EXECUTIVE SUMMARY FOR

PROPOSED ROUGH STONE AND GRAVEL QUARRY

CATEGORY – B1

(Public Hearing Upgraded after Terms of Reference (ToR) as per the provisions of EIA Notification 2006 & amendments thereof)

ToR I.No. TO23B0108TN5776677N, dated 02.04.2024

PROPOSED QUARRY LEASE DETAILS	
SURVEY NOS	212/2A (P), 212/2B (P), 212/2C (P), 213/2A, 213/2B and 213/4
VILLAGE	KILKOLATHUR
TALUK	CHEYYAR
DISTRICT	TIRUVANNAMALAI
EXTENT	3.82.0 HA
PROPOSED PRODUCTION QUANTITY FOR TEN YEARS	ROUGH STONE - 4,11,380 M^3(First Five years) - 1,85,875 M^3(Next Five years) GRAVEL - 62,368 M3
LAND	PATTA LAND

(Sector No. 1(a) Sector No.1 as per NABET)
Category of the Project: B1 Cluster Mining, Total Cluster Area – 7.38.5 Ha
Baseline Monitoring Period – February 2024 to April 2024

APPLICANT

M/s. AGGREGATE MINES,

PARTNER, THIRU.S.B.BASKAR,

NO.562, TNHB PHASE I, ARCOT, RANIPET DISTRICT.

PIN CODE– 632 503.

ORGANIZATION

M/s. GLOBAL MINING SOLUTIONS
(NABET ACCREDITED & ISO 9001 CERTIFIED CONSULTANT)
PLOT NO.6, SF NO. 13/2, A2, VS CITY, RC CHETTYPATTY, KOTTAMETTUPATTY, OMALUR, SALEM, TAMIL NADU – 636 455
NABET ACCREDITATION NO – NABET/EIA/2326/IA 0110

MAY - 2024

SUMMARY& CONCLUSION

1.1 INTRODUCTION

M/s.Aggregate Mines Partner Thiru.S.B.Baskar has obtained Precise Area Communication Letter from Deputy Director, Department of Geology and Mining, Tiruvannamalai. Total production is 5,97,255 m^3 of Rough Stone & 62,368 m^3 of Gravel, in which 4,11,380 m^3 of rough stone & 62,368 m^3 of Gravel will be mined out in first five years and remaining 185875 m^3 rough stone will be mined out in second 5 year over an extent of 3.82.0 Ha located in S.F. No. 212/2A (P), 212/2B (P), 212/2C (P), 213/2A, 213/2B and 213/4 at Kilkolathur Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State.

As per EIA notification, 2006 and its subsequent amendments the proposed "Rough Stone and Gravel Quarry of M/aggregate Mines Partner Thiru.S.B. Baskar" mines cluster falls under Schedule 1(a) of EIA Notification and its subsequent amendments the project comes under Category B1. The ToR for preparation of EIA/EMP report of the project was approved vide letter No. SIA/TN/MIN/452472/2023 Dated 02.04.2024. This report has been prepared in line with the approved TOR for production of maximum excavation of 5,97,255 m^3 of Rough Stone & 62,368 m^3 of Gravel, in which 4,11,380 m^3 of rough stone & 62,368 m^3 of Gravel will be mined out in first five years and remaining 185875 m^3 rough stone will be mined out in second 5 year of Gravel formation.

S.No.	Description	Status/Remarks
1.	Sector	Non-coal mining
2.	Category of the project	B1
3.	Proposed mineral	Rough Stone and Gravel
4.	Type of Lease	Fresh Lease
5.	Extent of the lease	3.82.0 Ha
6.	Proposed depth of Mining	47m (BGL)
7.	Method of mining	Opencast Semi-mechanized

8.	Proposed lease period	10 Years
9.	Proposed Environmental Clearance	10 Years
10.	Proposed production quantity for five years	Rough Stone 5,97,255 m^3(First Five year) 185875 m^3 (Remining Year) Gravel - 62,368 m^3

The Lessee M/s.Aggregate Mines Partner Thiru.S.B. Baskar is an individual with sound experience in the identification, quarrying and marketing of Rough Stone and Gravel formation. The proposed land is a patta land and attached as **Annexure 6.**

1.2 LOCATION

This project site is located in Kilkolathur Village, Cheyyar Taluk, Tiruvannamalai District, Tamil Nadu State. with Latitude 12°36'26.98'N to 12°36'33.95'N and Longitude: 79°35'48.97" E to 79°35'59.76" E with Survey of India Topo Sheet No. 57 P/10. To conduct the study, the proposed mine lease area (core zone) and an impact zone of 10 km radius (called buffer zone) around the proposed mine site were considered. The EIA report is based on three months baseline data (i.e. February 2024 to April 2024)

1.3 GEOLOGY

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 strike of the Charnockite formation is $N40^0E$ – $S40^0W$ with vertical dipping.

1.4 PROJECT DESCRIPTION

This is a proposed Rough Stone quarry by Opencast Semi-mechanized mining method with drilling and blasting. The quarrying is restricted up to a depth of 47m below ground level. The geological reserves is estimated to be 17,23,680 m3 of Rough stone, 76,608 m3 of gravel. The mineable reserve calculated by deducting 10m safety

distance and bench loss. The mineable reserves is 5,97,255 m^3 of Rough Stone & 62,368 m^3 of Gravel, in which 4,11,380 m^3 of rough stone & 62,368 m^3 of Gravel will be mined out in first five years and remaining 185875 m^3 rough stone will be mined out in second 5 year over an extent of 3.82.0 Ha.

- It is proposed to quarry out rough stone with 5m bench height, 5m width with 47° slope using conventional Open cast Semi-Mechanized method. The quarry operation involves shallow jack hammer drilling, slurry blasting, excavation, Loading and transportation of Rough Stone.
- There is no overburden anticipated during entire rough stone quarrying operation.

S.No.	Type of Detail	Description
1	Sector	1(a) Non coal mining
2	Fresh/Existing project	Fresh project
3	Category	B1
4	Nature of mineral	Minor mineral, Rough Stone and Gravel
5	Production	Rough Stone 5,97,255 m3(First Five year) 185875 m3 (Remining Year) Gravel - 62,368 m3
6	Life	10 years
7	Waste generation and management	There is no overburden anticipated during the quarrying operation. Hence, no waste generation.
8	Bench height and width	Height and Width – 5m
9	Ultimate pit depth	47m (BGL)
10	End use	Rough Stone and Gravel will be loaded into tippers to needy buyers for producing aggregates, M-sand.

1.5 PROJECT REQUIREMENTS

The requirements of the project is given below.

S.No.	Nature of requirement	Description
1	Water requirement	Total water requirement of 8 KLD which will be procured from the outside agencies. Out of 8.0 KLD, drinking water requirement is 4.5 KLD, Green belt development and dust suppression is 3.5 KLD.
2	Power requirement	No electricity is needed for mining operations, for office demands, it will be met from the state grid.
3	Manpower requirement	Permanent employees – 15, temporary employees – 15
4	Financial requirement	The total project cost is 128.39 Lakhs for Operational cost, Fixed Asset cost and EMP cost
5	Funds for Socio economic development	INR 5 Lakhs is allocated. In addition, any demand raised by people during public hearing will also be met.

1.6 DESCRIPTION OF LEASE AREA

The features in the study area is given below.

<table>
<tr><th>S. No.</th><th>Areas</th><th colspan="3">Distance from proposed project</th></tr>
<tr><td>1</td><td>Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value</td><td colspan="3">Nil within 15km radius</td></tr>
<tr><td>2</td><td colspan="4">Areas which are important or sensitive for ecological reasons</td></tr>
<tr><td>A</td><td>Wetlands, water courses or other water bodies,</td><td>Water bodies</td><td>Distance (Km)</td><td>Direction</td></tr>
<tr><td></td><td></td><td>Odai</td><td>35m</td><td>S</td></tr>
<tr><td></td><td></td><td>Tank</td><td>42m</td><td>W</td></tr>
</table>

		Cheyyar River: 3.4 NW Tandarai Canal: 8.0 NW
B	Coastal zone, biospheres	None in 10km radius
C	Mountains, forests	Venkunam R F – 6.5km (S)
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, overwintering, migration	Nil within 15km radius
4	Inland, coastal, marine or underground waters	Nil within 15km radius
5	State, National boundaries	Nil within 15km radius
6	Routes or facilities used by the public for access to recreationor other tourist, pilgrim areas	Nil within 15km radius
7	Defence installations	Nil within 15km radius
8	Densely populated or built-up area	Narmapallam – 1.2km (SE)
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	All facilities are available in Narmapallam 1.2km (SE)
10	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	The area contains rock in many places in the surrounding area.
11	Areas already subjected to pollution or environmental damage (those where existing legal environmental standards are exceeded)	Nil
12	Areas susceptible to natural hazard which could cause the project to present environmental problems (earth quakes, subsidence, landslides, erosion, flooding or	No. The area is not prone to earthquakes, floods, etc.

	extreme or adverse climatic conditions) similar effects	

The baseline data collection for meteorology, air, water, noise and soil environments have been carried out during February to April 2024.

Air, water, noise and soil samples are collected and analyzed through NABL accredited lab.

1.7 AIR ENVIRONMENT

The air monitoring have been carried out in 6 locations and the results are given below.

TABLE 3.3: DETAILS OF AMBIENT AIR QUALITY MONITORING LOCATIONS

S. No.	Station Code	Locations	Distance & Direction	Coordinates
1	AAQ 1	Project site	Core Zone	12°36'30.77"N 79°35'53.82"E
2	AAQ 2	Naramapallam	1.36 Km, E	12°36'7.71"N 79°36'36.07"E
3	AAQ 3	Kikolathur	1.74 Km, W	12°36'49.83"N 79°34'54.69"E
4	AAQ 4	Purisai	3.5 Km, S	12°34'48.52"N 79°34'56.91"E
5	AAQ 5	Vada Alapiranthan Pudur	2.41 Km, N	12°37'43.22"N 79°36'29.99"E
6	AAQ 6	Kulamanthai	2.57 Km, N	12°36'4.74"N 79°34'27.34"E

Station ID	Min	Max	Avg.
Particulate matter PM-$_{2.5}$ (µg/m^3)			
AAQ-1	25.3	31.6	28.45
AAQ-2	18.7	22.6	20.65
AAQ-3	22.1	21.8	21.95
AAQ-4	22.7	29.1	25.9
AAQ-5	18.9	24.2	21.55
AAQ-6	18.7	23.4	21.05
CPCB NAAQS 2009 for PM $_{2.5}$ - 60 µg/m^3			
Particulate matter PM-$_{10}$ (µg/m^3)			
AAQ-1	54.7	68.8	61.75
AAQ-2	40.1	50.2	45.15
AAQ-3	47.6	61.9	54.75

Station ID	Min	Max	Avg.
AAQ-4	47.2	62.5	54.85
AAQ-5	41.1	52.5	46.8
AAQ-6	40.7	52.1	46.4
CPCB NAAQS 2009 for PM_{10} - 100 µg/m^3			
Sulphur Di-oxide as SO_2 (µg/m^3)			
AAQ-1	5.1	6.5	5.8
AAQ-2	3.6	5.8	4.7
AAQ-3	5.1	6.6	5.85
AAQ-4	4.8	6.7	5.75
AAQ-5	4.1	6.5	5.3
AAQ-6	3.9	6.4	5.15
CPCB NAAQS 2009 for SO_2 – 80 µg/m^3			
Oxide of Nitrogen as NO_2 (µg/m^3)			
AAQ-1	7.9	12.1	10.0
AAQ-2	6.5	8.7	7.6
AAQ-3	7.1	9.6	8.35
AAQ-4	7.2	9.7	8.45
AAQ-5	6.5	9.5	8.0
AAQ-6	6.2	9.1	7.65
CPCB NAAQS 2009 for NO_2 – 80 µg/m^3			

All the values of pollutant concentrations were found to be within the NAAQs Standards.

1.8 WATER ENVIRONMENT

		Table 3.7 Results of Ground Water sampling Analysis in 6 locations								
S. No.	Test Parameter	Unit	GW1	GW2	GW3	GW4	GW5	GW6	Specification/Limit (As per IS:10500: 2012)	
									Desirable	Permissible
1	Odour	…	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
2	Taste	…	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	pH	…	7.82	7.65	7.34	7.66	7.82	7.56	6.5 - 8.5	No Relaxation
4	Turbidity	NTU	<1	<1	<1	<1	<1	<1	1	5
5	TDS	mg/L	710	890	665	615	1162	1260	500	2000
6	Fluoride,(F)	mg/L	0.36	0.36	0.35	0.42	0.18	0.29	1	1.5
7	Total Alkalinity,	mg/L	385	397	303	339	404	445	200	600

	(CaCO3)									
8	Total Hardness, (CaCO3)	mg/L	269	269	468	395	255	494	200	600
9	Calcium,(Ca)	mg/L	56.4	56.4	122	77.6	50.0	106	75	200
10	Calcium as CaCO3		141	120	305	194	125	265		
11	Free Residual chlorine as Cl-	-	BDL(D.L-0.2)	BDL(D.L-0.2)	BDL (D.L - 0.2)	BDL(D.L-0.2)	BDL(D.L-0.2)	BDL(D.L-0.2)	-	-
12	Chloride,(Cl)	mg/L	142	249	138	156	386	391	250	1000
13	Magnesium ,(Mg)	mg/L	128	274	39.1	48.2	31.2	55	30	100
14	Nitrate, (NO3)	mg/L	3.45	BDL(D.L-1.0)	2.47	3.22	2.98	3.56	45	No Relaxation
15	Sulphate, (SO4)	mg/L	214	236	121	76.6	362	329	200	400
16	Iron,(Fe)	mg/L	0.04	BDL(D.L-1.0)	BDL(D.L-1.0)	BDL(D.L-1.0)	0.06	0.07	1	No Relaxation
17	Manganese , (Mn)	mg/L	BDL(D.L-0.05)	BDL(D.L-0.05)	BDL (D.L - 0.05)	BDL(D.L-0.05)	BDL(D.L-0.05)	BDL(D.L-0.05)	0.1	0.3
18	Conductivity	µs/cm	1176	1480	1106	1021	1934	2095	Not Specified	Not Specified

All the values were found to be within permissible limits

1.9 NOISE ENVIRONMENT

Noise levels were measured in 5 locations and the results are given below.

TABLE 3.3: DETAILS OF AMBIENT AIR QUALITY MONITORING LOCATIONS

S. No.	Station Code	Locations	Distance & Direction	Coordinates
1	N1	Project site	Core Zone	12°36'30.77"N 79°35'53.82"E
2	N2	Naramapallam	1.36 Km, E	12°36'7.71"N 79°36'36.07"E
3	N	Kikolathur	1.74 Km, W	12°36'49.83"N 79°34'54.69"E
4	N4	Purisai	3.5 Km, S	12°34'48.52"N 79°34'56.91"E
5	N5	Vada Alapiranthan Pudur	2.41 Km, N	12°37'43.22"N 79°36'29.99"E

TABLE 3.3: DETAILS OF AMBIENT AIR QUALITY MONITORING LOCATIONS				
S. No.	**Station Code**	**Locations**	**Distance & Direction**	**Coordinates**
6	N6	Kulamanthai	2.57 Km, N	12°36'4.74"N 79°34'27.34"E

Table 3.8 Noise monitoring results					
S. No	**Location**	**Day equivalent**	**Night equivalent**	**Day equivalent limits by CPCB**	**Night equivalent limits by CPCB**
1	Project site	51.0	41.7	75	70
2	Naramapallam	50.0	39.6		
3	Kikolathur	48.0	39.6		
4	Purisai	49.2	40.2		
5	Vada Alapiranthan Pudur	45.7	40.5		
6	Kulamanthai	47.3	40.7		

1.10 SOIL ENVIRONMENT

Soil samples are collected from 3 locations and the results are given below.

Table 3.9 Results of Soil Sample Analysis							
S.No.	**Parameter**	**S1 Project site**	**S2 Naramapallam**	**S3 Kikolathur**	**S2 Purisai**	**S3 Vada Alapiranthan Pudur**	**S3 Kulamanthai**
1	pH	7.42	6.62	7.07	7.55	6.92	7.08
2	Electrical Conductivity	122.5	79.8	92.4	72.34	76.57	93.65
3	Dry Content	96.47	96.55	98.57	97.62	96.57	97.86
4	Water Content	3.53	3.45	1.43	2.38	3.43	2.14
5	Organic Mater	0.94	0.62	0.48	0.55	0.69	0.71
6	Phosphorus	1.92	1.65	1.87	1.42	1.52	1.89
7	Texture	Sandy Loam	Loam	Clay	Loam	Loam	Clay
8	Sand	63.54	42.89	16.34	51.22	31.69	19.75

9	Clay	12.77	24.57	44.21	19.83	25.8	41.63
10	Silt	23.69	32.54	39.45	28.95	45.51	38.62
11	Total Nitrogen	159	212	176	182	205	170
13	Sodium	472	635	584	670	556	590
14	Potassium	294	394	476	365	322	496
15	Water Holding Capacity	2.9	3.3	3.5	3.1	3.4	3.7
16	Porosity	22.3	24.5	38.6	26.2	39.2	41.5

1.11 BIOLOGICAL ENVIRONMENT

FLORA

For measuring the extent of flora present in the study area, the area is divided in to 4 quadrants. The flora population in each quadrant is summed up for the total population in the study area. Field survey is done. Erukku, Aavarai and Nayuruvi are found in lease area. In the buffer zone, common trees like Neem, papaya, mango, teak, etc and shrubs like Avarai, Aloe vera, etc, climbers like Kovai,jasmine etc are found.

FAUNA

In the study area, commonly found animals like dogs, cats, bush rat, cows, birds like crow, Myna, Sparrow, etc were found.

1.12 LAND USE

The land use land cover data is found using the LANDSAT – 9 satellite imagery. The number of bands used are 11. The land use pattern is given below:

Table No. 3.17: Major Land Use Units of the Study Area in Percentage

S. No	1st Level Classification	Area in (sq.km)	Percentage (%)	2nd Level Classification	Area in (sq.km)	Percentage (%)
1	Built-up or habitation	24.75	7.69	Residential	24.09	7.48
				Commercial/Industrial	0.66	0.20
2	Agriculture	202.63	62.93	Crop/fallow land	201.8	62.67

				Plantation	0.83	0.26
3	Forest	8.85	2.75	R.F/ Dense/ degraded/ etc	8.85	2.75
4	Water bodies	64.68	20.09	Reservoir/Lake /Pond	57.84	17.96
				River/Stram	6.84	2.12
5	Waste Land	9.97	3.10	Open without scrub	7.02	2.18
				Open with scrub	2.95	0.92
6	Others	11.16	3.47	Mines	1.71	0.53
				Forest	8.85	2.75
				Brick plant	0.60	0.19
Total		322	100		322	100

1.13 SOCIO ECONOMIC ENVIRONMENT

The socio economic environment of the study area is studied by conducting primary sites through site visits and conducting sample surveys. The secondary data obtained from Census 2011 is also used.

The following data area collected from secondary data.

- Demographic pattern.
- Health pattern
- Occupational structure.
- Amenities available.

The expert visited 3 villages in the study area namely Kizhkolathur, Thethurai and Narmapallam villages. Discussions were held with the people from nearby locality to study the social and economic conditions prevailing in the area. The expert also visited nearby hospitals, primary health centres and Senthamangalam. The following observations were made.

The following observations were made.

- Primary schools are available in many villages. For hospital facilities, people in the locality have to go to hospital in Tiruvethipuram M which is about 8.9 km from the lease area.
- Major schools with higher secondary and senior secondary schools are located in Tiruvethipuram M.
- The major Tiruvethipuram M Union located in the area is Cheyyar..
- Facilities like petrol pump stations, ATM facility are available in Tiruvethipuram M.

1.14 HYDROGEOLOGY OF THE LEASE AREA

Since there is Cheyyar river is located at a distance of 3.4 km in North west side and Tandarai Cnal is located at a distance of 8.0 km North West direction of the proposed site, the hydrological and hydrogeological pattern of the study area is studied in detail using satellite imagery.The hydrological and hydrogeological pattern of the study area is studied in detail using satellite imagery.

Cheyyar River is the major river in the lease area. But there is no running water currently in the river. Only during monsoons, water gets stagnated at a few places.

There are many tanks located in the study area, which are mostly dry throughout the year. These tanks get water only during monsoons. The factors may be monsoon failure, insufficient rainfall, poor rain water management and water consuming patterns.

1.15 GROUND WATER STUDY

For Ground water study, satellite imagery is used. Water levels from monitoring levels are collected through imaging. The pre-monsoon and post-monsoon data are collected and the results are analyzed.

During field visit, it is observed that water is available in wells only after monsoon. The yield is obtained at deep levels only.

As far as the mining lease area is considered, the area is rocky and no major seepage is envisaged. The production quantity is very less and the depth proposed is 47m

BGL. Hence, there will not be any major impact due to mining on water levels or ground water levels in the area.

ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Environmental impacts on the following environments are identified.

- Land environment
- Water environment
- Vegetation
- Fauna
- Air environment
- Noise environment
- Socio-economic impacts

1.16 LAND ENVIRONMENT: IMPACT AND MITIGATION MEASURES

The major impact due to this project on land environment is the change in land use. Since this quarry is a small one and the production is less, mining activity will be carried out upto 47m BGL. Other than quarrying of minerals, no other change will be done since there is no dumping. To prevent soil erosion during monsoon season, garland drain will be constructed with silt traps. At the mine closure stage, 3.10 Ha of lease area will be left as rain water harvesting pond. 0.69.0 Ha will be developed with green belt. For this, plants like Pongamia pinnata, Syzigium cumini, Albizia lebbeck, Thespesia populnea, Bauhinia racemose, Cassia siamea, Azadirachta indiaca are selected. A total of 850 trees are planned to be planted. Spacing will be 3m x 3m.

1.17 WATER ENVIRONMENT: IMPACT AND MITIGATION MEASURES

There is no water body present inside the lease area. The entire water requirement for the project is 8.0KLD which will be sourced from outside agencies. Negligible sewage will be generated, for which a septic tank with soak pit will be set up.

During monsoon season, the excess rain water, if any, will be led through garland drain of 0.6m width and 0.3 m depth to the collection pond with silt traps.

Since the mining operation will be limited upto depth of 47 m (BGL), there will not be any seepage. However, the rain water percolation and collection of water from seepage shall be less than 300lpm and it shall be pumped out periodically by a stand by diesel powered Centrifugal pump motivated with 7.5H.P.Motor. The quality of water is expected to be potable. Hence, water stored in the quarry pit will be pumped into the adjacent agricultural fields. Further the water can also be used for plantation purposes

The major water bodies found in the buffer zone are.

Odai-35m – S

Tank-42m – W

Cheyyar River-3.4km – NW

Tandarai Canal-8.0km - NW

Since these water bodies are located outside the lease area and there is no discharge of effluent or any untreated water from the mines will be made in to these water bodies, there is no major impact. For the canal, adequate safety distance is left. The proponent will restrict the mining operation only within the lease and no other work will be carried out near the canal or any area outside the lease.

It is planned to carryout appropriate rainwater harvesting schemes and artificial recharge schemes in the area.

- Rain water falling in the quarry will be collected efficiently through garland drains.
- Water thus collected will be passed through collection tank with silt traps. This water can be used by the proponent for water sprinkling and for green belt purposes.
- Excess water after desiltation will be provided to downstream users, if any

1.18 BIOLOGICAL ENVIRONMENT: IMPACT AND MITIGATION MEASURES

Impacts

- Fauna is affected due to noise and vibration.
- Dust generation due to mining activities
- Change in land use of the lease area
- Accidental falling of animals
-

Mitigation measures

- Sirens will be blown before blasting in the mines. To reduce noise levels, plantation will be done. Blasting will be carried out only in the allotted time.
- To reduce dust generation, mist sprayers will be used. During transportation, the material will be covered with tarpaulin. Water sprinkling will be done to reduce generation of pollutants
- After the mine closure stage, the mine pit will be left as rain water collecting tank, which can attract bird population in the nearby areas.
- To prevent entry of animals, the mining area will be properly fenced.

1.19 AIR ENVIRONMENT: IMPACT AND MITIGATION MEASURES

The major air pollutants due to mining operations are fugitive emissions like PM_{10}, $PM_{2.5}$. Other than these pollutants, gaseous emissions of sulfur dioxide (SO_2) and

oxides of nitrogen (NO_x) due to excavation/loading equipment and vehicles plying on haul roads are the cause of air pollution in the project area.

The major impacts are Dust emission due to drilling, blasting and transportation. The major mitigation measures include Using Wet drilling methods, Allowing drilling only with PPE, Carrying out blasting only during specified times, Avoiding blasting during unfavourable weather conditions, Using explosives of good quality, Using mist sprayers Regular wetting of transport, Covering the materials carried in tippers with tarpaulin, Proper maintenance of vehicles used for transportation, Conducting regular emission tests for vehicles used for transport Development of greenbelt is proposed in the safety zone of 10m and 7.5m barriers in the lease area.

The anticipated data is calculated using AERMOD software and the projected values are found to be within limits.

1.20 NOISE ENVIRONMENT: IMPACT AND MITIGATION MEASURES

Impacts

- Noise generation in mining is due to operation like drilling, blasting and transportation of minerals within and outside the lease area.
- As per DGMS (Directorate General of Mines Safety) and OSHA (Occupational Safety and Health Administration) limits, the acceptable noise level is 90 dB(A) for an exposure period of 8 hours.
- Exposure to loud noise can also cause high blood pressure, heart disease, sleep disturbances, and stress. Noise pollution also impacts the health and well-being of wildlife.
- Noise exceeding prescribed limits may cause impairment like abnormal loudness perception, tinnitus, which causes a persistent high-pitched ringing in the ears, paracusis or distorted hearing

Mitigation measures

- As the distance between the source and receptor increases, the noise level also decreases. Hence, there will be a natural attenuation

- The proposed has planned to develop green belt in the periphery of the lease area, which diminishes sound volume by dampening them.
- All the equipment/machinery/trucks involved will be properly maintained to control noise generation
- Conducting regular health checkups for employees involved
- Employees will be made to work on shifts to reduce their exposure time
- Providing earplugs to all employees

By adopting these measures, the noise levels will be maintained well within MoEF & CC limits since the baseline value is low.

1.21 VIBRATION: IMPACT AND MITIGATION MEASURES

Impacts

- Though vibration will be only felt by the people working inside the lease area, it is usually undesired.
- Vibration may also cause flyrocks
- It may frighten the birds and small insects in the lease area. However, it will be felt only for a short period

Mitigation measures

- Carrying out blasting on limited scale, only from 12:00 PM to 2:00 PM
- Control of fly rock and vibration by maintaining peak particle velocity with in standard as prescribed by the DGMS and MOEF & CC.
- Shallow depths jackhammer drilling and blasting is proposed to be carried out with minimum use of explosive
- Supervising blasting by competent and statutory foreman/ mines manager

1.22 SOCIO ECONOMIC ENVIRONMENT

Impact and Mitigation measures

No land is acquired from anyone. No rehabilitation is needed. Hence, there is no negative impact. The proponent has planned to spend INR 5,00,000 for CER activities. This amount will be subjected to change after public hearing.

1.23 OCCUPATIONAL HEALTH

Impacts

Dust generation due to drilling and blasting, Noise generation due to drilling and blasting, unexpected accidents. Continuous exposure to dust causes Pneumonia, Tuberculosis, Rhematic arthritis and Segmental Vibration, Short term impact will be lack of sleep, high blood pressure and heart ailments. Long term exposure may lead to partial or permanent deafness, Risks include fly rocks, cracks or fissures due to improper mining methods

Mitigation measures

- Using dust suppression measures like water spraying on roads to reduce rise of air pollutants
- Providing green belt for air pollutant and noise attenuation
- Ensuring slope stability
- Employing only trained professionals for blasting
- Conducting Pre-Medical Examination for employees before inducting
- Conducting periodical Medical Examination once in 6 months.
- Making all first aid kits available in mines office
- Keeping fire extinguisher in place
- Educating the employees about how to handle unexpected happenings
- Posting information containing emergency contact numbers in mines office
- By adopting all these measures, the safety of the employees working in the quarry will be ensured.

1.24 ENVIRONMENTAL MONITORING PROGRAMME

Monitoring is done to measure the efficiency of control measures implemented.

Regular monitoring of various environmental parameters like air, water, noise and soil environments is needed to assess the status of environment during the project operation. A schedule is framed with timeline to monitor various parameters during the operation of the project. To evaluate the effectiveness of environmental management programme, regular monitoring of the important environmental parameters will be taken up. Air monitoring will be carried out once in 3 months, water sample will be collected once in a season, noise will be monitored once in 3 months, soil samples will be analyzed once per season. For EMP, a budget of INR 41.11 lakhs as capital cost is allocated.

1.25 PROJECT BENEFITS

Financial benefits

- This project will contribute financially through payment of taxes like royalty, GST, etc
- The project will also contribute via CSR.
- The demands of people during public hearing will also be considered by the project proponent

Social benefits

- This project provides employment to 30 people directly. Local people will be hired for unskilled labour.
- Through CSR, nearby schools, hospitals will be benefitted.
- For CSR, INR 10,000,00 is allocated.
- Based on the demand of the people during public hearing, further funds will be allocated, if necessary.
- Various aspects of mining activities were considered and related impacts were evaluated. Considering all the possible ways to mitigate the environmental concerns Environmental Management Plan was prepared and 41.11 lakhs of capital cost and 38.40 lakhs per year is the recuring cost have been allocated

as EMP cost. The EMP is dynamic, flexible and subjected to periodic review. For project where the major environmental impacts are associated, EMP will be under regular review. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP and the project will bring the positive impact in the study area.

ANNEXURE-1

ANNEXURE - 1

ந.க.எண்:255/கனிமம்/2022

துணை இயக்குநர் அலுவலகம்,
புவியியல் மற்றும் சுரங்கத்துறை,
திருவண்ணாமலை-4.
நாள்:11.09.2023.

அறிவிக்கை

பொருள்: கனிமங்களும் குவாரிகளும் - சிறுகனிமம் - திருவண்ணாமலை மாவட்டம் - செய்யார் வட்டம் - கீழ்கொளத்தூர் கிராம புல எண்கள்.212/2A மற்றும் சிலவற்றின் மொத்தப் பரப்பு 3.82.0 ஹெக்டேர் பரப்பில் சாதாரணகல் மற்றும் கிராவல் வெட்டியெடுக்க - குவாரி குத்தகை உரிமம் வழங்கக்கோரி M/s.Aggregate Mines, என்ற நிறுவனத்தின் பங்குதாரர் திரு.S.B.பாஸ்கர் என்பவர் விண்ணப்பம் செய்தது - பரிந்துரை அறிக்கை வரப்பெற்றது - சுரங்கத் திட்டம் **(Mining Plan)** தயார் செய்து சமர்ப்பிக்க கோருவது - தொடர்பாக.

பார்வை:
1. M/s.Aggregate Mines, என்ற நிறுவனத்தின் பங்குதாரர் திரு.S.B.பாஸ்கர் எண்.562 TNHB Phase I, ஆற்காடு, ராணிபேட்டை மாவட்டம் என்பவரின் விண்ணப்ப நாள்.21.11.2022.
2. இவ்வலுவலக கடிதம் ந.க.எண்.255/கனிமம்/2022, நாள்.21.11.2022
3. சார் ஆட்சியர் செய்யார் அவர்களின் கடிதம் ந.க.அ5/ 6464/2023 நாள்.01.09.2023
4. உதவி புவியியலாளர் மற்றும் தனி வருவாய் ஆய்வாளர் புவியியல் மற்றும் சுரங்கத்துறை, திருவண்ணாமலை அவர்களின் புலத்தணிக்கை அறிக்கை நாள்.07.09.2023.
5. அரசாணை (MS).எண்.169 தொழில்துறை (எம்.எம்.சி1) துறை நாள்.04.08.2020.
6. அரசாணை (MS).எண்.208 தொழில்துறை (எம்.எம்.சி1) துறை நாள்.21.09.2020.
7. தொடர்புடைய ஆவணங்கள்.

❖❖❖❖❖❖

திருவண்ணாமலை மாவட்டம், செய்யார் வட்டம், கீழ்கொளத்தூர் கிராம புல எண்கள்.212/2A (Part), 212/2B (Part), 212/2C (Part), 213/2A, 213/2B மற்றும் 213/4 மொத்தப் பரப்பு 3.82.0 ஹெக்டேரில் சாதாரணகல் மற்றும் கிராவல் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குவாரிக்குத்தகை உரிமம் வழங்கக்கோரி M/s.Aggregate Mines, என்ற நிறுவனத்தின் பங்குதாரர் திரு.S.B.பாஸ்கர் என்பவர் அளித்த பார்வை (1)-ல் கண்ட விண்ணப்பத்தின் மீது பார்வை 2-ல் காணும் இவ்வலுவலக கடிதம் மூலம் சார் ஆட்சியர் அவர்களை அறிக்கை அனுப்பி வைக்க கோரப்பட்டது.

2. அதனைத்தொடர்ந்து (3)-ல் கண்ட சார் ஆட்சியர் செய்யார் மற்றும் பார்வை 4-ல் காணும் திருவண்ணாமலை மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநர் அலுவலக உதவி புவியியலாளர் மற்றும் தனி வருவாய் ஆய்வாளர் ஆகியோர் அளித்த பரிந்துரை அறிக்கைகள் பரிசீலிக்கப்பட்டது.

3. M/s.Aggregate Mines, என்ற நிறுவனத்தின் பங்குதாரர் திரு.S.B.பாஸ்கர் என்பவர் சாதாரணக்கற்கள் மற்றும் கிராவல் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குவாரிக்குத்தகை உரிமம் வழங்கக்கோரி விண்ணப்பித்துள்ள திருவண்ணாமலை மாவட்டம், செய்யார் வட்டம், கீழ்கொளத்தூர் கிராம புல எண்கள்.212/2A (Part), 212/2B (Part), 212/2C (Part), 213/2A, 213/2B மற்றும் 213/4 மொத்தப் பரப்பு 3.82.0 ஹெக்டேர் நிலப்பரப்பில் எவ்வித தடையும் இன்றி குவாரிப்பணி செய்ய வாய்ப்பு உள்ளதால், மேற்படி விண்ணப்பதாரார் M/s.Aggregate Mines, என்ற நிறுவனத்தின் பங்குதாரர் திரு.S.B.பாஸ்கர் என்பவருக்கு சாதாரணக்கற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க குவாரி குத்தகை உரிமம் வழங்க பரிந்துரை செய்யப்பட்ட **3.82.0** ஹெக்டேர் பரப்பினை கற்குவாரி செய்ய உகந்த புலம் **(Precise Area)** என தீர்மானித்து கீழ்கண்ட நிபந்தனைகளுக்கு உட்பட்டு அறிவிப்பு செய்யப்படுகிறது.

நிபந்தனைகள்

1) பிரஸ்தாப புலத்திற்கு மேற்கு பகுதியின் அருகில் அமைந்துள்ள புல எண்.191-ல் உள்ள காட்டு சித்தேரி நீர்நிலைக்கு 50மீ பாதுகாப்பு இடைவெளி விட வேண்டும்.
2) விண்ணப்ப புலத்திற்கு தெற்கு பகுதியின் அருகில் உள்ள புல புல் எண்.214/5-ல் உள்ள ஓடைபுறம்போக்குக்கு 50மீ பாதுகாப்பு இடைவெளி விட வேண்டும்.
3) விண்ணப்ப புலத்தில் உள்ள தாழ் மின்னழுத்த கம்பி சுரங்க திட்ட அறிக்கை சமர்ப்பிக்கும் முன் மாற்றம் செய்யப்பட்டதற்கான தமிழ்நாடு மின்உற்பத்தி மற்றும் பகிர்மானக் கழகத்தின் சான்று சமர்ப்பிக்கப்பட வேண்டும் (அல்லது) மேற்படி தாழ் மின்னழுத்த கம்பிகளுக்கு 50மீ பாதுகாப்பு இடைவெளி விட வேண்டும்.
4) விண்ணப்ப புலத்திற்கு அருகில் கிழக்கில் உள்ள கீழ்கொளத்தூர் நடை பாதைக்கு 10மீ பாதுகாப்பு இடைவெளி விட வேண்டும்.
5) அருகில் உள்ள பட்டா நிலங்களுக்கு 7.5மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.
6) பொதுமக்களுக்கும் அருகிலுள்ள நிலங்களுக்கும் எவ்வித பாதிப்பும் ஏற்படுத்தக்கூடாது.
7) குவாரிப்பணி தொடங்குவதற்கு முன்பாக குவாரியை சுற்றி முள் கம்பிவேலி அமைத்து குவாரிப்பணி தொடங்க வேண்டும்.
8) முறைப்படியும், விஞ்ஞானபூர்வமாகவும் குவாரிப்பணி செய்யவேண்டும்.
9) சான்றிதழ் பெறப்பட்ட போர்மேன், வெடிப்பாளர் மற்றும் சுரங்க மேலாளர் மூலம் முறையே குவாரிப்பணி செய்யப்பட வேண்டும்.
10) குவாரிப்பணி தொடங்குவதற்கு முன் சுரங்க பாதுகாப்பு இயக்குநர், சென்னை அவர்களுக்கு தகவல் தெரிவிக்கபட வேண்டும்.
11) பாறைகளைத் தகர்க்க கைத்துளைப்பான்களை கொண்டு பாறைகளை துளையிட்டு குறைவான வெடிபொருட்கள் பயன்படுத்த வேண்டும்.

4. தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதிகள் 41 மற்றும் 42-ன்படி கல் மற்றும் இதர சிறு கனிமங்களுக்கு குவாரி குத்தகை உரிமம் வழங்கும் முன்பு ஒப்புதல் பெறப்பட்ட சுரங்கத்திட்ட அறிக்கை மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மை சான்று பெறப்பட வேண்டும் என வரையறுக்கப்பட்டுள்ளது.

5. எனவே, M/s.Aggregate Mines, என்ற நிறுவனத்தின் பங்குதாரர் திரு.S.B.பாஸ்கர் என்பவர் ஒப்புதல் பெறப்பட்ட சுரங்கத்திட்ட அறிக்கை மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மைச் சான்றினை பெற்று சமர்ப்பிக்கும் பட்சத்தில் திருவண்ணாமலை மாவட்டம், செய்யார் வட்டம், கீழ்கொளத்தூர் கிராம புல எண்கள்.212/2A (Part), 212/2B (Part), 212/2C (Part), 213/2A, 213/2B மற்றும் 213/4 மொத்தப் பரப்பு 3.82.0 ஹெக்டேர் பரப்பில் கற்குவாரி செய்ய தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி எண்19(1) மற்றும் 20-ன்கீழ் 10 ஆண்டுகளுக்கு குத்தகை உரிமம் வழங்க உரிய நடவடிக்கை மேற்கொள்ளப்படும் என்ற விவரம் தெரிவிக்கப்படுகிறது.

6. மேலும், இவ்வறிவிப்பு கிடைக்கபெற்ற 90 நாட்களுக்குள் மேற்சொன்ன நிபந்தனைகளையும் குறிக்கும் வகையில் வரைவு சுரங்கத்திட்ட அறிக்கை தயார் செய்து துணை இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை திருவண்ணாமலை அவர்களிடம் ஒப்புதல் பெற சமர்ப்பிக்குமாறு அறிவுறுத்தப்படுகிறது.

துணை இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
திருவண்ணாமலை.

பெறுநர்:
M/s.Aggregate Mines,
என்ற நிறுவனத்தின் பங்குதாரர்
திரு.S.B.பாஸ்கர்,
எண்.562 TNHB Phase I,
ஆற்காடு.
ராணிபேட்டை மாவட்டம்

ANNEXURE-2

From

Thiru.A.Perumal, M.Sc., M.Phil.,
Deputy Director,
Geology and Mining,
Tiruvannamalai - 4.

To

M/s. Aggregate Mines,
Partner Thiru.S.B.Baskar,
No. 562, TNHB Phase I, Arcot,
Ranipet District.

Rc.No.255/Kanimam/2022, dated:03.10.2023

Sir,

Sub: Quarries and Minerals – Minor Mineral Rough Stone – Tiruvannamalai District – Cheyyar Taluk – Kilkolathur village patta SF.Nos.212/2A (Part), 212/2B (Part), 212/2C (Part), 213/2A, 213/2B & 213/4 over an extent of 3.82.0 hects.,- Application preferred by **M/s.Aggregate Mines** – Precise area communicated – Submission of Mining Plan for approval - Approved - Regarding.

Ref: 1. Application from M/s. Aggregate Mines Partner Thiru.S.B.Baskar, Ranipet dated.21.11.2022

2. Precise Area Communication Notice Rc.No.255/Kanimam/2022, dated.11.09.2023.

3. Mining Plan submitted by M/s. Aggregate Mines Partner Thiru.S.B.Baskar, Ranipet dt.20.09.2023.

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In the reference 2nd cited, the Deputy Director, Geology and Mining Tiruvannamalai has communicated the SF.Nos. 212/2A (Part), 212/2B (Part), 212/2C (Part), 213/2A, 213/2B & 213/4 over an extent 3.82.0 hects., of Kilkolathur village, Cheyyar Taluk, Tiruvannamalai District, as precise area to the applicant **M/s. Aggregate Mines Partner Thiru.S.B.Baskar** for grant of quarry lease for quarrying Rough Stone and Gravel for a period of 10 years with a direction to produce an approved mining plan in respect of the precise area as per Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959 by incorporating the conditions stipulated in the Deputy Director, Geology and Mining Tiruvannamalai letter dated 11.09.2023

In response to the precise area communication letter issued by the Deputy Director, Geology and Mining, Tiruvannamalai the applicant has prepared the draft Mining Plan through the Recognized Qualified Person for the first 5 years though the precise area been granted for 10 years and submitted for approval vide reference 3rd cited

3. The draft mining plan submitted in respect of the precise area communication has been examined with reference to the provisions of Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959 and the followings are observed.

i) The boundary Co-ordinates (GPS readings) for the entire boundary pillars of the area have been incorporated and shown in the mining plan.

ii) All the conditions stipulated in the Deputy Director, Geology and Mining Letter Rc.No.255/Kanimam/2022 dated:11.09.2023 have been incorporated in the mining plan.

iii) The available geological and mineable resources in the precise area restricted to a depth of 47m below ground level for period of 10 years is as follows.

Depth in Mts.	Geological reserves in Cu.m	Mineable Reserves in Cu.m
47m (2m Gravel + 45m Rough Stone)	Rough Stone : 17,23,680 Gravel : 76,608	Rough Stone : 5,97,255 Gravel : 62,368

iv) The recoverable reserves estimated for the first 5 years in the mining plan for quarrying Rough Stone and Gravel to a depth of 22m below the ground level is as follows.

Depth in Mts.	Mineable Reserves in Cu.m
22m (2m Gravel + 20m Rough Stone)	Rough Stone : 4,11,380 Gravel : 62,368

4. In the light of the above, in exercise of the powers conferred under Rule 41 (7) of Tamil Nadu Minor Mineral Concession Rules, 1959 the mining plan in respect of Rough Stone quarry of M/s.Aggregate Mines Partner Thiru.S.B.Baskar, is approved subject to the following conditions.

i) 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) The approval of the mining plan does not in any way imply the approval of the Government it 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, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Indian Explosives Act, 1884 (Central Act IV of 1884) and the rules made there under and the Tamil Nadu Minor Mineral Concession Rule s, 1959.

iii) The mining Plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.

iv) Quarrying operations and production shall be carried out as per the approved Mining Plan and the applicant shall be liable to pay the cost of mineral if there is any deviation in the quantum indicated in the approved year wise quantum of production and any such cases as on date are to be dealt with as per Court direction.

Encl: 2 Copies of Approved Mining Plan.

Deputy Director,
Geology and Mining,
Tiruvannamalai.

Copy submitted to:

1. The Chairman, SEIAA,
   Tamil Nadu, 3rd Floor, Panagal Maaligai,
   No.1, Jeenis Road,. Saidapet, Chennai-15.
2. The Director of Geology and Mining, Chennai-32.
3. The District Collector, Tiruvannamalai.

ANNEXURE-3

From

Thiru.A.Perumal, M.sc., M.phil.,
Deputy Director,
Geology and Mining,
Tiruvannamalai District.

To

M/s.Aggregate Mines,
Partner Thiru.S.B.Baskar,
No. 562, TNHB Phase I, Arcot,
Ranipet District.

Rc.No. 255/Kanimam/2022, dated:25.10.2023

Sub: Quarries and Minerals – Minor Mineral Rough Stone – Tiruvannamalai District – Cheyyar Taluk – Kilkolathur village patta SF.Nos.212/2A (Part), 212/2B (Part), 212/2C (Part), 213/2A, 213/2B & 213/4 over an extent of 3.82.0 hects.,- Application preferred by **M/s.Aggregate Mines** – Precise area communicated – Submission of Mining Plan for approval - Approved - Regarding.

Ref: M/s.Aggregate Mines Partner Thiru.S.B.Baskar, Ranipet Letter dated:25.10.2023.

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In the reference cited, M/s.Aggregate Mines Partner Thiru.S.B.Baskar the applicant of proposed Rough Stone and Gravel quarry lease in SF.Nos.212/2A (Part), 212/2B(Part), 212/2C(Part), 213/2A, 213/2B & 213/4 over an extent 3.82.0 hects., of Kilkolathur village, Cheyyar Taluk, Tiruvannamalai District has requested to furnish the details of quarries located within 500 meters radius from his proposed quarry.

In this regard, the followings are furnished.

i). Existing quarries

Sl. No.	Name of the Owner	Village & S.F. Nos.	Extent in Hect.	Lease Period	Remarks
1	Thiru.M.Durairaj, S/o.Munusamy, No.49, Mariyamman kovil st, Soundharyapuram Village, Elapakkam Post, Cheyyar.	Kilkolathur 211/4 & 5 (Part)	1.43.5 hect	15.06.2021 to 14.06.2026	Existing quarry
2	Tvl.GLITZ, No.298/2C1, Karanai Main road, Ottiyambakkam, Chennai.	Kilkolathur 193/1A, 1B, 1C & 2A1	2.13.0	07.06.2021 to 06.06.2031	

ii). Abandoned quarries

Sl. No.	Name of the Owner	Village & S.F. Nos.	Extent in Hect.	Lease Period	Remarks
	M.Durairaj, Sowndriyapuram, ThenElapakkam Post, Cheyyar Tk.	Kilkolathur 211/4 & 211/5	2.19.5	07.06.2013 to 06.06.2018	Expired quarry

iii). Present Proposed quarries

Sl. No	Name of the Owner	Village & S.F. Nos.	Extent in Hect.
1	M/s.Aggregate Mines, Partner Thiru.S.B.Baskar, No. 562, TNHB Phase I, Arcot, Ranipet District.	Kilkolathur 212/2A (Part), 212/2B (Part), 212/2C (Part), 213/2A, 213/2B & 213/4	3.82.0

iv). Future Proposed quarries

Sl. No	Name of the Owner (Tvl)	Village & S.F. Nos.	Extent in Hect.
--Nil--			

Deputy Director,
Geology and Mining,
Tiruvannamalai.