

EXECUTIVE SUMMARY FOR PROPOSED ROUGH STONE QUARRY CATEGORY – B1 (CLUSTER AREA – 14.70.6 Ha.)

(Submitted for Public Hearing as per the provisions of EIA Notification 2006 & its amendments thereof)

APPROVED TOR vide TO25B0108TN5878420N, Dated: 25.09.2025

PROPOSED QUARRY LEASE DETAILS	
SURVEY NOS	10/1 (Block-13)
VILLAGE	Padalur (East)
TALUK	Alathur
DISTRICT	Perambalur
EXTENT	1.00.0 Ha
CLUSTER EXTENT	14.70.6 Ha
PROPOSED PRODUCTION	1,13,180 m ³ OF ROUGH STONE
LAND	GOVERNMENT PORAMBOKE LAND

(Sector No. 1(a) (Sector no.1 as per NABET)

Category of the Project: B1 Cluster Mining, Total Cluster Area – 14.70.6 Ha

Baseline Monitoring Period – March to May 2025

APPLICANT

THIRU. P. VELMURUGAN,
NO.1, ROYAL MAHALAKSHMI NAGAR, VIRUDHACHALAM, CUDDALORE,
TAMIL NADU – 606001.

ENVIRONMENTAL CONSULTANT	LABORATORY
M/s. GLOBAL MINING SOLUTIONS (NABET Accredited & ISO 9001 Certified Consultant) Plot No. 6, S.F.No. 13/2, A2, VS City, RC Chettypatty, Kottamettupatty, Omalur, Salem, Tamil Nadu – 636 455. NABET Accreditation No: NABET/EIA/23-26/SA 0241, Valid Until - 03.02.2026. Contact: 97502 23535 & 94446 54520 Email: infoglobalmining@gmail.com, globalminingsolutionssalem@gmail.com	M/s. SHRIENT ANALYTICAL & RESEARCH LABS PRIVATE LIMITED (NABL Accredited Testing Laboratory) Valid Until -29.09.2029 #416/15, Dhargas Road, Perungalathur, West Tambaram, Chennai, Tamil Nadu, India.

EXECUTIVE SUMMARY

1.1 INTRODUCTION

Environmental Impact Assessment (EIA) as a tool used to identify the environmental, social and economic impacts of a project prior to decision-making. It aims to predict environmental impacts at an early stage in project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the predictions and options to decision-makers.

This proposal is towards obtaining environmental clearance for Rough Stone Quarry located at S.F.No.10/1 (Block-13) in Padalur (East) Village, Alathur Taluk, Perambalur District, Tamil Nadu State for production capacity of 1,13,180 m³ of Rough Stone for the period of first 5 years with ultimate depth up to 41m (11m above ground level and 30m below ground level). The mining plan has prepared and same was approved by Assistant Director, Department of Geology and Mining, Perambalur, vide ROC. No. 132/G&M/2025, Dated 03.06.2025.

As per EIA notification, 2006 and its subsequent amendments the proposed "Rough Stone of "Thiru. P. Velmurugan" is falls under Schedule 1(a) Mining of Minerals. It is further classified under Category B1 due to the overall extent of cluster area is 14.70.6 Ha which is >5 Ha. The ToR for the preparation of EIA/EMP was approved vide ToR identification number TO25B0108TN5878420N, dated: 25.09.2025. This report has been prepared in line with the approved TOR for maximum excavation of 1,13,180 m³ of Rough Stone for the period of first 5 years with ultimate depth up to 41m (11m above ground level and 30m below ground level).

S.No.	Description	Status/Remarks
1.	Sector	1(a), non-coal mining
2.	Category of the project	B1
3.	Proposed mineral	Rough Stone
4.	Type of Lease	Government Poramboke Land
5.	Extent of the lease	1.00.0 Ha.

6.	Proposed depth of Mining	41m (11m above ground level and 30m below ground level)
7.	Method of mining	Opencast Mechanized
8.	Proposed lease period	5 Years
9.	Proposed Environmental Clearance	5 Years
10.	Proposed production quantity for Five years	Rough Stone – 1,13,180 m ³

Thiru. P. Velmurugan is an individual with sound experience in the identification, quarrying and marketing of Rough Stone. The proposed land is a Government land and attached as **Annexure 6**.

1.2 LOCATION

The proposed Quarry Lease area is situated at S.F.No.10/1 (Block-13) in Padalur (East) Village, Alathur Taluk, Perambalur District, Tamil Nadu State. The area lies in the north latitude of 11°06'48.41"N to 11°06'52.70"N and eastern longitude of 78°50'48.24"E to 78°50'53.13"E with Survey of India Topo Sheet No. 58 I/16. 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. March 2025 to May 2025)

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 N30°W-S30°E with vertical dipping.

1.4 PROJECT DESCRIPTION

This is a proposed Rough Stone and Gravel quarry by Opencast Mechanized mining method with drilling and blasting. The quarrying is restricted up to a depth of 41m (11m above ground level and 30m below ground level). The geological reserves are estimated to be Rough Stone – 3,54,980 m³. The mineable reserve calculated by

deducting safety distance and bench loss. The mineable reserves are 1,13,180 m³ of Rough Stone which will be recovered at the rate of 100% recovery upto a depth of 41m (11m above ground level and 30m below ground level) for the period of five years.

- It is proposed to quarry out rough stone with 5m bench height, 5m width with overall slope is 47° using Open cast 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 & Gravel quarrying operation.

S.No.	Type of Detail	Description
1	Sector	1(a) Non coal mining
2	Fresh/Existing project	Already operated by other lessee
3	Category	B1
4	Nature of mineral	Rough Stone
5	Production	Rough Stone - 1,13,180 m ³
6	Life	5 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	41m (11m above ground level and 30m below ground level)
10	End use	Rough Stone 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 2.0 KLD which will be procured from the outside agencies. 0.5 KLD drinking and domestic water requirement, green belt development is 0.5 KLD and dust suppression is 1.0 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	23 Nos
4	Financial requirement	Total EMP Cost for 5 years is 18.27 lakhs i.e., Rs.8.69 Lakhs of Capital Cost + Rs.9.58 Lakhs of Recurring Cost (5 years)
5	Funds for Socio economic development	INR 3 Lakhs is allocated for CER activities.

1.6 DESCRIPTION OF LEASE AREA

The features in the study area is given below.

Table 11.1 Description of the lease area		
S.No.	Areas	Distance from project site
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	Nil within 15km radius
2	Areas which are important or sensitive for ecological reasons	
A	Wetlands, water courses or other water bodies,	There are two Tank situated at 180m on the Southern side and 310m on the Southwestern of the lease applied area. There are no other Water bodies (River, Pond, Lake, Odai, Channel, etc.) within a radius of 500m.

		- Nattaramangalam Eri - 1.90 km (W), - Therani Lake – 2.96 km (E), - Puthukkurichi Eri – 2.88 km (NE), - Nanthai River – 4.0 km (S), - Maniyankurichy Eri - 6.67 km (SW), - Stream - 7.17 km (SW) & - Uppar R - 8.84 km (SW)
B	Coastal zone, biospheres,	Nil within 10km radius
C	Mountains, forests	Nedungur R.F – 5.11 km (SW), Naranamangalam R.F – 4.46 km (NW), Maniyankurichi R.F – 7.84Mkm S(W), Maramareddi palaiyam R.F. – 9.40 km (SW), Velur R.F – 8.01 km (NW) & Siruvachur R.F –7.57 km (NW).
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 recreation or other tourist, pilgrim areas	Nil within 15km radius
7	Defense installations	Nil within 15km radius
8	Densely populated or built-up area	Padalur – 0.9KM (SW)
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Government Higher sec school, padalur – 3.39km (SW) & Annai Theresa nursing college– 3.52 km – SW
10	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	Nil

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 extreme or adverse climatic conditions) similar effects	No. The area is not prone to earthquakes, floods, etc.

The baseline data collection for meteorology, air, water, noise and soil environments have been carried out during March to May 2025.

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	Coordinates
1	AAQ 1	Mine Lease Area	11° 6'51.07"N & 78°50'50.58"E
2	AAQ 2	Sridevi Mangalam	11° 6'45.19"N & 78°48'6.12"E
3	AAQ 3	Near Therani Big Lake	11° 6'47.20"N & 78°52'9.17"E
4	AAQ 4	Padalur West	11° 5'41.47"N & 78°49'45.65"E
5	AAQ 5	Alathur	11° 7'36.71"N & 78°50'15.75"E
6	AAQ6	Pudhukkurichi	11° 8'5.47"N & 78°51'53.17"E
7	AAQ7	Padalur	11° 6'17.30"N & 78°50'41.19"E

Results of Air sampling Analysis in 7 locations

Station ID	Min	Max	Avg.
Particulate matter PM-2.5 (µg/m³)			
AAQ-1	25.9	36.7	31.5
AAQ-2	22.4	28.6	25.6
AAQ-3	21.0	26.7	23.4
AAQ-4	21.8	29.4	25.3
AAQ-5	19.3	24.7	22.0

AAQ-6	21.0	27.1	23.7
AAQ-7	20.2	25.4	22.4
CPCB NAAQS 2009 for PM_{2.5} - 60 µg/m³			
Particulate matter PM₁₀ (µg/m³)			
AAQ-1	53.9	76.5	65.5
AAQ-2	46.7	59.5	53.4
AAQ-3	45.7	56.5	49.8
AAQ-4	47.8	59.1	53.4
AAQ-5	41.0	51.3	45.7
AAQ-6	44.3	57.2	50.0
AAQ-7	42.3	53.3	47.0
CPCB NAAQS 2009 for PM₁₀ - 100 µg/m³			
Sulphur Di-oxide as SO₂ (µg/m³)			
AAQ-1	5.6	8.1	6.8
AAQ-2	5.8	8.2	7.0
AAQ-3	5.9	8.2	7.1
AAQ-4	4.2	6.6	5.4
AAQ-5	3.6	6.2	4.9
AAQ-6	3.8	5.5	4.8
AAQ-7	3.6	5.7	4.6
CPCB NAAQS 2009 for SO₂ - 80 µg/m³			
Oxide of Nitrogen as NO₂ (µg/m³)			
AAQ-1	11.3	13.5	12.5
AAQ-2	8.9	11.0	10.0
AAQ-3	9.2	11.8	10.5
AAQ-4	8.6	10.9	9.8
AAQ-5	7.8	10.1	9.0
AAQ-6	6.2	8.5	7.3
AAQ-7	6.9	9.2	8.1
CPCB NAAQS 2009 for NO₂ - 80 µg/m³			

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

1.8 WATER ENVIRONMENT

Surface Water Analysis Results

S.No	Parameter	Unit	SW1	SW2	SW3	Surface water standards (IS 2296 Class-A)
1	Odour	-	Agreeable	Agreeable	Agreeable	-
2	Turbidity	NTU	<1	<1.0	<1.0	1
3	pH at 25 °C	-	7.52	7.94	7.85	6.5-8.5
4	Electrical Conductivity	µs/cm	218.6	167.9	192.3	-
5	Total Dissolved Solids	mg/l	132	102	115	500
6	Total hardness as CaCO ₃	mg/l	47.2	35.2	42.5	300
7	Calcium as Ca	mg/l	10.56	10.36	9.8	80
8	Magnesium as Mg	mg/l	4.99	2.23	4.3	24
9	Calcium as CaCO ₃	mg/l	26.4	25.9	24.5	-
10	Magnesium as CaCO ₃	mg/l	20.8	9.30	18.0	-
11	Total alkalinity as CaCO ₃	mg/l	45.6	37.2	42.2	-
12	Chloride as Cl ⁻	mg/l	42.8	40.8	39.8	250
13	Free Residual chlorine as Cl ⁻	mg/l	BDL(D.L-0.2)	BDL(D.L-0.2)	BDL(D.L-0.2)	-
14	Sulphates as SO ₄ ²⁻	mg/l	15.2	16.9	16.1	400
15	Iron as Fe	mg/l	0.15	0.12	0.1	0.3
16	Nitrate as NO ₃	mg/l	BDL(D.L-1.0)	2.14	1.95	20
17	Fluoride as F	mg/l	0.21	0.45	0.42	1.5
18	Manganese as Mn	mg/l	BDL(D.L-0.05)	BDL(D.L-0.05)	BDL(D.L-0.05)	0.5
19	COD	mg/l	BDL(D.L-4.0)	BDL(D.L-4.0)	BDL(D.L-4.0)	-
20	BOD	mg/l	BDL(D.L-2.0)	BDL(D.L-2.0)	BDL(D.L-2.0)	2.0
21	TSS	mg/l	22.0	12.0	10.0	-
22	DO	mg/l	5.8	6.1	6.3	6.0

Results of Ground Water sampling Analysis in 7 locations

Table 3.7 Results of Ground Water sampling Analysis in 7 locations								Standards as Per IS 10500: 2012	
Parameter	W1	W2	W3	W4	W5	W6	W7	Acceptable Limits	Permissible Limits
Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity	<1	<1.0	<1.0	<1	<1	<1	<1	1	5
pH at 25 °C	7.92	7.84	7.19	7.91	7.45	7.77	7.36	6.5-8.5	No Relaxation
Electrical Conductivity	532.5	1665	1975.0	2068.0	1286.0	1989.0	2137.0	-	-
Total Dissolved Solids	320	1002	1186	1240	772	1194	1282	500	2000
Total hardness as CaCO ₃	180	354	392	424	235	385	454	200	600
Calcium as Ca	44.8	64.4	84	96.8	57.6	83.2	102	75	200
Magnesium as Mg	16.3	46.3	43.7	43.7	21.8	42.5	47.5	30.0	100
Calcium as CaCO ₃	112	161	210	242	144	208	256	-	-
Magnesium as CaCO ₃	68.0	193	182	182	91.0	177	198	-	-
Total alkalinity as CaCO ₃	162	327	380	399	260	376	392	200	600
Chloride as Cl ⁻	76.9	342	365	380	241	363	510	250	1000
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)	BDL(D.L-0.2)	0.2	1
Sulphates as SO ₄ ²⁻	55.8	270	342	355	206	338	212	200	400
Iron as Fe	0.05	0.12	0.11	0.12	0.04	BDL(D.L-0.01)	0.03	0.3	No Relaxation
Nitrate as NO ₃	BDL(D.L-1.0)	2.14	4.65	5.23	4.32	5.62	5.51	45	No Relaxation

Fluoride as F	0.21	0.48	0.55	0.62	0.42	0.63	0.58	1	1.5
Manganese as Mn	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)	BDL(D.L-0.05)	0.1	0.3

All the values were found to be within permissible limits

1.9 NOISE ENVIRONMENT

Noise levels were measured in 7 locations and the results are given below.

Noise monitoring results					
S. No	Location	Day equivalent	Night equivalent	Day equivalent limits by CPCB	Night equivalent limits by CPCB
1	Within Mine Lease area	50.8	38.3	75	70
2	Sridevi Mangalam	50.0	38.3		
3	Near therani big lake	49.1	41.9		
4	Padalur West	47.9	41.1		
5	Alathur	45.1	37.5		
6	Pudhukkurichi	49.4	43.3		
7	Padalur	50.8	39.2		

1.10 SOIL ENVIRONMENT

Soil samples are collected from 7 locations and the results are given below.

S. No	Parameter	Unit	S1	S2	S3	S4	S5	S6	S7
1	pH at 25 °C	-	7.42	7.94	8.06	7.95	7.89	8.12	7.92
2	Electrical Conductivity	µmho s/cm	192.2	290.8	220.4	273.5	190.2	295.6	265.7
3	Dry matter content	%	96.29	96.52	97.21	86.54	97.25	93.67	92.58
4	Water Content	%	3.71	3.48	2.79	13.46	2.75	6.33	7.42
5	Organic Matter	%	0.84	0.95	0.82	1.32	0.77	0.95	1.03
6	Soil texture	-	Silty Clay loam	Silty Clay	Silty Clay	Clay	Silty Clay	Silty Clay	Silty Clay
7	Grain Size Distribution								
	i. Sand		15.76	10.42	8.55	17.05	13.22	10.79	7.89
8	ii. Silt	%	45.57	44.33	42.75	38.97	42.76	45.66	41.32

9	iii. Clay	%	38.67	45.25	48.7	43.98	44.02	43.55	50.79
10	Phosphorous as P	mg/kg	1.31	1.62	1.24	1.67	1.36	1.61	1.74
11	Sodium as Na	mg/kg	302	322	346	498	535	420	396
12	Potassium as K	mg/kg	574	664	735	904	1030	634	652
13	Nitrogen and Nitrogenous Compounds	mg/kg	270	405	146	205	254	312	175
14	Total Soluble Sulphate	%	BDL(D. L.0.02)	BDL(D. L.0.02)	BDL(D. L.0.02)	BDL(D. L.0.02)	BDL(D. L.0.02)	BDL(D. L.0.02)	BDL(D. L.0.02)
15	Water Holding Capacity	Inches /foot	38	38	40	41	42	40	42
16	Porosity	%	19.4	19.4	17.9	17.1	18.9	18.2	17.3

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:

Major Land Use Units of the Study Area in Percentage

S. No	1st Level Classification	Area in (sq.km)	Percentage (%)
1	Built-up or habitation	6.18	1.94
2	Crop Land	201.46	63.47
3	Existing Quarry	3.14	0.98
4	Fallow Land	13.09	4.12
5	Hill & Forest	30.95	9.74
6	Land with Scrub	17.05	5.36
7	Land without Scrub	24.95	7.85
8	Plantation	6.1	1.92
9	Salt Affected Land	3.08	0.96
10	Water Body	11.65	3.66
Total		317.65	100.0

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 nearby villages in the study area. 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 Tharuvai. The following observations were made.

The following observations were made.

Primary and higher secondary schools are available in many villages. For hospital facilities, people in the locality have to go to hospital within 5 km from the project site.

1.14 HYDROGEOLOGY OF THE LEASE AREA

The area is studded with few tanks that serve as the source for agriculture and also their surplus feeds adjoining tanks. The quarrying activity will not intersect ground water table as quarrying is proposed upto a depth of 41m (11m above ground level and 30m below ground level) and water table is found at a depth of 64m BGL.

There are two 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.

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 41m (11m above ground level and 30m below ground level). 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 41m (11m above ground level and 30m below ground level. 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, 0.73.0 Ha of lease area will be left as rain water harvesting pond. 0.25.0 Ha will be developed with green belt. For this, plants like Pongamia pinnata, Syzigium cumini, Albizia lebbeck, Thespesia populnea, Bauhinia racemose, Cassia siamea, Azadirachta indica are selected. A total of 250 trees are planned to be planted. Spacing will be 3m x 3m.

1.17 WATER ENVIRONMENT: IMPACT AND MITIGATION MEASURES

No major river is found nearby the lease applied area. The area is studded with few tanks that serve as the source for agriculture and also their surplus feeds adjoining tanks. The rainfall over the area is moderate, the rainwater storage in open wells, trenches is in practice over the area and the stored water acts as source of freshwater. Since the mining operation will be limited upto depth of 41m (11m above ground level and 30m below ground level), 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 7.5 H.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 two Tank situated at 180m on the Southern side and 310m on the Southwestern of the lease applied area. There

are no other Water bodies (River, Pond, Lake, Odai, Channel, etc.) within a radius of 500m.

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. The proponent will restrict the mining operation only within the lease and no other work will be carried out near the water bodies 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 PM₁₀, PM_{2.5}. Other than these pollutants, gaseous emissions of sulfur dioxide (SO₂) 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 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 MoEFCC limits since the baseline value is low.

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 within standard as prescribed by the DGMS and MOEFCC.
- ✚ 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

1.21 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 3,00,000 for CER activities. This amount will be subjected to change after public hearing.

1.22 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, Rheumatic 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.

1.23 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 18.27 (5 years) Lakhs is allocated.

1.24 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 23 people directly. Local people will be hired for unskilled labour.
- Through CSR, nearby schools, hospitals will be benefitted.

- For CSR, INR 3,00,000 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 18.27 lakhs for the five years has 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.
