

**October
2025**

Executive Summary

**Thiru.S.Krishnasamy Rough stone & Gravel quarry-
1.31.0 Ha**

For

PUBLIC HEARING

At

**S.F Nos : 11/2B1, 11/2B2 and 14/2 of Kottaiyur Village,
Virudhunagar Taluk, Virudhunagar District, Tamil Nadu**

PROJECT PROPONENT

**Thiru. S.Krishnasamy,
S/O.Singadurai,
D.No. 3/10, East street,
Kalaperumalpatti Village,
Virudhunagar taluk,
Virudhunagar District.
Pin Code: 626204.**

EIA Notification 2006 Schedule 1(a) Category B1 (Cluster)

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



**NABET Accredited EIA Consultant
No.48, 2nd Main Road,
Ram Nagar South Extension,0
Pallikaranai, Chennai-600100**

EXECUTIVE SUMMARY

1. Project Background:

The Proposed project total extent area is **1.31.00 Ha**, It is a Patta land **S.F. No: 11/2B1, 11/2B2 and 14/2 of Kottaiyur Village, Virudhunagar Taluk and Virudhunagar District of Tamil Nadu**. The category of project is B1, It is a Rough stone and Gravel quarry in Kottaiyur village. The lease area exhibits plain terrain topography with very gentle slope towards south and covered by brownish gravel with red soil in small pockets followed by weathered rock formation and massive Charnockite rock formation.

The quarry operation is proposed to carry out with open cast mechanized mining with **5.0 meter bench for Gravel** followed by charnockite rock / **Rough Stone 6.0meter** vertical bench with a bench width not less than the bench height. The quarry operation involves shallow jack hammer drilling, slurry blasting, Loading and transportation of Rough stone and Gravel to the needy nearby crusher units / road formation works.

The quarry operation is proposed up to **depth** for **29.0m** Below ground level for the proposed mining plan. The Total **Geological reserve** is about **2,79,648 m³ of Rough stone** and **58,260m³ of Gravel**. The **Mineable Reserves** are **43,770m³ of Rough stone** and **33,895m³ of Gravel** for a period of **5 years**. Production schedule is proposed for the period of five years.

The precise area communication letter was received from The Assistant Director, Geology & Mining, Virudhunagr vide letter no **Na. Ka. No: KV1/567/2023 Dated 20.02.2025** for lease period of **5 years** and The Mining Plan was approved by the Assistant Director, Geology & Mining, Virudhunagr vide letter **Roc.No.KV1/567/2023, dated 14.03.2025** for the period of **5 years**. There is no CRZ zone, Western Ghats, notified Bird sanctuaries, wildlife sanctuaries as per Wildlife Protection Act 1972, within the radius of 15Km.

The project area does not fall in the Hill Area Conservation Authority region. There is no interstate boundary, 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 Existing Rough Stone Quarry over an extent of 1.31.00 Hectares land is located at Kottaiyur Village, Virudhunagar Taluk, Virudhunagar District.

Mineral intends to quarry : Rough stone and Gravel Quarry
District : Virudhunagar
Taluk : Virudhunagar
Village : Kottaiyur
S. F. Nos. : 11/2B1, 11/2B2 and 14/2
Extent : 1.31.00 Hectares

Table 1: Brief Description of the Project

S. No	Particulars	Details
1	Latitude	09 ° 26'10.00" to 09° 26' 15.00" N
2	Longitude	77° 58' 42.70" to 77° 58' 49.36" E
3	Site Elevation above MSL	The altitude of the lease area is 108m above MSL.
4	Mining plan period	5 Years
5	Topography	Plain topography
6	Land use of the site	Patta Land
7	Extent of lease area	1.31.00 Ha
8	Nearest highway	SH 42 – Srivilluputhur – Pathibanoor Road – 12.78 Km – NEN NH 44 – Kanniyakumari – Srinagar Road – 5.93 Km - W
9	Nearest railway station	Tulukapati Railway Line – 5.57 km, W
10	Nearest airport	Madurai International Airport – 45.68 Km - N
11	Nearest town / city	Town - Sattur – 11. 8Km - SWS City - Virudhunagar – 14.62 Km - N District – Virudhunagar – 14.62 Km - N
12	Rivers / Canal / Dam	✓ Mannarkottai River – 2.42 Km, W ✓ Arjuna River – 3.3 Km, SSW ✓ Golwarpatti reservoir – 3.89 Km, S ✓ Vaippar River – 10.80 Km, SSW ✓ Irukkangudi Dam – 11.04Km, S ✓ Kullursandai reservoir – 12.03 Km, N

13	Lake/Pond	✓ Valayapatti Lake – 1.61 Km, NW ✓ Kalaperumalpatti Lake – 1.75 Km, WSW ✓ Golwarpatti Periyakanmai – 4.61 Km, S ✓ Vadiyur Lake – 10.49 Km, W ✓ Sattur Lake – 10.69 Km, SW ✓ Pottireddiyapatti Lake – 11.85 Km, S ✓ Periagollapatti Lake – 11.96 Km, SSW ✓ Periyakanmai – 13.92 Km, NE ✓ Malai Arasan Koil Lake – 14.00 Km, ENE
14	Hills / valleys	Nil in 15 km radius
15	Archaeologically places	Tirumalai Nayak's Palace, Srivilliputhur – 38.89 Km - WNW
16	National parks / Wildlife Sanctuaries	Grizzled Squirrel Wildlife Sanctuary – 38.83 km, W
17	Reserved / Protected Forests	Venkatewarapuram RF – 42.59 Km – NW
18	Seismicity	Proposed Lease area comes under Seismic zone-II (Low 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 and Gravel extracted will be transported to be Stone crusher of district Virudhunagar.
- ✓ 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 artificial recharge to the nearby wells.
- ✓ No damage to the land is caused, no reclamation or backfilling is required.

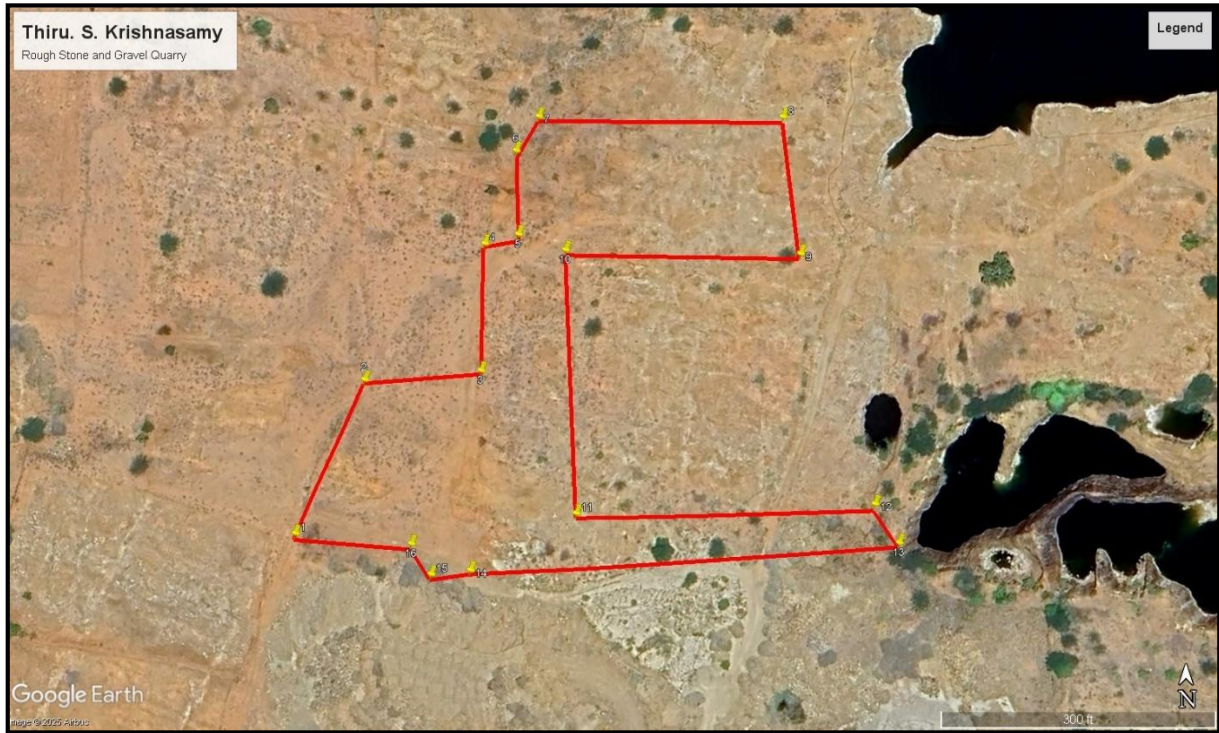


Figure 2: Google Image of the Project Site

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 observed in most of the quarry in Pandalgudi, Lakshmipuram, Gopalapuram, Sundakottai chinnakamanpatti, 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 and the availability of Geological Resources in this land is given below.

Table 2. Geological resources

Section	Length (m)	Width (m)	Height (m)	Rough stone volume m ³	Gravel Volume m ³
A-A' & C-C'	91	64	5.0	-	29,120
	91	64	24.0	1,39,776	-
B-B' & C-C'	31	53	5.0	-	8,215
	31	53	24.0	39,432	-
D-D' & E-E'	93	45	5.0	-	20,925
	93	45	24.0	1,00,440	-
TOTAL GEOLOGICAL RESERVES				2,79,648	58,260

Gravel Formation : 2,79,648 m³

The Geological Resources of Rough stone : 58,260 m³

Mineable Resources:

The available mineable reserves are calculated for the proposed lease period of 5 years based on the total minable reserves calculated by safety distances of 10.0m to the Cart Track at west side and 7.5m to the adjoining patta land on all other sides of the boundary side of the applied area and Bench losses.

Table 3. Mineable Resources

SECTION	BENCH	LENGTH (m)	WIDTH (m)	HEIGHT (m)	ROUGH STONE VOLUME (m ³)	GRAVEL VOLUME (m ³)
A-A' & C-C'	I	72	56	5.0	-	20,160
	II	61	50	6.0	18,300	-
	III	49	38	6.0	11,172	-
	IV	37	26	6.0	5,772	-
	V	25	14	6.0	2,100	-
B-B' & C-C'	I	15	45	5.0	-	3,375
D-D' & E-E'	I	74	28	5.0	-	10,360
	II	63	17	6.0	6,426	-
TOTAL MINEABLE RESERVES					43,770	33,895

The available mineable reserves have been computed as **43,770m³ of Rough Stone** and **33,895m³ of Gravel** up-to the depth of **29.0 meters** from the ground level.

Table 4. Year wise Production Plan

Section	Year	Bench	Length (m)	Width (m)	Height (m)	Rough stone Volume (m³)	Gravel volume (m³)
A-A' & C-C'	I-Year	I	32	56	5.0	-	8,960
		II	21	50	6.0	6,300	-
I – YEAR PRODUCTION						6,300	8,960
A-A' & C-C'	II-Year	I	20	56	5.0	-	5,600
		II	20	50	6.0	6,000	-
		III	15	38	6.0	3,420	-
II – YEAR PRODUCTION						9,420	5,600
A-A' & C-C'	III-Year	I	20	56	5.0	-	5,600
		II	20	50	6.0	6,000	-
		III	15	38	6.0	3,420	-
III – YEAR PRODUCTION						9,420	5,600
A-A' & C-C'	IV-YEAR	III	19	38	6.0	4,332	-
		IV	24	26	6.0	3,744	-
B-B' & C-C'		I	15	45	5.0	-	3,375
D-D' & E-E'		I	25	28	5.0	-	3,500
	II	14	17	6.0	1,428	-	
IV – YEAR PRODUCTION						9,504	6,875
A-A' & C-C'	V-YEAR	IV	13	26	6.0	2,028	-
		V	25	14	6.0	2,100	-
D-D' & E-E'		I	49	28	5.0	-	6,860
		II	49	17	6.0	4,998	-
V – YEAR PRODUCTION						9,126	6,860
TOTAL PRODUCTION FOR FIVE YEARS						43,770	33,895

Year wise Production summary:

YEAR	ROUGH STONE VOLUME (m ³)	GRAVEL VOLUME (m ³)
I – Year	6,300	8,960
II – Year	9,420	5,600
III – Year	9,420	5,600
IV – Year	9,504	6,875
V – Year	9,126	6,860
Total I to V Years	43,770	33,895

6. Mining

Opencast Mining

Open cast Semi-Mechanized Mining with **5.0meter bench for Gravel** followed by charnockite rock / **Rough Stone 6.0meter** vertical bench with a bench width not less than the bench height. The Quarry operation involves shallow jack hammer drilling, blasting, loading and transportation.

Process Description

- The reserves and resources 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 30-32 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 2.5 KLD. Domestic water will be sourced from nearby MC Puram Village and other water will be sourced from nearby road tankers supply.

Table 5. Water Balance

Purpose	Quantity	Sources
Drinking Water	0.5 KLD	Packaged Drinking water vendors available in M.C.puram village which is about 0.59 Km-N from the project site.
Afforestation & Green belt	0.5 KLD	Other domestic activities through road tankers supply
Dust suppression Sprinkling	1.5 KLD	From road tankers supply
Total	2.5 KLD	

8. Manpower

Total manpower required for the project is approximately 10 persons. The workers will be from nearby villages.

Table 6. Man Power

S.No.	Levels & Details		Persons
1.	Skilled	Operators	1
		Mechanic	1
		Blaster/Mate	1
2.	Semi – skilled	Drivers	1
3.	Unskilled	Musdoor/Labours	3
		Cleaners	1
		Office Boy	1
4.	Management & Supervisory staff		1
Total			10

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

9. Solid Waste Management

Table 7 Solid Waste Management

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

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

Table 8. 500m Radius Cluster Mine

S. No.	Quarry details	Village	S.F. Nos & Extent (Ha)	Proceeding No & Lease Period
I. Existing Quarries				
1	Tmt. C . Vannamuthu W/o. Chellakani	Kottaiyur	13/3A1 0.46.00 Ha	KV1/482/20184 dated: 18.07.2020 & 26.08.2020 to 25.08.2025
TOTAL			0.46.00 Ha	
II. Abandoned Quarry				
1.	Thiru.S.L. Muniyasamy S/o. Lakshmanan	Kottaiyur	11/2A, 11/2C, 11/2D, 11/2E, 11/2F, 11/2G, 11/2I, 2.74.00 Ha	KV1/620/2014 dated: 22.09.2014 24.09.2014 to 23.09.2019
2.	Thiru.R. Rajaeshkanna S/o. P Ramraj	Kottaiyur	2/3, 2/6, 2/7 1.20.50 Ha	KV1/15033/2015 dated: 27.12.2017 to 26.12.2022
TOTAL			3.94.50 Ha	
III. Present Proposed Quarry:				
1.	Thiru.S. Marimuthu S/o. Sundaram	Kottaiyur	10/12, 11/2A, 11/2C, 11/2D, 11/2D, 11/2E, 11/2F, 11/2G(P), 11/2H(P), 11/2I(P) etc., 4.24.00 Ha	KV1/519/2020
2.	Thiru.R. Boopathi S/o. Rajeshkanna	Kottaiyur	2/5, 2/8 3/1, 3/2 2.15.00 Ha	KV1/1470/2022
3.	Thiru.V. Thirumalaiselvan S/o. Vengadasamy	Mannarkoyyai	133/14, 33/1B 134/4 (P), 134/5 (P), 136/8 136/9 3.21.50 Ha	KV1/894/2023
4.	Thiru.S. Krishnasamy S/o. Singathurai	Kottaiyur	11/2B1, 11/2B2, 14/2 1.31.00 Ha	KV1/567/ 2023
Total Cluster area			10.91.50 Ha	

10. Land Requirement

The total extent area of the project is **1.31.00 Ha**, Patta Land in Sengundrapuram Village of Virudhunagar Taluk, Virudhunagar District.

Table 9 Land Use Breakup

S. No.	Land Use	Present Area (Ha)	Area after the quarrying period of 5 years (Ha)
1.	Area under quarrying	Nil	0.67.70
2.	Infrastructures	Nil	0.01.00
3.	Roads, cart tracks etc.,	Nil	0.02.00
4.	Green Belt	Nil	0.60.30
5.	Unutilized Area	1.31.00	Nil
	Total	1.31.00	1.31.00

11. Human Settlement

There are no habitations within 300m radius. There are villages located in this area within a 5 km radius of the quarry.

Table 10 Habitation

SL. NO	DIRECTION	VILLAGE	POPULATION	DISTANCE
1	North	M. Chinnaiyapuram Valayapatti Meenakshipuram Chokkalingapuram	1,000 1,150 550 500	0.5 Km 2.0 Km 3.0 Km 4.0 Km
2	NE	Koothiparai	500	4.0 Km
3	NW	Ramakudumbanpatti Sanapatti Vachakarapatti	350 450 4,700	3.0 Km 4.0 Km 5.0 Km
4	South	Virarpatti Appaiyanaickerpatti Puthupatti Nallamanaickerpatti	1,000 1,500 650 1,200	2.0 Km 3.0 Km 3.5 Km 4.5 Km
5	SE	Sundaralingapuram	400	4.5 Km
6	SW	Golwarpatti	450	4.5 Km
7	East	Kottaiyur Bommaiyapuram	1,000 550	1.5 Km 4.0 Km
8	West	Mannarkottai Aavudaiyapuram	1350 3500	2.0 Km 3.5 Km

12. Power Requirement

The proposed Rough stone quarrying does not require any power supply for the quarrying operation.

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

10 Litre diesel per hour for excavator for mining and loading for Topsoil.

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 : 30° C
- ii) Average Maximum Temperature: 38°C
- iii) Average Annual Rainfall of the area: 829 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 10 km. radius, air quality survey has been conducted at 7 locations. Major air pollutants like Particulate Matter (PM10), Sulphur Dioxide (SO₂), Nitrogen Dioxide (NO₂) were monitored, and the results are summarized below.

The baseline levels of PM₁₀ (40– 58 µg/m³), PM_{2.5} (12 – 28 µg/m³), SO₂ (5 – 22 µg/m³), NO₂ (10 – 43 µg/m³), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from June 2025 to August 2025.

13.3 Noise Environment

The maximum Day noise and Night noise were found to be 66 dB(A) and 41 dB(A) respectively in Kurunthamadam Gvt.high.school and Project site respectively . The minimum Day Noise and Night noise were 53 dB(A) and 35 dB(A) measured in Kurunthamadam Gvt.high.school and Shri Perumal temple sennalkudi which was observed in project site. The observed values are all well within the Standards prescribed by CPCB.

13.4 Water Environment

Bore well:

- The average pH ranges from 7.23 – 8.11.
- TDS value varied from 248 mg/l to 2001 mg/l.
- Hardness varied from 166 to 1307 mg/l.
- Chloride varied from 14.7 to 516 mg/l.

Surface Water:

- The average pH ranges from 8.05 – 8.11.
- TDS value varied from 166 mg/l to 1498 mg/l.
- Hardness varied from 46.2 to 365 mg/l.
- Chloride varied from 33.8 to 379 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 6.24 to 7.96 with organic matter 0.26 to 0.60 %. 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 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, Vilvam, Pungam, etc will be planted along the lease boundary and avenues as well as over Non-active dumps at a rate of 655 trees per annum with interval 5m.
4. The rate of survival expected to be 70% in this area

Table.11 Plantation/ Afforestation Program

SCIENTIFIC NAME	COMMON NAME	PLANTED TREES
Aegle marmelos	Vilvam	200
Azadirachta indica	Neem	300
Pongamia pinnata	Pungam	155
TOTAL		655

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 40,49,000/-** 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 .12 Project Cost details

S. No	DETAILS	COST in Rs. /-
i)	Lease rent / Land Cost	4,50,000
ii)	Machinery to be used	Hired machinery
iii)	Fencing	1,50,000
iv)	Labourers Shed	50,000
v)	Sanitary facility	25,000
vi)	Other Items	25,000
TOTAL		7,00,000

(a) Expenditure/ Production Cost. (1Unit= 2.83m³)

Drilling and Blasting cost / unit production = **Rs.150/-** including loading & breaking.

(i) Mining cost for rough stone up to 5 Years planned production quantity

Total Minalable quantity in m³ = 43,770 m³ (15,466 Units)

Total cost of mining Rough Stone = 15,466 X Rs. 150/-
= Rs. 23,90,900/-

(ii) Mining cost for gravel for 5 Years planned production quantity

Total Minalable quantity in m³ = 33,895 m³ (11,977 Units)

Total cost of mining - Gravel = 11,977 X Rs. 80/-
= Rs. 9,58,160/-

Total Cost for Mining = Rs. 33,49,060/-

Say = Rs. 33,49,060/-

Total Project Cost (a+b) = Rs. 40,49,000/-.

20. Corporate Environmental Responsibility

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

Table 13 CER Cost

Si. No.	CER Activity	CER value (Rs)
1.	Panchayat Union School in Kottaiyur village (1.5 Km), Virudhunagar (Via). Providing facilities are: ➤ Renovation of damaged old school building and construction of a classroom building and storeroom (Stock room) and ➤ Basic amenities such as Environmental awareness books (Tamil) in Library for students, Green Belt development, RO water purifiers, Hygienic Toilet and maintenance of toilet upto lease period.	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 a 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.