

EXECUTIVE SUMMARY FOR PROPOSED ROUGH STONE AND GRAVEL QUARRY CATEGORY – B1

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

ToR Identification No. TO25B0108TN5458424N (F.No. 12579), Dated: 25/09/2025

PROPOSED QUARRY LEASE DETAILS

SURVEY NOS	36/1, 36/2B, 36/4B2, 36/4C, 37/1B2, 37/1E OF MARUTHAMPUTHUR PART-1 AND S.F.NOS. 145/1C, 145/1D, 145/1E, 146/9E, 146/9F, 146/9G, 147/1, 147/2A, 147/2B, 147/3A, 147/3B, 147/4C, 147/5F, 147/5H, 147/8B, 147/9C and 148/1 OF MARUTHAMPUTHUR PART-2
VILLAGE	MARUTHAMPUTHUR PART-1 & MARUTHAMPUTHUR PART-2
TALUK	ALANGULAM
DISTRICT	TENKASI
EXTENT	5.99.05Ha
CLUSTER EXTENT	12.05.05 Ha
MINEABLE RESERVES (upto 65m BGL)	ROUGH STONE : 13,48,090m ³ GRAVEL : 2,46,535m ³
PROPOSED PRODUCTION QUANTITY FOR 5 YEARS (upto 65m BGL)	ROUGH STONE : 13,48,090m ³ GRAVEL : 2,46,535m ³
LAND	PATTA LAND

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

Category of the Project: B1 Cluster Mining, Total Cluster Area – 12.05.05 Ha

Baseline Monitoring Period – March 2025 to May 2025

APPLICANT

Thiru.K.Prasadraj,

S/o. Kalyanasundaram,

No.4/48, Indra Nagar, Nallur, Alangulam Taluk,

Tenkasi District – 627 853.

ENVIRONMENTAL CONSULTANT

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 up to: 04.01.2026

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LABORATORY

M/s. SHRIENT ANALYTICAL & RESEARCH LABS PRIVATE LIMITED

(NABL Accredited Testing Laboratory)

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Tamil Nadu, India.

SUMMARY& CONCLUSION

1.0 OVER ALL JUSTIFICATION FOR IMPLEMENTATION OF THE PROJECT

INTRODUCTION

Thiru.K.Prasadraju has obtained Precise Area Communication Letter from Deputy Director, Department of Geology and Mining, Tenkasi, to quarry out 13,48,090m³ of Rough Stone and 2,46,535m³ of Gravel for 5 Years from an extent of 5.99.05 Ha located in S.Nos. 36/1, 36/2B, 36/4B2, 36/4C, 37/1B2, 37/1E of Maruthamputhur Part-1 Village & 145/1C, 145/1D, 145/1E, 146/9E, 146/9F, 146/9G, 147/1, 147/2A, 147/2B, 147/3A, 147/3B, 147/4C, 147/5F, 147/5H, 147/8B, 147/9C, 148/1 of Maruthamputhur Part-2 Village, Alangulam Taluk, Tenkasi District, Tamil Nadu State.

As per EIA notification, 2006 and its subsequent amendments the proposed "Rough Stone and Gravel Quarry of Thiru.K.Prasadraju mines 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 ToR Identification No. TO25B0108TN5458424N, dated 25/09/2025. This report has been prepared in line with the approved ToR for production of maximum excavation of 13,48,090m³ of Rough Stone and 2,46,535m³ of Gravel

S.No.	Description	Status/Remarks
1.	Sector	1(a), non-coal mining
2.	Category of the project	B1
3.	Proposed mineral	Rough Stone and Gravel
4.	Type of Lease	Fresh Project
5.	Extent of the lease	5.99.05 Ha
6.	Proposed depth of Mining	65m BGL
7.	Method of mining	Opencast Mechanized
8.	Proposed lease period	5 Years
9.	Proposed Environmental Clearance	5 Years
10.	Proposed production quantity	13,48,090m ³ (37,07,247.50Ts) of Rough Stone and 2,46,535m ³ (4,93,070Ts) of Gravel for 5 Years.

EXECUTIVE SUMMARY FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.K.PRASADRAJU OVER AN EXTENT OF 5.99.05 HA LOCATED AT S.F.NOS. 36/1, 36/2B, 36/4B2, 36/4C, 37/1B2, 37/1E OF MARUTHAMPUTHUR PART-1 AND S.F.NOS. 145/1C, 145/1D, 145/1E, 146/9E, 146/9F, 146/9G, 147/1, 147/2A, 147/2B, 147/3A, 147/3B, 147/4C, 147/5F, 147/5H, 147/8B, 147/9C AND 148/1 OF MARUTHAMPUTHUR PART-2 VILLAGE, ALANGULAM TALUK, TENKASI DISTRICT, TAMIL NADU STATE

The Lessee Thiru.K.Prasadraju is an individual with sound experience in the identification, quarrying and marketing of Rough Stone and Gravel. The proposed land is a Patta Land and attached as **Annexure-6**.

2.0 LOCATION

This project site is located in Maruthamputhur Part-1 and Maruthamputhur Part-2 Village, Alangulam Taluk, Tenkasi District, Tamil Nadu State with Latitude 08°49'12.29"N to 08°49'25.62"N and Longitude: 77°31'31.17"E to 77°31'43.16"E with Survey of India Topo Sheet No. 58-H/09. 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)

3.0 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 N45°E –S45°W with dipping towards SE60°.

4.0 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 65m below ground level. The geological reserves are estimated to be 35,91,480m³ of Rough Stone and 2,99,290m³ of Gravel. The mineable reserve calculated by deducting 7.5m & 10m safety distance and bench loss. The mineable reserves are 13,48,090m³ (37.53 %) of Rough Stone and 2,46,535m³ of Gravel which will be recovered at the rate of 100% recovery upto a depth of 65m below ground level for the period of 5 Years.

- It is proposed to quarry out Rough Stone with 5m bench height, 5m width with 45° slope using conventional Open cast Mechanized method. The quarry

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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
5	Production	13,48,090m ³ (37,07,247.50Ts) of Rough Stone and 2,46,535m ³ (4,93,070Ts) of Gravel for 5 Years.
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	65m (BGL)
10	End use	Rough Stone will be loaded into tippers to needy buyers for producing aggregates, M-sand.

5.0 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. Out of 0.5 KLD drinking water & Domestic requirements, 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. Total Fuel requirement is 11,19,561 Litres of HSD. for entire life of the project.

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3	Manpower requirement	Permanent employees - 12, temporary employees - 23
4	Financial requirement	The total project cost as per PFR will be INR 156.633 lakhs including Operational cost, Fixed Asset cost and EMP cost
5	Funds for Socio economic development	INR 5.0 Lakhs is allocated. In addition, any demand raised by people during public hearing will also be met.

6.0 DESCRIPTION OF LEASE AREA

The features in the study area is given below.

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,	• Odai-280m (SW), • Odai-355m (NE), • Navaluthukulam Tank-6.9km (NE), • Mathavarayankulam Tank-7.0km (NE)
B	Coastal zone, biospheres,	Nil within 10km radius
C	Mountains, forests	Nil within 10km Radius
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, overwintering, migration	Nil within 10 km radius
4	Inland, coastal, marine or underground waters	Nil within 10 km radius

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5	State, National boundaries	Nil within 10 km radius
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	Nil within 10 km radius
7	Defense installations	Nil within 10 km radius
8	Densely populated or built-up area	Odaimarichan – 0.8 km- NE
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Alangulam – 5.0Km - NW
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 2025 to May 2025.

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

7.0 EXPLANATION OF HOW ADVERSE EFFECTS HAVE BEEN MITIGATED

7.1 AIR ENVIRONMENT

The air monitoring have been carried out in 7 locations and the results are given below.

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Details Of Ambient Air Quality Monitoring Locations				
S.NO.	Station Code	Locations	Distance & Direction	Coordinates
1	AAQ 1	Within Mine Lease area	Core Zone	8°49'18.72"N & 77°31'35.35"E
2	AAQ 2	Kandapatti	1.42Km - SW	8°48'55.81"N & 77°30'46.20"N
3	AAQ 3	Keela Karumpuliyuthu	3.05Km - NE	8°50'18.76"N & 77°32'56.57"N
4	AAQ 4	Maruthamputhur	1.55Km - NW	8°49'50.20"N & 77°30'55.05"E
5	AAQ 5	Udayampuli	2.66Km - SE	8°48'2.03"N & 77°32'33.82"E
6	AAQ6	Alangulam	3.3Km - N	8°51'6.09"N & 77°31'50.11"E
7	AAQ7	Odaimarichan	2.92Km - S	8°47'39.54"N & 77°31'53.08"E

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

Station ID	Min	Max	Avg
Particulate matter PM-2.5 (µg/m³)			
AAQ-1	28.21	37.73	32.99
AAQ-2	17.0	23.5	20.20
AAQ-3	22.71	30.9	26.29
AAQ-4	23.52	31.93	27.46
AAQ-5	17.97	23.0	20.14
AAQ-6	23.52	31.93	27.46
AAQ-7	23.11	31.3	26.66
CPCB NAAQS 2009 for PM_{2.5} - 60 µg/m³			
Particulate matter PM-10 (µg/m³)			
AAQ-1	61.3	82.0	71.7
AAQ-2	37.0	50.8	43.90
AAQ-3	49.1	65.3	57.19
AAQ-4	50.1	68.0	58.47
AAQ-5	39.1	48.3	43.72
AAQ-6	50.1	68.0	58.47
AAQ-7	50.5	66.2	58.12
CPCB NAAQS 2009 for PM₁₀ - 100 µg/m³			
Sulphur Di-oxide as SO₂ (µg/m³)			

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AAQ-1	5.1	11.4	7.97
AAQ-2	6	5.8	4.58
AAQ-3	5	9.5	7.2
AAQ-4	5.7	10.6	8.02
AAQ-5	4.4	9	6.71
AAQ-6	5.7	10.6	8.02
AAQ-7	5.1	8	6.6
CPCB NAAQS 2009 for SO₂ – 80 µg/m³			
Oxide of Nitrogen as NO₂ (µg/m³)			
AAQ-1	8.4	12.8	10.52
AAQ-2	6.7	9.0	7.85
AAQ-3	8	12.6	10.32
AAQ-4	8.6	13.2	10.91
AAQ-5	5.9	10.6	8.3
AAQ-6	8.6	13.2	10.91
AAQ-7	8.5	13.1	10.83
CPCB NAAQS 2009 for NO₂ – 80 µg/m³			

7.2 WATER ENVIRONMENT

All the values were found to be within permissible limits

Ground Water Analysis Results								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	<1	<1	<1	<1	<1	1	5
pH at 25 °C	7.96	7.56	7.94	8.02	7.55	7.52	7.36	6.5- 8.5	No Relaxation
Electrical Conductivity	849.2	1217	1016	720.4	821.8	1515	1211	-	-
Total Dissolved Solids	522	735	618	436	498	910	730	500	2000
Total hardness (as CaCO ₃)	272	492	142	216	276	230	392	200	600
Calcium (as Ca)	45.5	106	27.4	48	69.6	42.0	85.6	75	200
Magnesium (as Mg)	38	54.5	17.6	23	24.5	30.1	42.7	30.0	100

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Calcium Hardness (as CaCO ₃)	114	265	68.5	120	174	105	214	-	-
Magnesium Hardness (as CaCO ₃)	158	227	73.5	96	102	125	178	-	-
Total alkalinity (as CaCO ₃)	335	286	193	212	235	390	199	200	600
Chloride (as Cl)	112	210	232	126	144	315	257	250	1000
Free Residual chlorine	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
Sulphate as (SO ₄ ²⁻)	73.6	116	182	49.8	52.3	270	214	200	400
Iron (as Fe)	0.05	0.07	0.03	0.05	0.04	0.07	0.03	0.3	No Relaxation
Nitrate (as NO ₃)	1.85	2.28	2.44	BDL (D.L - 1.0)	BDL (D.L - 1.0)	4.56	4.05	45	No Relaxation
Fluoride (as F)	0.63	0.59	0.47	0.44	0.56	0.49	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

7.3 NOISE ENVIRONMENT

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

Monitoring Location	N1	N2	N3	N4	N5	N6	N7
DAY EQUIVALENT	50.9	48.7	45.9	47.2	49.6	50.3	48.0
NIGHT EQUIVALENT	42.2	40.2	42.4	41.2	42.6	40.6	40.0
DAY & NIGHT EQUIVALENT	49.4	47.3	45.0	46.0	48.3	48.7	46.6
Limits as per MoEF&CC							
Day equivalent - 55 dB (A); Night equivalent - 45 dB (A); Work zone Exposure in 8 hr - 90 dB (A)							

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7.4 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	-	6.32	6.96	6.22	6.14	6.72	7.05	6.89
2	Electrical Conductivity	µmhos/cm	46.72	181.2	79.25	21.94	92.21	192.5	110.3
3	Dry matter content	%	96.98	95.82	96.47	96.58	95.24	96.35	96.78
4	Water Content	%	3.02	4.18	3.53	3.42	4.76	3.65	3.22
5	Organic Matter	%	1.10	0.98	0.58	0.79	1.30	1.12	1.45
6	Nitrogen and Nitrogenous compounds	mg/kg	92.5	292	344.0	123.0	252.0	264	314.0
7	Soil Texture	%	silty clay	silty clay loam	silt loam	silt loam	loam	silty clay loam	loam
8	Grain Size Distribution	%	8.94	13.36	24.45	29.54	33.20	14.25	33.99
	i. Sand								
	ii. Silt	%	46.65	47.98	68.24	53.21	49.22	48.56	48.25
	iii. Clay	%	44.41	38.66	7.31	17.25	17.58	37.19	17.76
9	Phosphorous as P	mg/kg	1.2	2.1	1.4	3.2	2.5	2.9	2.7
10	Sodium as Na	mg/kg	422.0	1055	596.0	212	403.0	1100	426.0
11	Potassium as K	mg/kg	340	897	248.0	138	290.0	896	310.0
12	Total soluble sulphates	%	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)
13	Porosity	%	18.9	17.9	18.3	19.4	17.5	18.6	18.9
14	Water Holding Capacity	Inches/foot	34	35	38	40	36	42	44

7.5 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.

7.6 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.	LAND USE / LAND COVER	Area in Sq.Km	Area in Percentage
1	Built-up Land	9.85	3.05
2	Crop Land	113.91	34.93
3	Existing Quarry	1.29	0.40
4	Fallow Land	15.6	4.78
5	Hill and Forest	8.62	2.64
6	Land with scrub	20.91	6.41
7	Land without scrub	123.83	37.97
8	Plantations	5.08	1.55
9	Self Affected Land	6.09	1.86
10	Water bodies	20.91	6.41
	Total Area	326.09	100.00

7.7 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 6 villages in the study area namely Kandapatti, Keela Karumpuliyuthu, Maruthamputhur, Udayampuli, Alangulam, Odaimarichan 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. 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 Alangulam which is within 5.0 km from the lease area. Major schools with higher secondary and senior secondary schools are located in Alangulam. The major Panchayat Union located in the area is Alangulam. Facilities like petrol pump stations, ATM facility are available in Alangulam.

7.8 HYDROGEOLOGY OF THE LEASE AREA

There are two water bodies within 1 km radius. The other major water bodies in buffer are given below.

- Odai-280m (SW),
- Odai-355m (NE),
- Navaluthukulam Tank-6.9km (NE),
- Mathavarayankulam Tank-7.0km (NE)

The quarrying activity will not intersect ground water table as quarrying is proposed upto a depth of 65m BGL and water table is found at a depth of 78m BGL.

7.9 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 65m 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

7.10 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 65m 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, 5.03.20 Ha of lease area will be left as rain water harvesting pond. 0.92.85 Ha will be developed with green belt. For this, plants like Pongamia pinnata, Syzigium cumini,

EXECUTIVE SUMMARY FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.K.PRASADRAJU OVER AN EXTENT OF 5.99.05 HA LOCATED AT S.F.NOS. 36/1, 36/2B, 36/4B2, 36/4C, 37/1B2, 37/1E OF MARUTHAMPUTHUR PART-1 AND S.F.NOS. 145/1C, 145/1D, 145/1E, 146/9E, 146/9F, 146/9G, 147/1, 147/2A, 147/2B, 147/3A, 147/3B, 147/4C, 147/5F, 147/5H, 147/8B, 147/9C AND 148/1 OF MARUTHAMPUTHUR PART-2 VILLAGE, ALANGULAM TALUK, TENKASI DISTRICT, TAMIL NADU STATE

Albizia lebbeck, Thespesia populnea, Bauhinia racemose, Cassia siamea, Azadirachta indica are selected. A total of 929 trees are planned to be planted. Spacing will be 3m x 3m.

7.11 WATER ENVIRONMENT: IMPACT AND MITIGATION MEASURES

There is no water body present inside the lease area. The entire water requirement for the project is 2.0 KLD 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 to the collection pond with silt traps.

Since the mining operation will be limited upto depth of 65m (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. There are two water bodies within 1 km radius. The other major water bodies in buffer are given below.

- Odai-280m (SW),
- Odai-355m (NE),
- Navaluthukulam Tank-6.9km (NE),
- Mathavarayankulam Tank-7.0km (NE)

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 body or any area outside the lease.

EXECUTIVE SUMMARY FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.K.PRASADRAJU OVER AN EXTENT OF 5.99.05 HA LOCATED AT S.F.NOS. 36/1, 36/2B, 36/4B2, 36/4C, 37/1B2, 37/1E OF MARUTHAMPUTHUR PART-1 AND S.F.NOS. 145/1C, 145/1D, 145/1E, 146/9E, 146/9F, 146/9G, 147/1, 147/2A, 147/2B, 147/3A, 147/3B, 147/4C, 147/5F, 147/5H, 147/8B, 147/9C AND 148/1 OF MARUTHAMPUTHUR PART-2 VILLAGE, ALANGULAM TALUK, TENKASI DISTRICT, TAMIL NADU STATE

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

7.12 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.

7.13 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

EXECUTIVE SUMMARY FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.K.PRASADRAJU OVER AN EXTENT OF 5.99.05 HA LOCATED AT S.F.NOS. 36/1, 36/2B, 36/4B2, 36/4C, 37/1B2, 37/1E OF MARUTHAMPUTHUR PART-1 AND S.F.NOS. 145/1C, 145/1D, 145/1E, 146/9E, 146/9F, 146/9G, 147/1, 147/2A, 147/2B, 147/3A, 147/3B, 147/4C, 147/5F, 147/5H, 147/8B, 147/9C AND 148/1 OF MARUTHAMPUTHUR PART-2 VILLAGE, ALANGULAM TALUK, TENKASI DISTRICT, TAMIL NADU STATE

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 7.5m & 10m barriers in the lease area.

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

7.14 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 85 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

EXECUTIVE SUMMARY FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF THIRU.K.PRASADRAJU OVER AN EXTENT OF 5.99.05 HA LOCATED AT S.F.NOS. 36/1, 36/2B, 36/4B2, 36/4C, 37/1B2, 37/1E OF MARUTHAMPUTHUR PART-1 AND S.F.NOS. 145/1C, 145/1D, 145/1E, 146/9E, 146/9F, 146/9G, 147/1, 147/2A, 147/2B, 147/3A, 147/3B, 147/4C, 147/5F, 147/5H, 147/8B, 147/9C AND 148/1 OF MARUTHAMPUTHUR PART-2 VILLAGE, ALANGULAM TALUK, TENKASI DISTRICT, TAMIL NADU STATE

- ✚ 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.

7.15 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

7.16 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.

7.17 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.

7.18 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

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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 30.19 lakhs is allocated.

7.19 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 35 people directly. Local people will be hired for unskilled labour.
- Through CSR, nearby schools, hospitals will be benefitted.
- For CSR, INR 5,00,000 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 30.19 lakhs for the 5 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.
