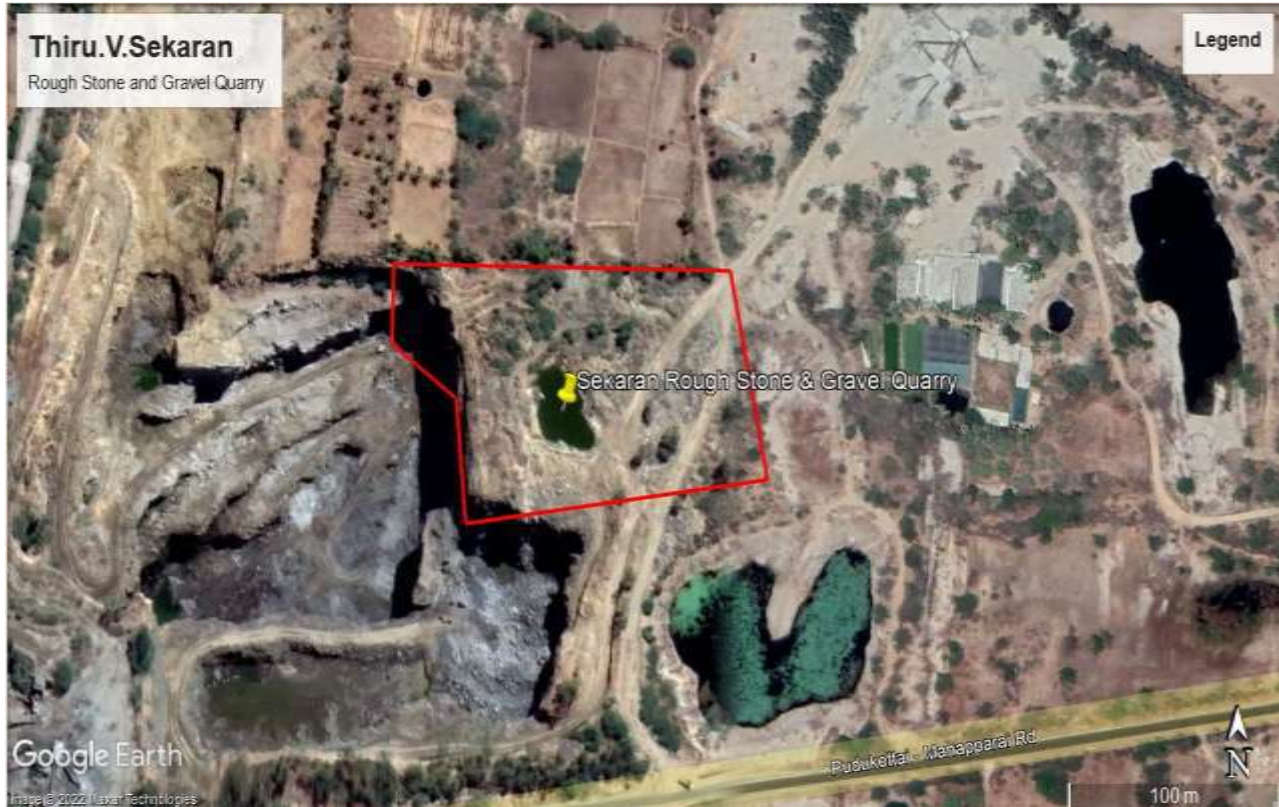


Figure 2: Google Image of the Project Site

4. Charnockite

Charnockite and granitic gneisses are extensively quarried as rough stone which is used as aggregates for construction of building, laying of roads and for preparation of value added products like hollow blocks, pillar stones, M-sand etc. Charnockite occurs as massive bodies, greyish colour, medium to coarse grained, composed quartz, feldspar and orthopyroxene. At places, metamorphic gneissic banding (alternate dark and black colour) in charnockite is noticed. Top portion, it gives gneissic appearance but 1-5m depth below it is typical charnockite of grey colour. The area is mainly composed of Archaean Crystalline Metamorphic Complex. The rock type noticed in the area for lease is Charnockite which contains mostly Quartz and Feldspar with some ferromagnesian minerals. The Charnockite is part of peninsular Gneisses, a high grade metamorphic rock. The general trend of formation is E-W dip $S60^{\circ}$.

5. Geological Resources

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

Geological Resources is estimated at 5,43,780 m³ of Rough stone, 18,602 m³ and Weathered Rock is 9,301 m³ of Gravel up to a depth of 43.0 m (Max) below ground level.

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	36	71	2				5112
	II	36	71	1			2556	
	III	60	103	5	30900	30900		
	IV	60	103	5	30900	30900		
	V	60	103	5	30900	30900		
	VI	64	103	5	32960	32960		
	VII	64	103	5	32960	32960		
	VIII	64	103	5	32960	32960		
	IX	80	103	5	41200	41200		
	X	80	103	5	41200	41200		
	TOTAL					273980	273980	2556
XY-CD	I	71	95	2				13490
	II	71	95	1			6745	
	III	71	95	5	33725	33725		
	IV	71	95	5	33725	33725		
	V	71	95	5	33725	33725		
	VI	71	95	5	33725	33725		
	VII	71	95	5	33725	33725		
	VIII	71	95	5	33725	33725		
	IX	71	95	5	33725	33725		

	X	71	95	5	33725	33725		
	TOTAL				269800	269800	6745	13490
GRAND TOTAL					543780	543780	9301	18602

Table 3. Year wise Production Plan

YEA R	Section	Bench	L (m)	W (m)	D (m)	Volume In m3	Recovera ble Reserves in m3 @ 100%	Weathered Rock in m3	Gravel in m3
I- YEAR	XY-AB	I	36	51	2				3672
		II	36	47	1			1692	
		III	60	77	5	23100	23100		
	XY-CD	I	64	75	2				9600
		II	62	71	1			4402	
		III	61	69	5	21045	21045		
		TOTAL					44145	44145	6094
II- YEAR	XY-AB	IV	60	67	5	20100	20100		
	XY-CD	IV	56	59	5	16520	16520		
		TOTAL					36620	36620	
III- YEAR	XY-AB	V	60	57	5	17100	17100		
	XY-CD	V	51	49	5	12495	12495		
		TOTAL					29595	29595	
IV-	XY-AB	VI	64	47	5	15040	15040		

YEAR	XY-CD	VI	46	39	5	8970	8970			
		TOTAL				24010	24010			
V- YEAR	XY-AB	VII	64	37	5	11840	11840			
		VIII	64	27	5	8640	8640			
		IX	80	17	5	6800	6800			
	XY-CD	VII	41	29	5	5945	5945			
		VIII	36	19	5	3420	3420			
	TOTAL						36645	36645		
	GRAND TOTAL						171015	171015	6094	13272

6. Mining

Opencast mining

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

Process Description

- The reserves and resource are arrived based upon the Geological investigation
- Removal of Gravel by Excavators and directly Loaded into Tippers.
- Removal of Rough Stone by Excavators by Drilling and Blasting.
- Shallow Drilling With Jackhammer of 25.5 mm Dia.
- Minimum Blasting With Class 3 Explosives.
- Loading of Rough Stone By Excavators Into Tippers.

7. Water Requirement

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

Table 4. Water Balance

Purpose	Quantity	Source
Drinking Water	1.0KLD	Packaged Drinking water vendors available in Peraiyur village which is about 1.0 km E from the project site.
Green belt	0.5KLD	Other domestic activities through road tankers supply
Dust suppression	0.5KLD	From road tankers supply
Total	2.0 KLD	

8. Manpower

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

Table 5. Man Power

1.	Skilled	Operator	2 No.
		Mechanic	1 No.
		Blaster/Mat	1 No.
2.	Semi – skilled	Driver	2 Nos
3.	Unskilled	Musdoor/Labors	7 Nos
		Cleaners	2 Nos
		Office Boy	1 No
4.	Management & Supervisory staff		2 No.
	Total =		18 Nos

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

9. Solid Waste Management

Table. 6 Solid Waste Management

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

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

Table. 7 500m Radius Cluster Mine

1) Existing Other Quarries:

S. No.	Name of the Owner	Village & Taluk	S.F.Nos.	Extent in Hect.	Lease Period
1. NIL.....				

2) Proposed Area

S. No.	Name of the Owner	Village & Taluk	S.F.No	Extent in Ha
1.	Thiru.V.Sekaran S/o.Veerappan, No.137, Keelaveethi, Thiruvappur, Pudukkottai	Perumanadu Illuppur	196/1	1.48.0
2	Thiru.B.Kajamaideen, S/o. Bahurudeen, 215, Kallar street, Thiruvappur, Pudukkottai	Perumanadu Illuppur	191/5 and 191/6	2.56.5

3) Lease Expired

S. No.	Name of the Owner	Village & Taluk	S.F Nos.	Extent in Hect.	Lease Period
1.	Thiru.B.Kajamaideen, S/o. Bahurudeen, 215, Kallar street, Thiruvappur, Pudukkottai.	Perumanadu Illuppur	191/5, 6	2.56.5	20.12.2016 to 19.12.2021
2	Thiru.V.Sekaran S/o.Veerappan, No.137, Keelaveethi, Thiruvappur, Pudukkottai	Perumanadu Illuppur	194/2	2.12.0	21.12.2016 to 20.12.2021

The Total extent of the Existing / Lease expired / Proposed quarries are **6.16.5 Ha**

10. Land Requirement

The total extent area of the project is 1.48.0 Ha, Patta land in Perumanadu Village of Illuppur Taluk, Pudukkottai District.

Table 8 Land Use Breakup

Sl. No.	Description	Present Area (Ha.)	Area in use during the quarrying period (Ha.)
01.	Quarrying Pit	0.31.0	1.13.0
02.	Infrastructure	Nil	0.01.0
03.	Roads	0.01.0	0.01.0

04.	Green Belt	Nil	0.33.0
05.	Unutilized Area	1.16.0	Nil
	TOTAL	1.48.0 Ha	1.48.0 Ha

11. Human Settlement

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

Table 9 Habitation

S.No	Direction	Village	Distance in kms	Population
1	North	Marayapatti	2.6 Km	1757
2	South West	Mallangudi	1.34 Km	324
3	East	Peraiyur	1.0 Km	805
4	West	Pulvayal	2.0 km	2216

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.

10 Litre diesel per hour for excavating for mining and loading for gravel needed.

13. Scope of the Baseline Study

This chapter contains information on existing environmental scenario 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 : 18 to 23 °C
- ii) Average Maximum Temperature : 30 to 40 °C
- iii) Average Annual Rainfall of the area : 821 mm

13.2 Air Environment

Ambient air monitoring was carried out on monthly basis in the surrounding areas of the Mine Lease area to assess the ambient air quality at the source. To know the ambient air quality at a larger distance i.e., in the study area of 10 km. radius, air quality survey has been conducted at 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 (69-37 µg/m³), PM_{2.5} (30-16 µg/m³), SO₂(13-5 µg/m³), NO₂ (28.6-8µg/m³), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from June to August 2022.

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 61 dB(A) and 46 dB(A) respectively in Tamilnadu

Warehouse corporation, Pudukkottai. The minimum Day Noise and Night noise were 38 dB(A) and 30 dB(A) respectively which was observed in Panchayat Union Primary School, Irumbali.

13.4 Water Environment

- The average pH ranges from 7.28 – 7.82.
- TDS value varied from 962 mg/l to 1330 mg/l
- Hardness varied from 502 to 771 mg/l
- Chloride varied from 198 to 377 mg/l

13.5 Land Environment

The analysis results shows that the majority of soil in the project and surrounding area is slightly alkaline in nature and pH value ranges from 6.69 to 8.24 with organic matter 0.19 to 0.35 %. The concentration of Nitrogen, Phosphorus & Potassium has been found to be in good amount in the soil samples.

13.6 Biological Environment

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

14. Rehabilitation/ Resettlement

- The overall land of the mine is Patta land. There is no displacement of the population within the project area and adjacent nearby area. Social development of nearby villages will be considered in this project.
- The mine area does not cover any habitation. Hence the mining activity does not involve any displacement of human settlement.

15. Greenbelt Development

1. The development of greenbelt in the peripheral buffer zone of the mine area.

2. Green belt has been recommended as one of the major components of Environmental Management Plan, which will improve ecology, environment and quality of the surrounding area.
3. Local trees like Neem, Pungam, Panai, Vilvam, etc. will be planted along the lease boundary and avenues as well as over non-active dumps at a rate of 140 trees per annum with interval 5m.
4. The rate of survival expected to be 70% in this area

Table.10 Plantation/ Afforestation Program

Name of species proposed	Survival	No of species
Neem, Vilvam, Vaagai, Eachai, Naval, Mantharai, Magizha Maram, Vila Maram, Poo Marudhu, Panai, Marudha maram, Thandri, Sengondrai, Poovarasu, Thethankottai Maram, Pungam, Vanni maram	70%	700
Total	700	

16. Anticipated Environmental Impacts

16.1 Air Environment and Mitigation Measures

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

16.2 Noise Environment and Mitigation Measures

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

17. Responsibilities for Environmental Management Cell (EMC)

The responsibilities of the EMC include the following:

- i. Environmental Monitoring of the surrounding area
- 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 44,72,000/-** 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	14,72,000/-
2	Operational Cost	30,00,000/-
	Total	44,72,000/-

Environmental Management Cost :- **23,36,000/-**

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 value (Rs)
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1.	<p>Government Higher Sec. School, Perumanadu – 0.55 km, E</p> <ul style="list-style-type: none"> ➤ Construction of Classroom facility for students ➤ Construction of Dining Hall for students to intake Lunch ➤ R.O. Water Purifier ➤ Personal Computer – 2 No's. ➤ Projector attached Smart Class ➤ Drinking Water Tank ➤ Construction of Compound wall ➤ Environmental books for library (in Tamil language), ➤ Greenbelt facilities in and around the campus ➤ Hygienic Toilet Facilities 	5,00,000
Total		5,00,000

21. Benefits of the Project

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