July
2023

Executive Summary for Conducting Public Hearing

FOR

"Thiru. T. Tamilslevan Rough Stone and Gravel Quarry over a total extent of 4.54.0 Ha"

At

S.F.No. 80/2, 80/7, 80/8, 80/9, 80/10, 80/11, 80/12, 80/13, 80/14, 80/15, 80/16, 80/23, 206/36 & 207/6 of Melur Village, Kulathur Taluk, Pudukkottai District, Tamilnadu State

Project Proponent:

Thiru.T.Tamilselvan,
S/o. Thangarasa,
No. 591, Anna nagar,
Melur, Kulathur Taluk,
Pudukkottai District – 622 501

Project termed under schedule 1(a) Category B_1

Prepared By:

Ecotech Labs Pvt. Ltd.

NABET Accreditated EIA Consultant
48, 2nd Main Road, Ram Nagar South Extension,
Pallikaranai, Chennai -600100

EXECUTIVE SUMMARY

1. Project Background:

The New Rough Stone Quarry over an extent of 4.54.0 Ha, Own Patta land S.F. No: 80/2, 80/7, 80/8, 80/9, 80/10, 80/11, 80/12, 80/13, 80/14, 80/15, 80/16, 80/23, 206/36 & 207/6 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 17.0m(Max) (Topsoil 2.0m & Rough stone 15.0m). The Total Geological reserve is about 90,606m^3 of Gravel and 27,18,180m^3 of Rough Stone. The Mineable Reserves are 63,168m^3 of Gravel and 4,06,930m^3 of Rough stone. Production schedule is proposed an average production of 63,168m^3 of Gravel and 4,06,930m^3 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.223/2022 (G&M) dated 03.11.2022 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 4.54.0 Hectares land is located Melur Village of Kulathur Taluk, Pudukkottai District.

Mineral intends to quarry	: Rough stone and Gravel.
District	: Pudukkottai
Taluk	: Kulathur
Village	: Melur

S. F. Nos. : 80/2, 80/7, 80/8, 80/9, 80/10, 80/11, 80/12, 80/13, 80/14, 80/15, 80/16, 80/23, 206/36 & 207/6

Extent : 4.54.0 Hectares

Table 1: Brief Description of the Project

S. No	Particulars	Details
1	Latitude	10°26'40.50"N to 10°27'08.04"N
2	Longitude	78°46'21.11"E to 78°46'29.30"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	4.54.0 Ha
7	Nearest highway	NH 336 – Trichy to Pudukkottai Road – 1.25 Km - E SH 71 – Pudukkottai to Alangudi Road – 4.01 Km - SW
8	Nearest railway station	Vellanur Railway Station – 3.0 km - NE
9	Nearest airport	Tiruchirapalli International Airport – 54.09 km - N
10	Nearest town / city	Town - Pudukkottai – 6.45 km - SE City - Pudukkottai – 6.45 km - SE District - Pudukkottai – 6.45 km - SE
11	Rivers / Canal	Nil within 15km radius
12	Lake/Pond	❖ Vellanur local Pond – 1.64 Km - E ❖ Thiruvengainathar Lake – 3.65 Km – S ❖ Kili Kulam – 2.21 Km – NE ❖ Temple Pond – 1.70 Km – W ❖ Perunjunai Lake – 3.21 Km – SW ❖ Melakulam – 4.09 Km – SW ❖ Kavinadu Kanmai – 7.62 Km – S ❖ Annavasal Periyakulam Lake – 8.03 Km - W
13	Hills / valleys	Nil in 15 km radius
14	Archaeologically places	❖ Sundaresvara temple with sub-shrine, Thirukkattalai – 8.02Km – SE ❖ Jain image and the inscription to the south of it on the summit of the sadayapparai, Nathampannai – 5.10km – S ❖ Cave & Jain image, Ammachathiram – 8.11km – N

		❖ Jain image, Annavasal – 7.85 km – W ❖ Siva temple. Ariyur – 4.55 km – SW ❖ Siva and Pillayar temple, Mangudi – 7.34 km – SW ❖ Jain Tirthankara idol and relics of old Jain Temple – 1.56km – N ❖ Amman koil, Rock-cut Siva temple, Vijayalaya Cholisvaram and the group of subshrines around it, Rock-cut Vishnu shrine – Narthamalai – 6.61 km – N ❖ Rock-cut Jain temple, Natural Cavern with stone beds – Eladipattam – Sittannavasal – 4.66 km – W ❖ Siva Temple, Thodaiyur – 6.42 km – NE ❖ Kailasanatha temple, Agastisvara temple – Vellanur – 2.61 km – E
15	National parks / Wildlife Sanctuaries	Nil in 15 km radius
16	Reserved / Protected Forests	❖ Narthamalai RF – 4.13 Km – NW ❖ Aladukkadu RF – 8.69 Km – N ❖ Perungudipatti RF – 9.06 Km – NW ❖ Pudukkottai RF – 5.13 Km - SE
17	Seismicity	Proposed Lease area come under Seismic zone-II (Moderate risk area)

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 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.

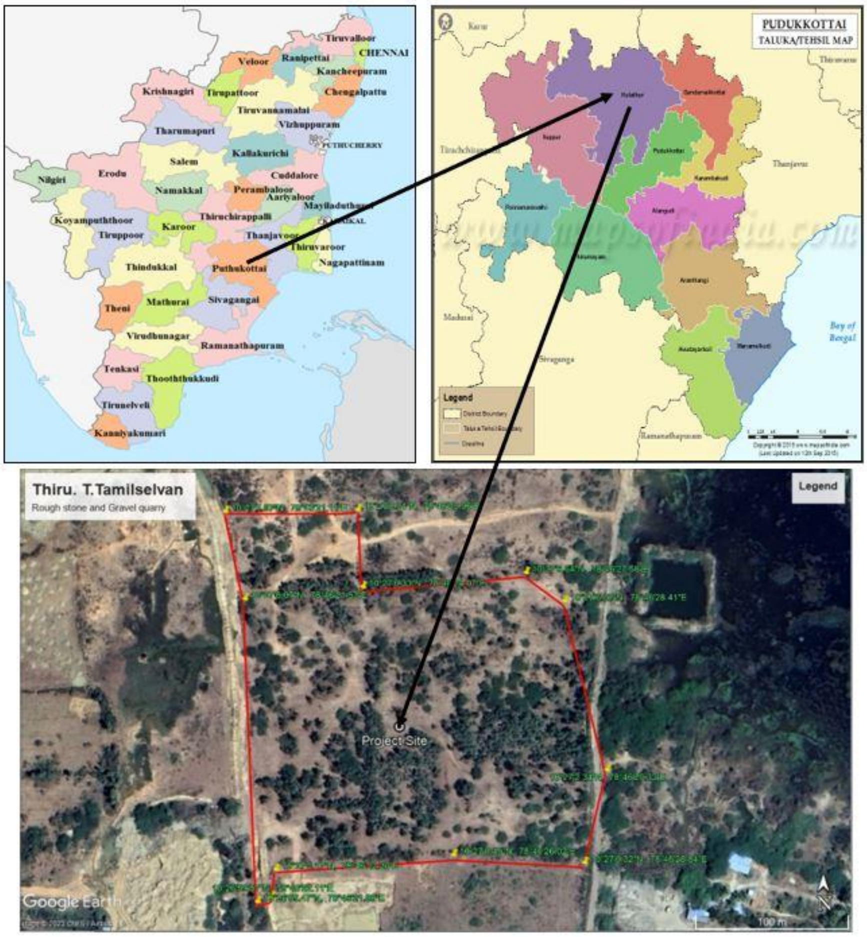

Figure 1: Location Map of the Project Site

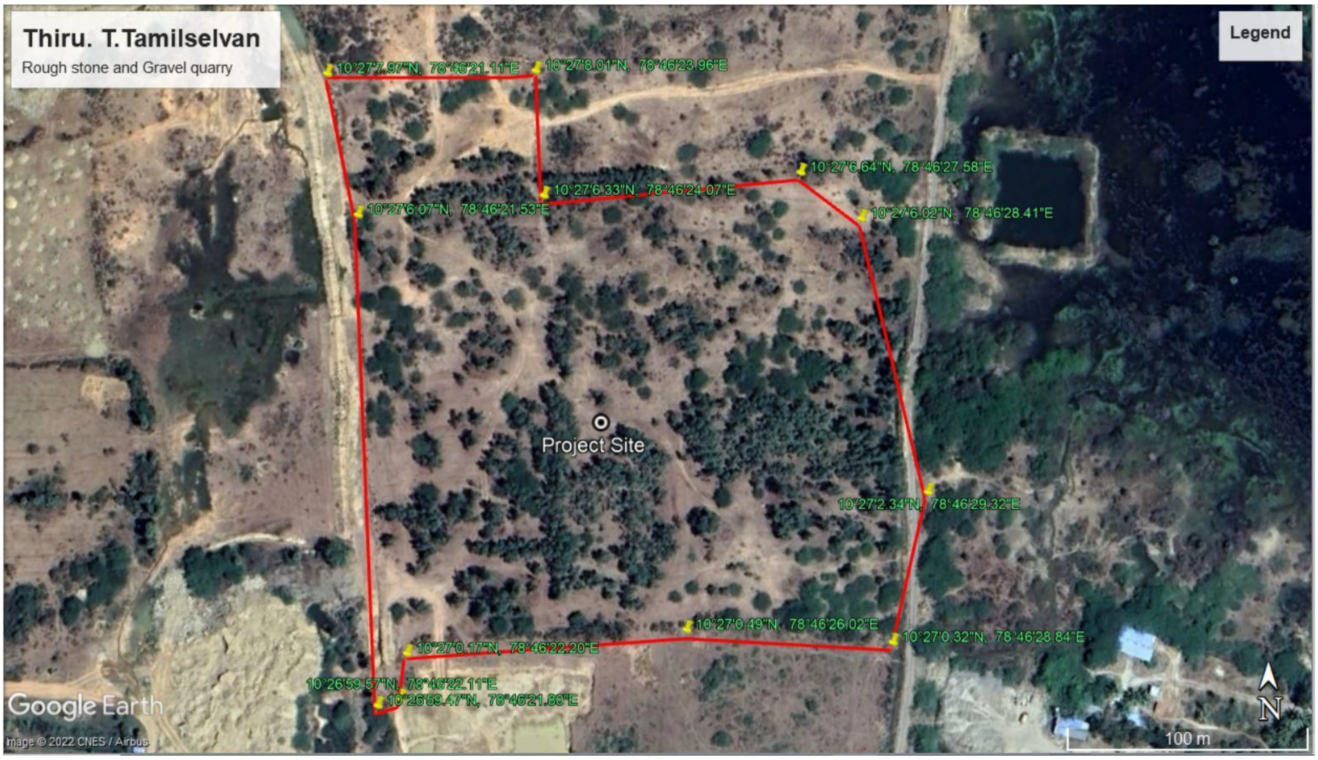

Figure 2: Google Image of the Project Site

4. Charnockite

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

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

Table 2. Geological resources

GEOLOGICAL RESOURCES						
Section	Length in (m)	Width in (m)	Depth in (m)	Volume m^3	Geological Resources of Gravel in m^3	Geological Resources of Rough stone in m^3
XY-AB	55	81	2	8910	8910	
	55	81	60	267300		267300
XY-CD	184	222	2	81696	81696	
	184	222	60	2450880		2450880
TOTAL					**90606**	**2718180**

Table 2.1 Mineable Resources

MINEABLE RESERVES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m^3	Gravel Formation in m^3	Mineable Reserves of Rough stone in m^3
XY-AB	110-108	48	64	2	6144	6144	
	108-103	46	60	5	13800		13800
	103-98	41	50	5	10250		10250
	98-93	36	40	5	7200		7200

TOTAL						**6144**	**31250**
XY-CD	110-108	176	162	2	57024	57024	
	108-103	174	158	5	137460		137460
	103-98	169	148	5	125060		125060
	98-93	164	138	5	113160		113160
TOTAL						**57024**	**375680**
GRAND TOTAL						**63168**	**406930**

Table 3. Year wise Production Plan

YEARWISE DEVELOPMENT & PRODUCTION RESERVES								
Year	**Section**	**Bench**	**Length in (m)**	**Width in (m)**	**Depth in (m)**	**Volume in m³**	**Gravel Formation in m³**	**Recoverable Reserves of Rough stone in m³**
I-YEAR	XY-AB	110-108	48	64	2	6144	6144	
		108-103	46	60	5	13800		13800
	XY-CD	110-108	85	162	2	27540	27540	
		108-103	85	158	5	67150		67150
TOTAL							**33684**	**80950**
II-YEAR	XY-CD	110-108	91	162	2	29484	29484	
		108-103	89	158	5	70310		70310
		103-98	15	148	5	11100		11100
TOTAL							**29484**	**81410**
III-YEAR	XY-CD	103-98	110	148	5	81400		81400
TOTAL								**81400**
IV-YEAR	XY-CD	103-98	44	148	5	32560		32560
		98-93	46	138	5	31740		31740
	XY-AB	103-98	41	50	5	10250		10250
		98-93	36	40	5	7200		7200
TOTAL								**81750**

V-YEAR	XY-CD	98-93	118	138	5	81420		81420
TOTAL								**81420**
GRAND TOTAL							**63168**	**406930**

6. Mining

Opencast mining

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

Process Description

- The reserves and resource are arrived based upon the Geological investigation.
- Removal of Topsoil by Excavators and directly Loaded into Tippers.
- Removal of Rough Stone by Excavators by Drilling and Blasting.
- Shallow Drilling With Jackhammer of 25.5mm 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 2.5 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	1.5 KLD	Water will be supplied through tankers from Melur village which is about 0.33 Km NE of the project area.
Green belt	0.5 KLD	Other domestic activities through road tankers supply.
Dust suppression	0.5 KLD	From road tankers supply.
Total	**2.5 KLD**	

8. Manpower

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

Table 5. Man Power

1.	Skilled	Operators- Excavator & Jackhammer	4 Nos
2.	Semi – skilled	Drivers	4 Nos
3.	Unskilled	Musdoor/Labours, Cleaners & Watch man	15 Nos
4.	Management & Supervisory staff	Second Class Mines Manager (with valid statutory qualification)	1 No
		Mines Foreman (with valid statutory qualification)	1 No
		Mines Mate (with valid statutory qualification)	1 No
		Blaster	1 No
Total			**27 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	4.86 kg/day	Municipal bin including food waste
2	Inorganic	7.29 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.	M/s. Sai Hridham Infraa Private Limited, 14/28, Sowrastra Street, Illuppur taluk, Pudukkottai Dt.	Melur & Kulathur	207/21B, 207/22B2, 207/23	1.30.5	31.07.2019 to 30.07.2024

2) Proposed Area:

S. No.	Name of the applicant	Village & Taluk	S. F. No.	Extent
1.	Thiru.T.Tamilselvan, S/o. Thangarasa, No.591, Annanagar, Melur, Kulathur Taluk, Pudukottai Dt.	Melur & Kulathur	80/2 & etc.,	4.54.0
2.	Thiru.R.Muthusamy, S/o. Rengasamy, No.663, Melamuthudaiyanpatti village, Kulathur Taluk, Pudukottai Dt	Melur & Kulathur	80/20, 80/21 & 80/22	0.82.0
3	Tvl. Sai Hridham Infraa Private Limited, office at 208/6, Muthudaiyanpatti, Melur Village, Kulathur Tk, Pudukottai Dt.	Melur & Kulathur	80/3,4,5,6,17 & 19	1.68.0

3) Lease Expired:

S. No.	Name of the lessee/ Permit Holder	Village & Taluk	S. F. No.	Extent	Lease Period
1.	N.Rengasamy, S/o. Nadasakandiyar, Melur Village, Kulathur Tk, Pudukottai Dt	Melur & Kulathur	216/6, 10, 17, 18	0.56.0	30.05.2009 to 29.05.2014
2.	Thiru.S.M.Sait, 59, Charles Nagar, Pudukottai	Melur & Kulathur	216/22A	0.40.5	27.11.2013 to 26.11.2018

3.	Thiru.A.Periyasamy, S/0. Adaikalam, T.S.No. 6985, Thirukoharnam, Pudukottai	Melur & Kulathur	216/15B	0.75.0	19.02.2016 to 18.02.2021
4.	Thiru.R.Muthusamy, S/o. Rengasamy, Melur, Sathiyamangalam Post, Kulathur Tk, Pudukottai Dt.	Melur & Kulathur	216/5 & etc.,	0.93.5	23.09.2016 to 22.09.2021
5.	S.M.Sait, S/o.Mookaiah, Solahar, No.51,52, Charles nagar, Pudukottai	Melur & Kulathur	207/8	0.50.0	20.01.2017 to 19.01.2022
6.	Thiru.M.Velu, S/0. Muthiah, Echanari Thottivayal, Melur Village, Kulathur Tk, Pudukottai Dt	Melur & Kulathur	207/14B & 207/15A	0.65.5	28.06.2017 to 27.06.2022
7.	Thiru.R.Natesan, S/o. Rengasamy, No,715A, Nakkeerar vayal, Melur, Pudukkottai Dt.	Melur & Kulathur	216/1	1.47.5	12.09.2017 to 11.09.2022

The Total extent of the Existing / Lease expired / Proposed quarries are 12.66.0 Ha.

10. Land Requirement

The total extent area of the project is 4.54.0 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.	Quarrying Pit	Nil	3.04.0
2.	Infrastructure	Nil	0.02.0
3.	Roads	Nil	0.02.0
4.	Green Belt	Nil	0.25.0
5.	Unutilized Area	4.54.0	1.21.0
	Total	**4.54.0**	**4.54.0**

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

SL. NO.	DIRECTION	VILLAGE	DISTANCE	POPULATION
1	NE	Melur	0.33 Km	218
2	SW	Maruthanthalai	1.6 Km	274
3	E	Muthudaiyanpatti	0.98 Km	425
4	W	Madhiyanallur	2.89 Km	468

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.

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 : 3 3.7 ^{0}C

ii) Average Maximum Temperature. : 2 4 ^{0}C

iii) Average Annual Rainfall of the area : 922.8 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. 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 PM_{10} (60 – 34 µg/m³), $PM_{2.5}$ (32 - 14 µg/m³), SO_2 (21 – 5 µg/m³), NO_2 (42 -9 µg/m³), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from January to March 2023.

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 Government High School, Mangudi. The minimum Day Noise and Night noise were 55 dB(A) and 43 dB(A) respectively which was observed in Project Site.

13.4 Water Environment

- The average pH ranges from 6.29 - 7.91.
- TDS value varied from 369 mg/l to 935 mg/l
- Hardness varied from 129 to 346 mg/l
- Chloride varied from 81.8 to 254 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 5.58 to 8.61 with organic matter 1.02 % to 1.45 %. 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.

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 450 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
2023	Neem, Pungam, Poovarasu	North	450	5m	80%
2024	Naval, Mantharai, Arasa Maram	South	450	5m	80%
2025	Magizham, Vilvam, Vaagai, Marudha maram	East	450	5m	80%
2026	Usil, Aaththi, Panai	South	450	5m	80%
2027	Illuppai, Eachai, Vanni maram	West	450	5m	80%
Total			**2250**		

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.
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. 78,82,000/-** 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	43,82,000
2	Expenditure Cost	35,00,000
	Total	**78,82,000**

Environmental Management Plan Cost – 18,20,000/-

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 Cost (Rs.)
1.	Government Panchayat Union Middle School – Provision of ➢ Levelling the floor inside the school perimeter by using Earth materials, ➢ Environmental books for library (in Tamil language), ➢ Greenbelt facilities and ➢ Basic amenities such as safe drinking water, furniture, Hygienic Toilet and maintenance of toilet upto lease period.	**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 the construction industry thereby indirectly benefiting the masses.
- Quarrying in this area is not going to have any negative impact on the social or cultural life of the villagers in the near vicinity.

……………………………………