

EXECUTIVE SUMMARY
Of
DRAFT ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENTAL
MANAGEMENT PLAN REPORT

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

PROJECT PROPONENTS

Name of the Lessee	S.F.Nos.	Area
Thiru. K.Raam Mohan	337/4A and 337/4B	3.10.0Ha
Thiru.R.K.Prabhu	46/1 & 47	2.09.5 Ha
Thiru.E.Ananthakumar	245/2A (Part), 246/1A (Part), 246/2, 248/2B and 248/5B	2.66.0 Ha
Proposed Quarry Total Area		7.85.5 Ha

PACHAPALAYAM ROUGH STONE QUARRY - CLUSTER

"B1" CATEGORY - MINOR MINERAL - CLUSTER - NON-FOREST LAND

CLUSTER EXTENT = 11.87.0 Ha

AT
PACHAPALAYAM VILLAGE, SULUR TALUK, COIMBATORE
DISTRICT, TAMIL NADU STATE

Complied as per ToR obtained

Letter No. SEIAA-TN/F.No.8979/SEAC/ToR-1138/2022, dated 25.03.2022-P1

Letter No. SEIAA-TN/F.No.8969/SEAC/ToR-1137/2022, dated 25.03.2022-P2

Letter No. SEIAA-TN/F.No.9138/SEAC/ ToR-1191/2022, dated 06.07.2022-P3

Environmental Consultant



ENVIRO RESOURCES

(NABET Certificate No: NABET/EIA/1922/SA0133)

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NOVEMBER 2022

Draft EIA/EMP for Pachapalayam Rough Stone and Gravel Quarry Cluster with proposed area of 3.10.0 Ha, 2.09.5 Ha and 2.66.0 Ha respectively, while cluster area is 11.87.0 Ha, located in Survey No. 337/4A and 337/4B, 46/1 & 47 and 245/2A (Part), 246/1A (Part), 246/2, 248/2B and 248/5B of Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu.

Lessee: Thiru. K. Raam Mohan, Thiru. R. K. Prabhu and Thiru. E. Ananthakumar

Executive Summary

1.0 INTRODUCTION

Rough Stone and gravel are the major requirements for construction industry. This EIA report is prepared by considering cumulative load of all proposed & existing quarries of Pachapalayam Rough Stone and Gravel Quarries Cluster consisting of 3 Proposed and 1 Existing Quarry with total extent of Cluster of 11.87.0 Ha in Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State, cluster area calculated as per MoEF & CC Notification S.O. 2269(E), Dated 1st July 2016.

This EIA Report is prepared in compliance with ToR obtained vide –

- Letter No. SEIAA-TN/F.No.8979/SEAC/ToR-1138/2022, dated 25.03.2022
- Letter No. SEIAA-TN/F.No.8969/SEAC/ToR-1137/2022, dated 25.03.2022
- Letter No. SEIAA-TN/F.No.9138/SEAC/ ToR-1191/2022, dated 06.07.2022

The Baseline Monitoring study has been carried out during the period of March to May 2022 and this EIA and EMP report is prepared for considering cumulative impacts arising out of these projects, the Cumulative Environmental Impact Assessment study is undertaken, which is followed by preparation of a detailed Environmental Management Plan (EMP) individually to minimize those adverse impacts.

“Draft EIA report prepared on the basis of ToR Issued & Standard ToR for carrying out Public Hearing for the Grant of Environmental Clearance from SEIAA, - Tamil Nadu”

1.1 DETAILS OF PROJECT PROPONENT -

Project- 1	
Lessee Name	Thiru. K.Raam Mohan
Address	No. 13A, GKR Nagar, Chinniyampalayam Post, Coimbatore District, Tamil Nadu State- 641 062
Mobile No	9788566667
Email ID	sriaranganatha@gmail.com
Site Address	S.F.Nos. 337/4A and 337/4B of Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State.
Project- 2	
Lessee Name	Thiru. R.K.Prabu
Address	No.13A, G.K.R. Nagar, Chinniyampalayam Post, Coimbatore District - 641062
Mobile No	9788566667
Email ID	prabuk88@gmail.com

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Site Address	S.F.Nos. 46/1 & 47 of Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State.
Project- 3	
Lessee Name	Thiru. E.Ananthakumar
Address	No.3/105, Malaiyadipalayam, Sulthan Pettai, Sulur, Coimbatore District, Tamil Nadu State- 641 669
Mobile No	99422 79792
Email ID	coimatoreminal@gmail.com
Site Address	S.F.Nos. 245/2A (Part), 246/1A (Part), 246/2, 248/2B and 248/5B of Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State.

1.2 QUARRY DETAILS WITHIN 500 M RADIUS

CODE	Name of the Owner	S.F. Nos	Extent (Ha)	Status
PROPOSED QUARRY				
P1	Thiru.K.Raam Mohan	337/4A and 337/4B	3.10.0	ToR obtained vide Lr. No. SEIAA-TN/F.No.8979/SEAC/ToR-1138/2022 Dated:25.03.2022
P2	Thiru.R.K.Prabhu	46/1 & 47	2.09.5	ToR obtained vide Lr. No. SEIAA-TN/F.No.8969/SEAC/ToR-1137/2022 Dated:25.03.2022
P3	Thiru.E.Ananthakumar	245/2A (Part), 246/1A (Part), 246/2, 248/2B and 248/5B	2.66.0	ToR obtained vide Lr. No. SEIAA-TN/F.No.9138/SEAC/ToR-1191/2022 Dated:06.07.2022
P4	Tmt.K.Bhakiyalakshmi	337/2	1.73.0	ToR yet to be received
TOTAL			9.585	
EXISTING QUARRIES				
CODE	Name of the Owner	S.F. No	Extent (Ha)	Lease Period
E1	Thiru. S.Sakthivel	334/2B, 334/3B, 334/4A & 334/4B	2.28.5	24.11.2018 to 23.11.2023
ABANDONED QUARRIES				

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CODE	Name of the Owner	S.F. Nos	Extent (Ha)	Status
A1	Thiru. D. Sundarraju	248/6B	0.81.0	31.05.2011 to 30.05.2016
TOTAL			2.28.5	
TOTAL CLUSTER EXTENT			11.87.0	

1.3 SALIENT FEATURES OF THE PROPOSAL

GENERAL DETAILS OF CLUSTER

1)	Topo sheet Number	58 - F/01		
2)	Climatic Conditions	IMD Data, Pudukkottai (1971-2000) <ul style="list-style-type: none"> • Avg. Ambient air temp – 42° C to 21° C • Annual rainfall - 689 mm/annum 		
3)	Ground water level	The Ground water is about 65m to 70m depth from ground level.		
4)	Seismic zone	Seismically, this area is categorized under Zone-II as per IS-1893 (Part-1)-2002. Hence, seismically the site is Less Damage Risk Zone. With MSK scale of VII.		
5)	Nearest State/National Highway	(NH-209)Dindigul -Coimbatore : 8.0Km, SW (SH-163)Palladam– Othakalmandapam:5.0Km,NW		
6)	Nearest Railway Station	Chettipalayam: 5.79 Km, NW		
7)	Nearest Airport	Coimbatore Airport: 16.61 Km, NW		
8)	Nearest village/major town	Pachapalayam: 1.64, N Panappatti: 2.17 Km, SE Kinathukadavu: 9.59 Km, SW		
9)	Nearest Town, city, District Headquarters along with distance in kms.	Coimbatore: 19.81 Km, NW		
10)	Nearest Hospital	Chettipalayam: 5.40 Km, NW		
11)	Ecologically sensitive zone	None within 10Km radius of Quarry lease area.		
12)	Reserved/Protected forests	None within 10km radius of mine lease area.		
13)	Historical/tourist places	None within 10km radius of mine lease area.		
14)	Water bodies within 10 Km Radius	Water bodies	Distance (Km)	Direction
		Odai	0.25	SE
		Odai	0.40	N
		Canal	3.50	SE

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		Kothavadi lake	7.50	S
		Pallapalayam Lake	11.88	N
		Vellalore Lake	12.78	NW
		Singanallur Tank	13.0	NW
		Noyal River	13.08	NW
		Kurichi Kulam	14.86	NW
15)	Reserve Forest within 10Km Radius	Nil within 10Km Radius		
16)	Details of other quarries for a radius of 500m around the quarry site	<p>There are following quarries located within the radius of 500m from the proposed project site.</p> <p>Details:</p> <p>Abandoned quarry – 1 No (0.81.0 Ha)</p> <p>Existing quarry – 1 No (2.28.5 Ha)</p> <p>Proposed quarry – 4 Nos (9.58.5 Ha)</p> <p>The total extent of the Existing and proposed quarry within the radius of 500m is 11.87.0 Ha.</p> <p>The project falls under the cluster situation.</p>		

SALIENT FEATURES OF QUARRIES WITHIN CLUSTER

S. No.	Particulars	Details		
Project P1				
1	Type of Project	Rough Stone and Gravel Mine		
2	Mine area applied	3.10.0 Ha		
3	Project Location	Survey No. 337/4A and 337/4B, Pachapalayam Village, Sulur Taluk, Pudukkottai District, Tamil Nadu.		
4	Location on WGS 1984 datum	Latitude	Longitude	
		10°53'01.51"N to 10°53'11.66"N	77°04'48.90"E to 77°04'53.83"E	
6	Land use at the proposed project site	<p>Non-Forest Land / Patta Land (Registered in the name of the applicant (Thiru.K.Raam Mohan) vide Patta No.557 and 829)</p> <p>Land Cover: Barren Land which is not fit for vegetation/cultivation</p>		
7	Site Topography	The lease applied area is flat terrain.		
8	Site elevation	402m (Max) above Mean Sea Level		
9	Description	ROM (m³)	Rough stone (m³)	Gravel (m³)
	Geological Resources	7,29,011	7,01,181	27,830
	Available Mineable reserves	3,11,549	2,90,377	21,172
	Five years plan period as in the approved mining plan	3,11,549	2,90,377	21,172

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S. No.	Particulars	Details		
10	Lease period	5 years		
11	Proposed depth of Mining	32m below ground level (2m Gravel + 30m Rough Stone)		
12	Ultimate Pit Dimension Existing Pit Dimension	130m (L) x 90m (W) x 32m (D) BGL 130m (L) x 90m (W) x 18m (D) BGL		
16	Land Use Pattern	Description	Percentage	
		Old Pits/Crusher	11%	
		Trees	07%	
		Roads & Odai	05%	
		Habitation	06%	
		Seasonal Agri. Land	30%	
		Barren Land	41%	
29	Man power	Total Employees proposed for the quarry operation is 33 Nos.		
30	Water requirement & source	Total water requirement for 6.6 KLD from water vendors & nearby Bore well.		
31	Overburden /Waste	The overburden is the form of Gravel formation is about 21,172m³ up to depth for 2m during this period.		
32	Cost of the project	Project Cost: 82,47,000/- EMP Cost: 11,870,583/- CER Cost:5,00,000/-		
Project P2				
1	Type of Project	Rough Stone and Gravel Mine		
2	Mine area applied	2.09.5 Ha		
3	Project Location	Survey No. 46/1 & 47, Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu.		
4	Location on WGS 1984 datum	Latitude	Longitude	
		10°52'54.01"N to 10°53'01.74"N	77°04'20.52"E to 77°04'25.29"E	
5	Topo sheet Number	58 - F/01		
6	Land use at the proposed project site	Non-Forest Land / Patta Land (Registered in the name of the applicant (Thiru.R.K.Prabu), vide Patta Nos. 1964 & 1965) Land Cover: Barren Land which is not fit for vegetation/cultivation		
7	Site Topography	The lease applied area is flat terrain.		
8	Site elevation	390m (Max) above Mean Sea Level		
9	Description	ROM (m³)	Rough stone (m³)	Gravel (m³)

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S. No.	Particulars	Details		
	Geological Resources	8,79,900	8,38,000	41,900
	Available Mineable reserves	3,10,048	2,78,400	31,648
	Five years plan period as in the approved mining plan	3,10,048	2,78,400	31,648
10	Lease period	5 years		
11	Proposed depth of Mining	42m below ground level (2m Gravel + 40m Rough Stone)		
12	Ultimate Pit Dimension	184m (L) x 86m (W) x 42m (D) BGL		
16	Land Use Pattern	Description	Percentage	
		Old Pits/Crusher	10%	
		Trees	20%	
		Roads & Odai	10%	
		Habitation	10%	
		Seasonal Agri. Land	50%	
29	Man power	Total Employees proposed for the quarry operation is 30 Nos.		
30	Water requirement & source	Total water requirement for 5.6 KLD from water vendors & nearby Bore well.		
31	Overburden /Waste	The overburden is the form of Gravel formation is about 31,648m³ up to depth for 2m during this period.		
32	Cost of the project	Project Cost: 71,96,000/- EMP Cost: 11,774,283/- CER Cost:5,00,000/-		
Project P3				
1	Type of Project	Rough Stone and Gravel Mine		
2	Mine area applied	2.66.0 Ha		
3	Project Location	Survey No. 245/2A (Part), 246/1A (Part), 246/2, 248/2B and 248/5B Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu.		
4	Location on WGS 1984 datum	Latitude	Longitude	
		10°53'00.20"N to 10°53'07.15"N	77°04'35.36"E to 77°04'41.56"E	
5	Topo sheet Number	58 - F/01		
6	Land use at the proposed project site	Non-Forest Land / Patta Land (Registered in the name of the applicant (Thiru.E.Yoganantham vide Patta No.1146 and 1727, the applicant has obtained consent from the pattadars for the period of five years from the date of execution of lease). Land Cover: Barren Land which is not fit for vegetation/cultivation		

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S. No.	Particulars	Details	
7	Site Topography	The lease applied area is flat terrain with slope in the Southwestern direction.	
8	Site elevation	395m (Max) above Mean Sea Level	
9	Description	Rough stone (m³)	Gravel (m³)
	Geological Resources	8,18,686	5,232
	Available Mineable reserves	2,18,175	-
	Five years plan period as in the approved mining plan	2,18,175	-
10	Lease period	5 years	
11	Proposed depth of Mining	48 m below ground level (3m Gravel + 45m Rough Stone)	
12	Ultimate Pit Dimension	158m (L) x 171m (W) x 48m (D) BGL	
	Existing Pit Dimension -I	153m (L) x 103m (W) x 30m (D) BGL	
	Existing Pit Dimension -II	97m (L) x 64m (W) x 23m (D) BGL	
16	Land Use Pattern	Description	Percentage
		Old Pits	10%
		Barren land/ Trees	45%
		Habitation	10%
		Seasonal Agri. Land	35%
17	Man power	Total Employees proposed for the quarry operation is 32 Nos.	
30	Water requirement & source	Total water requirement for 6.6 KLD from water vendors & nearby Bore well.	
31	Overburden /Waste	The overburden in the form of Gravel formation, the Gravel was removed previous quarrying lease period. The excavated Rough Stone (100%) will be directly loaded into tippers to the needy customers.	
32	Cost of the project	Project Cost: 87,70,000/- EMP Cost: 11,980,783/- CER Cost: 5,00,000/-	

1.4 STATUTORY DETAILS

Project 1:

- The proponent applied for Rough Stone and Gravel Quarry Lease Dated:03.02.2022
- Precise Area Communication Letter was issued by the Assistant Director, Department of Geology and Mining, Coimbatore district, Rc.No.187/Mines/ 2021, Dated: 22.09.2021.
- The Mining Plan was prepared by Recognized Qualified Person and approved by the Assistant Director, Department of Geology and Mining, Coimbatore vide Rc.No.187/Mines/2021, Dated: 29.10.2021.

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- The proposed project falls under “B1” Category as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018
- Proponent applied for ToR for Environmental Clearance vide. online Proposal No. SIA/TN/MIN/71749/2022 and ToR was granted by SEAC with letter no. TN/F.No.8979/SEAC/ToR-1138/2022, dated 25.03.2022.

Project 2:

- The proponent applied for Rough Stone and Gravel Quarry Lease Dated:02.02.2022.
- Precise Area Communication Letter was issued by the Assistant Director, Department of Geology and Mining, Coimbatore district, Rc.No. 288/Mines/2021, Dated: 16.09.2021.
- The Mining Plan was prepared by Recognized Qualified Person and approved by the Assistant Director, Department of Geology and Mining, Coimbatore vide Rc.No. 288/Mines/2021 Dated: 29.10.2021.
- The proposed project falls under “B1” Category as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018.
- Proponent applied for ToR for Environmental Clearance vide. online Proposal No. SIA/TN/MIN/71706/2022 and ToR was granted by SEAC with letter no. SEIAA-TN/F.No.8969/SEAC/ToR-1137/2022, dated 25.03.2022.

Project 3:

- The proponent applied for Rough Stone and Gravel Quarry Lease Dated:31.03.2022.
- Precise Area Communication Letter was issued by the Assistant Director, Department of Geology and Mining, Coimbatore district, Rc.No.186/Mines/2021, Dated:14.02.2022.
- The Mining Plan was prepared by Recognized Qualified Person and approved by the Assistant Director, Department of Geology and Mining, Coimbatore vide Rc.No.186/Mines/2021 Dated: 01.03.2022.
- The proposed project falls under “B1” Category as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018.
- Proponent applied for ToR for Environmental Clearance vide. online Proposal No. SIA/TN/MIN/74096/2022 and ToR was granted by SEAC with letter no. SEIAA-TN/F.No.9138/SEAC/ToR-1191/2022, dated 06.07.2022.

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2.1 SITE CONNECTIVITY TO THE PROJECT AREA

Nearest Roadway	(NH-209) Dindigul -Coimbatore: 8.0Km, SW (SH-163) Palladam-Othakalmandapam:5.0Km,NW
Nearest Village	Pachapalayam: 1.64, N
Nearest Town	Coimbatore: 19.81 Km, NW
Nearest Railway	Chettipalayam: 5.79 Km, NW
Nearest Airport	Coimbatore Airport: 16.61 Km, NW

2.2 LAND USE PATTERN OF THE LEASE APPLIED AREA

PROJECT- 1

S. No.	Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
1.	Area under quarry	1.23.0	2.43.0
2.	Infrastructure	Nil	0.01.0
3.	Roads	0.02.0	0.02.0
4.	Green Belt	Nil	0.20.0
5.	Unutilized Land	1.85.0	0.44.0
Total		3.38.5	3.10.0

PROJECT- 2

S. No.	Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
6.	Area under quarry	Nil	1.64.2
7.	Infrastructure	Nil	0.02.0
8.	Roads	Nil	0.02.0
9.	Green Belt	Nil	0.29.2
10.	Unutilized Land	2.09.5	0.12.1
Total		2.09.5	2.09.5

PROJECT- 3

S. No.	Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
11.	Area under quarry	2.34.5	2.34.5
12.	Infrastructure	Nil	0.01.0
13.	Roads	0.02.0	0.02.0
14.	Green Belt	Nil	0.25.0
15.	Unutilized Land	0.29.5	0.03.5
Total		2.66.0	2.66.0

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2.3 YEAR-WISE PRODUCTION PLAN

PROJECT -1

Year	Rough Stone (m ³)	Gravel (m ³)
I	59577	8374
II	59020	3160
III	57645	9638
IV	55445	-
V	58690	-
TOTAL	290377	21172

PROJECT -2

Year	Rough Stone (m ³)	Gravel (m ³)
I	58750	12212
II	58800	9632
III	59850	9804
IV	52000	-
V	49000	-
TOTAL	278400	31648

PROJECT -3

Year	Rough Stone (m ³)
I	42178
II	41602
III	44425
IV	44225
V	45745
TOTAL	218175

2.4 METHOD OF MINING

Proposed Method of Mining is common for all the Proposed Projects – The method of mining is Opencast Mechanized Mining Method is being proposed by formation of 5.0-meter height bench with a bench width not less than the bench height. The Rough Stone is a batholith formation and the splitting of rock mass of considerable volume from the parent rock mass will be carried out by deploying jackhammer drilling and Slurry Explosives will be used for blasting. Hydraulic Excavators attached with Rock Breakers unit will be deployed for breaking large boulders to required fragmented sizes to avoid secondary blasting and hydraulic excavators attached with bucket unit will be deployed for loading the Rough Stone and Gravel into the tippers and then the stone is transported from pithead to the nearby crushers.

Draft EIA/EMP for Pachapalayam Rough Stone and Gravel Quarry Cluster with proposed area of 3.10.0 Ha, 2.09.5 Ha and 2.66.0 Ha respectively, while cluster area is 11.87.0 Ha, located in Survey No. 337/4A and 337/4B, 46/1 & 47 and 245/2A (Part), 246/1A (Part), 246/2, 248/2B and 248/5B of Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu.

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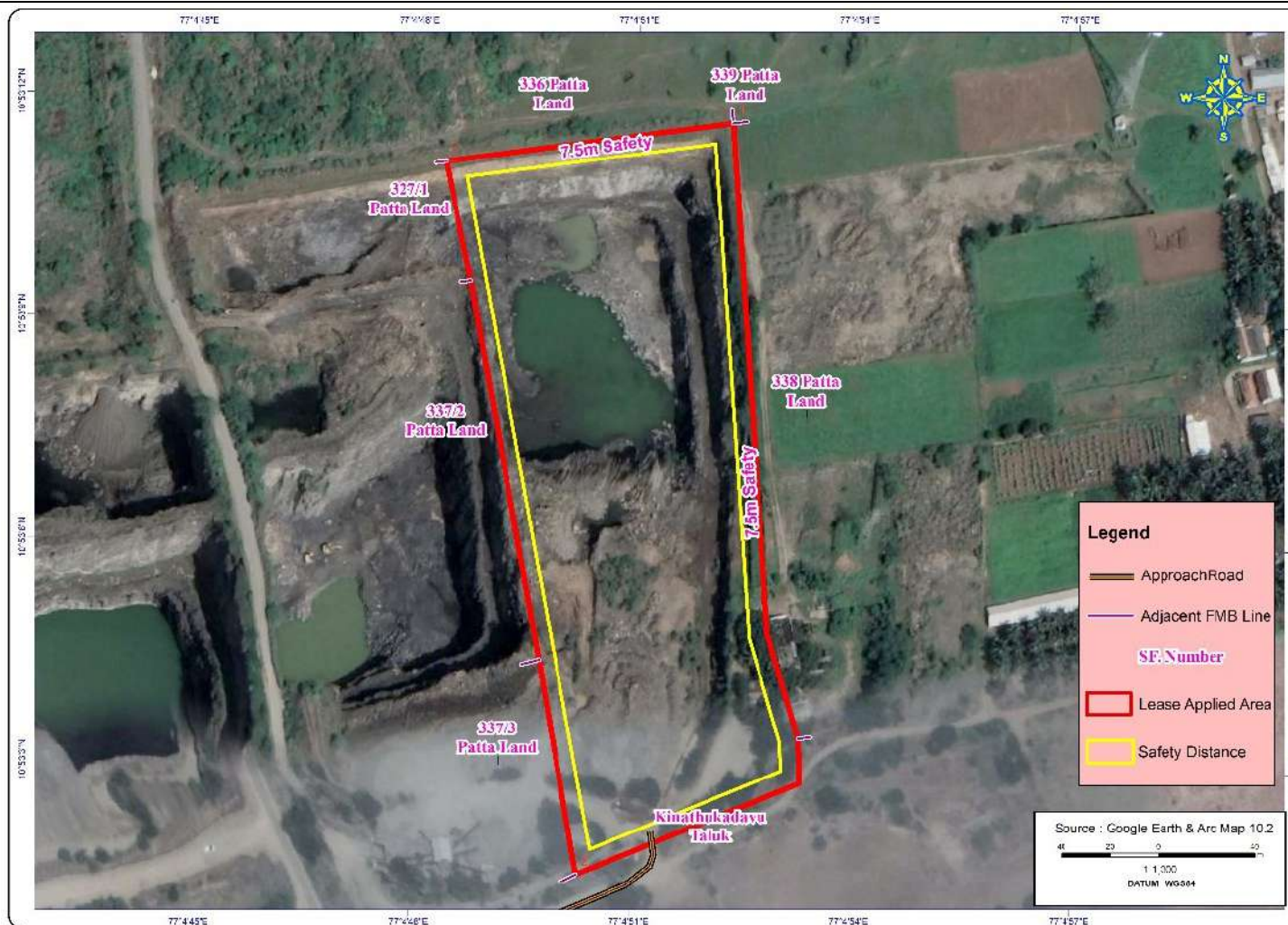


FIGURE - 1: GOOGLE IMAGE SHOWING APPLIED QUARRY LEASE AREA OF PROJECT- 1

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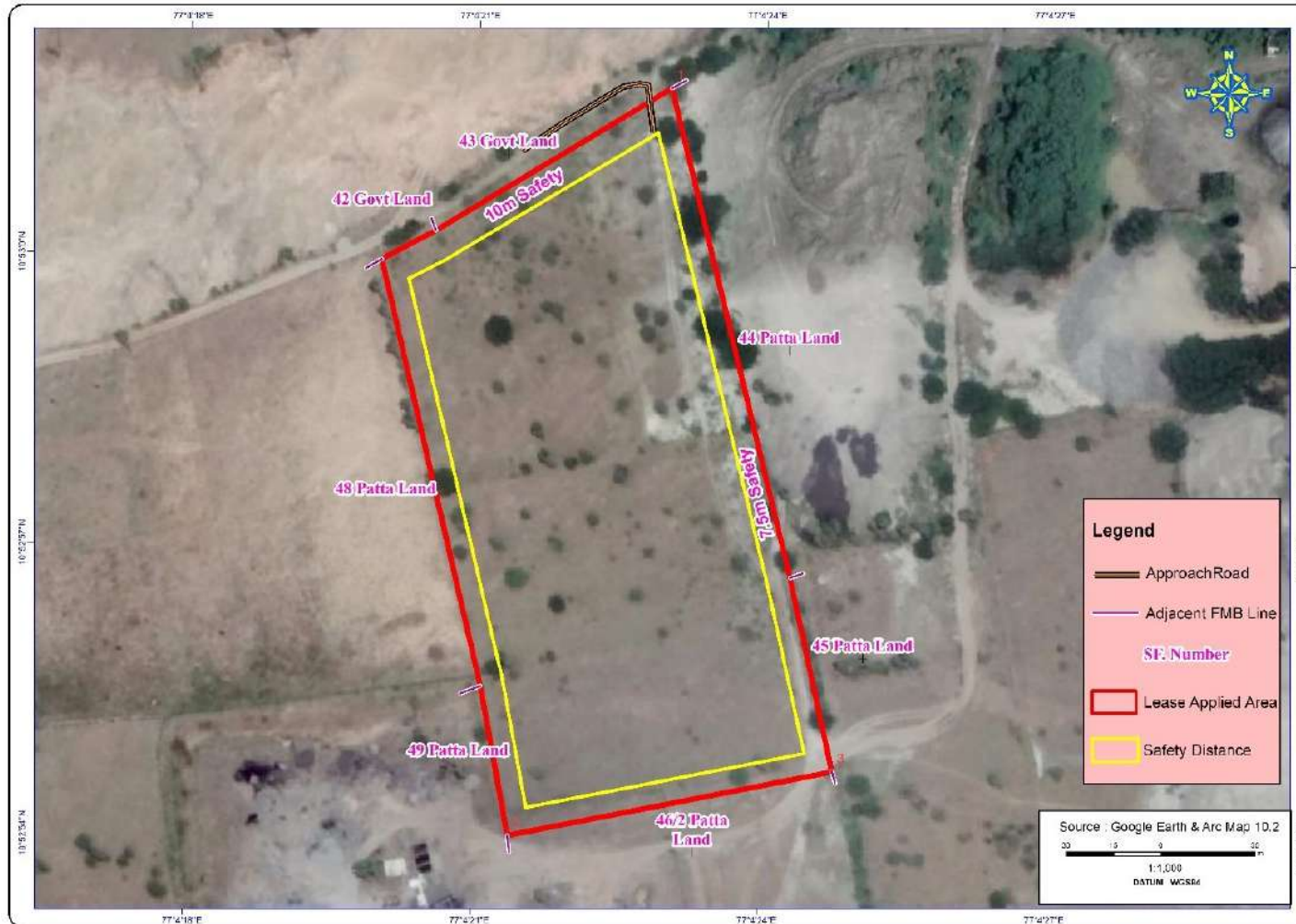


FIGURE - 2: GOOGLE IMAGE SHOWING APPLIED QUARRY LEASE AREA OF PROJECT- 2

Draft EIA/EMP for Pachapalayam Rough Stone and Gravel Quarry Cluster with proposed area of 3.10.0 Ha, 2.09.5 Ha and 2.66.0 Ha respectively, while cluster area is 11.87.0 Ha, located in Survey No. 337/4A and 337/4B, 46/1 & 47 and 245/2A (Part), 246/1A (Part), 246/2, 248/2B and 248/5B of Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu.

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FIGURE - 3: GOOGLE IMAGE SHOWING APPLIED QUARRY LEASE AREA OF PROJECT- 3

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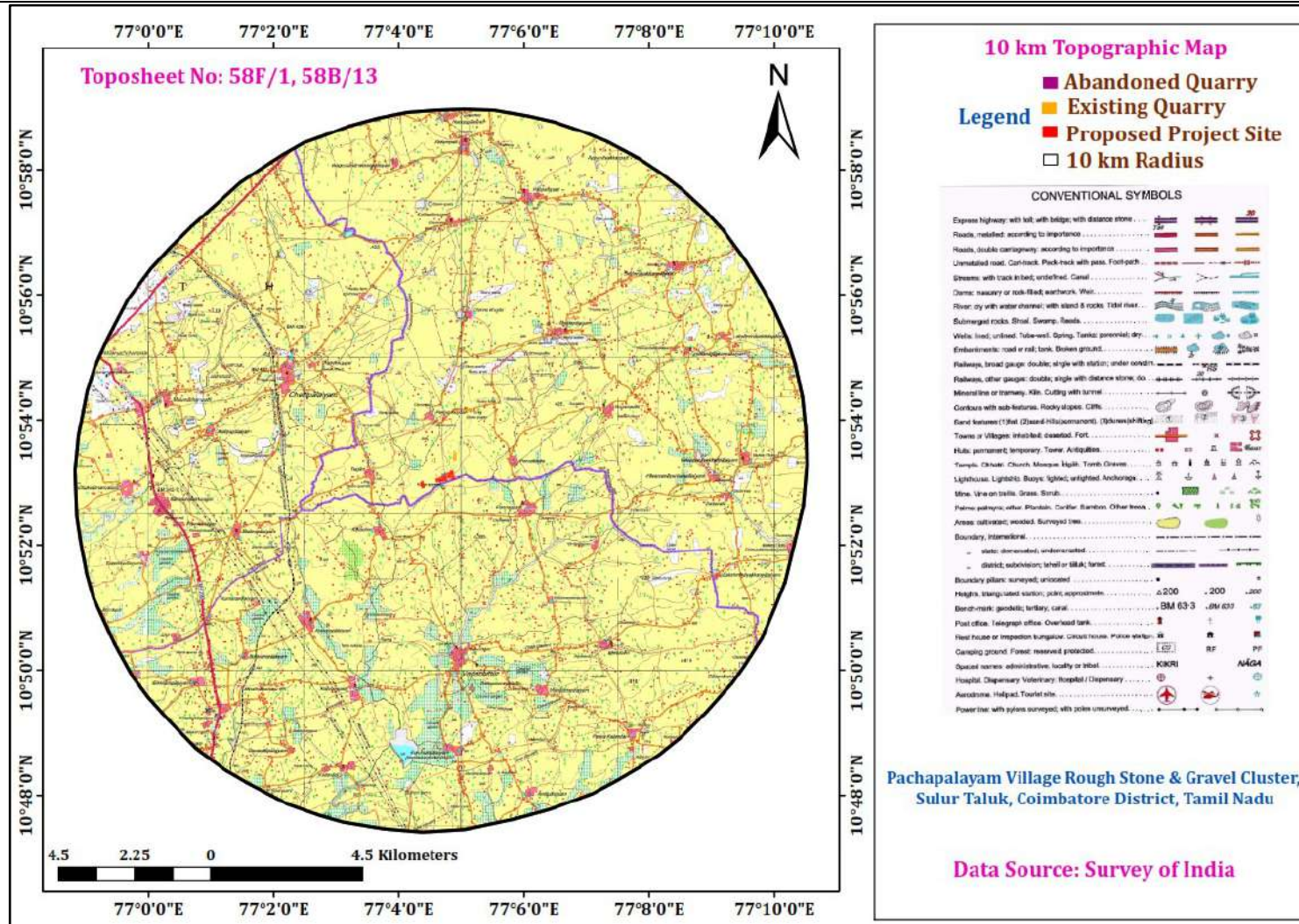


FIGURE – 4: TOPOSHEET MAP COVERING 10 KM RADIUS

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2.5 PROPOSED MACHINERY DEPLOYMENT

S. No	Particulars	(Nos) Project -1	(Nos) Project-2	(Nos) Project-3
Mine Official & Competent Person				
1.	Mine Foreman/ Manager	1	1	1
2.	Blaster/mate	1	1	1
Machinery Operators				
3.	Excavator- Operator	2	2	2
4.	Jack hammer operator	14	14	12
5.	Tipper Driver	4	3	5
Semi- Ordinary Employee				
6.	Watchman/ Security	1	1	1
7.	Labour & Helper	4	3	3
8.	Co- operator/ Cleaner	6	5	7
Total		33	30	32

2.6 CONCEPTUAL MINING PLAN/ FINAL MINE CLOSURE PLAN

- 1) At the end of life of mine, the excavated mine pit / void will act as artificial reservoir for collecting rain water and helps to meet out the demand or crises during drought season.
- 2) After mine closure the greenbelt developed along the safety barrier and top benches and temporary water reservoir will enhance the ecosystem
- 3) Mine Closure is a process of returning a disturbed site to its natural state or which prepares it for other productive uses that prevents or minimizes any adverse effects on the environment or threats to human health and safety.
- 4) The principal closure objectives are for rehabilitated mines to be physically safe to humans and animals, geo-technically stable, geo-chemically non-polluting/ non-contaminating, and capable of sustaining an agreed post-mining land use.

2.7 ULTIMATE PIT DIMENSION

PROJECT	Length (Max) (m)	Width (Max) (m)	Depth (Max)
1	130	90	32
2	184	86	42
3	158	171	48

3.1 DESCRIPTION OF THE ENVIRONMENT

DESCRIPTION OF THE ENVIRONMENT

Field monitoring studies to evaluate the base line status of the project site were carried out during March to May 2022 as per CPCB guidelines. Environmental Monitoring data has been collected with reference to proposed quarry by ETS Laboratories an NABL Certified & MoEF Notified Laboratory.

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3.2 ENVIRONMENT MONITORING ATTRIBUTES

S. No.	Attributes	Parameters	Frequency
1	Ambient Air Quality	PM ₁₀ , SO ₂ , NO _x & mineralogical composition of PM ₁₀ , particularly for free silica	24 hourly samples, twice a week for three months at 8 locations.
2	Meteorology	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall	Continuous hourly recording (one season) at project site. Secondary data from the nearest IMD station.
3	Water quality	Physical and Chemical parameters.	Grab samples collected once during study period from 5 ground water and 3 surface water locations.
4	Soil Quality	Physical and Chemical parameters.	Grab samples collected once during study period from 8 locations.
5	Ecology	A. Existing terrestrial flora and fauna covering Core Zone & Buffer Zone (10-Km radius). B. Existing aquatic ecological status in Buffer Zone (10-Km radius).	Through field studies once during study period. Secondary data also collected.
6	Noise levels	Noise levels in dB (A) Day and Night.	Hourly Noise levels in and around the project area for 24 hours at each location once during study period at 8 locations.
7	Land use	Current land use scenario	Once during study period based on recent satellite imagery and ground-truthing at site.
8	Geology	Geological details	Once during study period. Data collected from secondary sources
9	Hydrogeology	Drainage area and pattern, nature of streams, aquifer characteristics, recharge and discharge areas, etc.	Based on primary and secondary sources, once during study period.
10	Socio-Economic aspects	Socio-economic aspects like demography, population dynamics, infrastructure resources,	From primary and secondary sources (like census abstracts of census of India 2011) once during the study period.

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S. No.	Attributes	Parameters	Frequency
		health status, economic resources, etc.	

3.3 LAND ENVIRONMENT

S.No	Level I	Level -II	Area (Km ²)	Percentage (%)
1	Built-up Land	Built-up Land	88.95	25.79
2	Agricultural Land	Coconut Plantation	52.79	15.31
		Crop Land	141.96	41.17
3	Waste Land	Scrub/Shrub	49	14.21
		Bare Land	5.63	1.63
4	Water Body	Water Body	0.4	0.11
5	Others	Mining Land	5.8	1.68
		Solar panel	0.27	0.08
Total			344.8	100

The cluster area of 11.87.0 Ha contributes about 0.13% of the total mining area within the study area. This small percentage of Mining Activities shall not have any significant impact on the environment.

3.4 SOIL ENVIRONMENT

Physical Characteristics -

- The physical properties of the soil samples were examined for texture, bulk density, porosity and water holding capacity. The soil texture found in the study area is Clay Loam Soil and Bulk Density of Soils in the study area varied between 1.27 to 1.33 g/cm³.
- The Water Holding Capacity and Porosity of the soil samples is found to be medium i.e. ranging from 4.84 to 35.35%.

Chemical Characteristics -

- The nature of soil is slightly alkaline to strongly alkaline with pH range 7.11 to 7.51
- The available Total Nitrogen content range between 0.063 to 0.091 mg/kg
- The available Potassium range between 32 to 47.6 mg/kg

3.5 WATER ENVIRONMENT

Ground Water Quality

The physico-chemical characteristics of groundwater are presented in Table above and are compared with the standards. The pH of the water samples collected ranged from 7.98 to 8.31 and within the acceptable limit of 6.5 to 8.5. The total dissolved solids were found in the range of 1411 to 1786 mg/L in all samples. The total hardness varied between 397 to 760 mg/L for all samples collected at 7 locations.

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In all samples, iron content is 0.19 to 0.81 mg/L, Nitrate in between 11 to 23.6 mg/l, fluoride varied between 0.33 to 0.97 mg/L, chloride 76.32 to 398.8 mg/L, Sulphate 21 to 311.1 mg/L, alkalinity 213 to 512 mg/L, calcium 25.6 to 157.6 mg/L and magnesium in between 32 to 93.31 mg/L. The overall ground water quality was found to be good. The levels of heavy metals content were found to be within permissible limits.

Surface Water Quality

The physico-chemical characteristics of surface water are presented in Table above and are compared with the standards. The pH of the water samples collected was 7.36 and 7.56 and within the acceptable limit of 6.5 to 8.5. The total dissolved solids were found in the range of 251 and 435 mg/L in all samples. The total hardness was 176 and 212 mg/L for all samples collected at 2 locations.

In all samples, iron content was between 0.48 and 2.13 mg/L, Nitrate was between 0.023 and 5.73 mg/l, fluoride was 0.21 and 1.23 mg/L, chloride was 21.31 and 38.57 mg/L, Sulphate was 32.93 and 56.2 mg/L, calcium was 25.6 and 27.4 mg/L and magnesium was 11.66 and 20.9 mg/L. The overall surface water quality was found to be good in most. The levels of heavy metals content were found to be within permissible limits.

3.6 AIR ENVIRONMENT

The baseline studies on air environment include identification of specific air pollution parameters and their existing levels in ambient air. The ambient air quality with respect to the study zone of 10 km radius around the proposed quarry forms the baseline information.

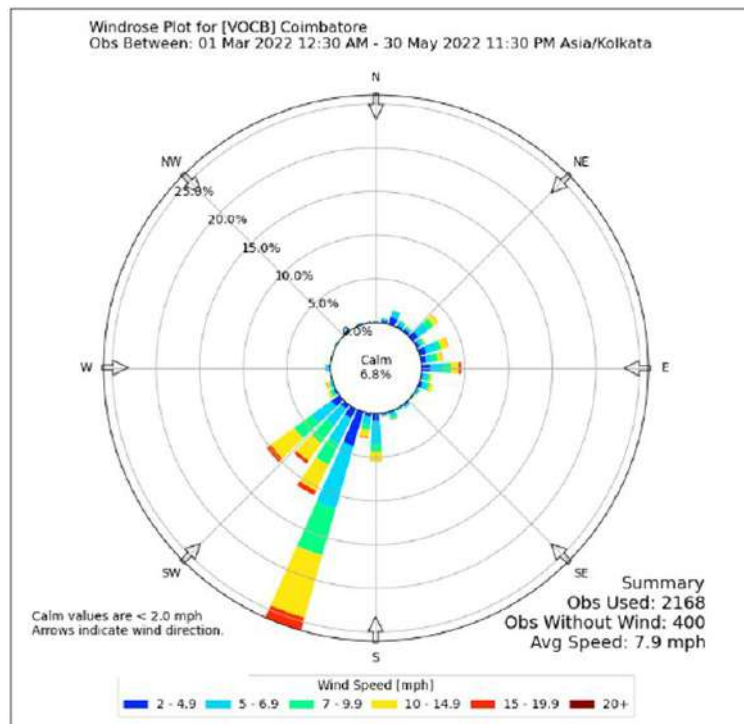


FIGURE – 5: WIND ROSE DIAGRAM

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The results of ambient air quality monitoring for the period (March to May 2022) are presented in the report. Data has been compiled for three months. As per monitoring data, PM₁₀ ranges from 79.4 to 94.13 µg/m³, PM_{2.5} data ranges from 39.66 to 53.96 µg/m³, SO₂ ranges from 10.9 to 14.51 µg/m³ and NO₂ data ranges from 21.04 to 24.73 µg/m³. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

3.7 NOISE ENVIRONMENT

Ambient noise levels were measured at 8 locations in and around the proposed project area. It is observed that the ambient noise levels at all the monitoring locations and villages are within the permissible limits of 55 dB(A) for day time and 45 dB(A) for night time observed within permissible limit.

3.8 ECOLOGICAL ENVIRONMENT

The study involved in the collection of primary data by conducting a survey in the field, examination of floral and faunal records in previously published reports and records. Analysis of the information is the view of the possible alteration in the environment of the project site. For the survey of fauna, both direct and indirect observation methods were used.

There is no schedule I species of animals observed within study area as per Wildlife Protection Act 1972 as well as no species is in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area. Hence this small operation over short period of time will not have any significant impact on the surrounding flora and fauna.

3.9 SOCIO ECONOMIC ENVIRONMENT

It includes demographic structure of the area, provision of basic amenities viz., housing, education, health and medical services, occupation, water supply, sanitation, communication, transportation, prevailing diseases pattern as well as features like temples, historical monuments etc., at the baseline level. This will help in visualizing and predicting the possible impact depending upon the nature and magnitude of the project. The socio-economic study of surveyed villages gives a clear picture of its population, average household size, literacy rate and sex ratio etc. It is also found that a part of the population is suffering from lack of permanent job to run their day-to-day life. Their expectation is to earn some income for their sustainability on a long-term basis. The proposed projects will aim to provide preferential employment to the local people there by improving the employment opportunity in the area and in turn the social standards will improve.

4.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES – IN COMMON FOR ALL PROPOSED QUARRIES

In order to maintain the environmental commensuration with the mining operation, it is essential to undertake studies on the existing environmental scenario and assess the

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impact on different environmental components. This would help in formulating suitable management plans sustainable resource extraction.

4.1 LAND ENVIRONMENT: ANTICIPATED IMPACT

- Permanent or temporary change on land use and land cover.
- Change in Topography: Topography of the ML area will change at the end of the life of the mine.
- Movement of heavy vehicles sometimes cause problems to agricultural land, human habitations due to dust, noise and it also causes traffic hazards.
- Due to degradation of land by pitting the aesthetic environment of the core zone may be affected.
- Earthworks during the rainy season increase the potential for soil erosion and sediment laden water entering the water ways.

If no due care is taken wash off from the exposed working area may choke the water course & can also causes the siltation of water course

MITIGATION MEASURES

- The mining activity will be gradual confined in blocks and excavation will be undertaken progressively along with other mitigative measures like phase wise development of greenbelt etc.
- Construction of garland drains all around the quarry pits and construction of check dam at strategic location in lower elevations to prevent soil erosion due to surface runoff during rainfall and also to collect the storm water for various uses within the proposed area
- Green belt development along the boundary within safety zone. The small quantity of water stored in the mined-out pit will be used for greenbelt
- Thick plantation will be carried out on unutilized area, top benches of mined out pits, on safety barrier, etc.,
- At conceptual stage, the land use pattern of the quarry will be changed into Greenbelt area and temporary reservoir
- In terms of aesthetics, natural vegetation surrounding the quarry will be retained (such as in a buffer area i.e., 10 m safety barrier and other safety provided) so as to help minimise dust emissions.
- Proper fencing will be carried out at the conceptual stage, Security will be posted round the clock, to prevent inherent entry of the public and cattle.

4.2 WATER ENVIRONMENT ANTICIPATED IMPACT

The major sources of water pollution normally associated due to mining and allied operations are:

- Generation of waste water from vehicle washing.
- Washouts from surface exposure or working areas
- Domestic sewage

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- Disturbance to drainage course in the project area
- Mine Pit water discharge
- Increase in sediment load during monsoon in downstream of lease area
- This being a mining project, there will be no process effluent. Waste from washing of machinery may result in discharge of Oil & grease, suspended solids.
- The sewage from soak pit may percolate to the ground water table and contaminate it.
- Surface drainage may be affected due to Mining
- Abstraction of water may lead to depletion of water table

MITIGATION MEASURES

- Garland drains, settling tank will be constructed along the individual mining leases. The Garland drains of the individual leases will be connected to settling tank and after settling the water will be discharged out to the natural drainage
- Rainwater will be collected in sump in the mining pits and will be allowed to store and pumped out to surface setting tank of 15 m x 10m x 3m to remove suspended solids if any. This collected water will be judiciously used for dust suppression onwards and such sites where dust likely to be generated and for developing green belt. The proponent will collect and judiciously utilize the rainwater as part of rainwater harvesting
- Providing benches with inner slopes and through a system of drains and channels, allowing rain water to descent into surrounding drains, so as to minimize the effects of erosion & water logging arising out of uncontrolled descent of water.
- Reuse the water collected during storm for dust suppression and greenbelt development within the mines
- Installing interceptor traps/oil separators to remove oils and greases. Water from the tipper wash-down facility and machinery maintenance yard will pass through interceptor traps/oil separators prior to its reuse;
- Using flocculating or coagulating agents to assist in the settling of suspended solids during monsoon seasons;
- Periodic analysis of quarry pit water and ground water quality in nearby villages.
- Domestic sewage from site office & urinals/latrines provided in ML is discharged in septic tank followed by soak pits.
- Waste water discharge from mine will be treated in settling tanks before using for dust suppression and tree plantation purposes.
- De-silting will be carried out before and immediately after the monsoon season.
- Regular monitoring and analysing the quality of water in open well, bore wells and surface water.

4.3 AIR ENVIRONMENT

ANTICIPATED IMPACT

- During mining, at various stages activities such as excavation, drilling, blasting, and transportation of materials, particular matter (PM), gases such as Sulphur dioxide, oxides of Nitrogen from vehicular exhaust are the main air pollutants.

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- Emissions of noxious gases due to incomplete detonation of explosive may sometimes pollute the air.
- The fugitive dust released from the mining operations may cause effect on the mine workers who are directly exposed to the fugitive dust.
- Simultaneously, the air-borne dust may travel to longer distances and settle in the villages located near the mine lease area.

MITIGATION MEASURES

Drilling – To control dust at source, wet drilling will be practiced. Where there is a scarcity of water, suitably designed dust extractor will be provided for dry drilling along with dust hood at the mouth of the drill-hole collar.

Advantages of Wet Drilling: -

- ❖ In this system dust gets suppressed close to its formation. Dust suppression become very effective and the work environment will be improved from the point of occupational comfort and health.
- ❖ Due to dust free atmosphere, the life of engine, compressor etc., will be increased.
- ❖ The life of drill bit will be increased.
- ❖ The rate of penetration of drill will be increased.
- ❖ Due to the dust free atmosphere visibility will be improved resulting in safer working conditions.

Blasting -

- Establish time of blasting to suit the local conditions and water sprinkling on blasting face
- Avoid blasting i.e., when temperature inversion is likely to occur and strong wind blows towards residential areas
- Controlled blasting includes Adoption of suitable explosive charge and short delay detonators, adequate stemming of holes at collar zone and restricting blasting to a particular time of the day i.e. at the time lunch hours, controlled charge per hole as well as charge per round of hole
- Before loading of material water will be sprayed on blasted material
- Dust mask will be provided to the workers and their use will be strictly monitored

Haul Road & Transportation -

- Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation
- Transportation of material will be carried out during day time and material will be covered with tarpaulin
- The speed of tippers plying on the haul road will be limited below 20 km/hr to avoid generation of dust.
- Water sprinkling on haul roads & loading points will be carried out twice a day

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- Main source of gaseous pollution will be from vehicle used for transportation of mineral; therefore, weekly maintenance of machines improves combustion process & makes reduction in the pollution.
- The un-metalled haul roads will be compacted weekly before being put into use.
- Over loading of tippers will be avoided to prevent spillage.
- It will be ensured that all transportation vehicles carry a valid PUC certificate
- Grading of haul roads and service roads to clear accumulation of loose materials

Green Belt -

- Planting of trees all along main mine haul roads and regular grading of haul roads will be practiced to prevent the generation of dust due to movement of dumpers/trucks
- Green belt of adequate width will be developed around the project areas

Occupational Health -

- Dust mask will be provided to the workers and their use will be strictly monitored
- Annual medical check-ups, trainings and campaigns will be arranged to ensure awareness about importance of wearing dust masks among all mine workers & tipper drivers
- Ambient Air Quality Monitoring will be conducted six months once to assess effectiveness of mitigation measures proposed

4.4 NOISE ENVIRONMENT

ANTICIPATED IMPACT

- Noise pollution poses a major health risk to the mine workers. Following are the sources of noise in the existing open cast mine project are being observed such as Drilling, & Blasting, Loading and during movement of vehicles.

MITIGATION MEASURES

- Usage of sharp drill bits while drilling which will help in reducing noise;
- Secondary blasting will be totally avoided and hydraulic rock breaker will be used for breaking boulders;
- Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will be maintained;
- The blasting will be carried out during favourable atmospheric condition and less human activity timings by using nonelectrical initiation system;
- Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise;
- Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise;
- Silencers / mufflers will be installed in all machineries;
- Green Belt/Plantation will be developed around the project area and along the haul roads. The plantation minimizes propagation of noise;

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- Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM and their use will be ensured through training and awareness.
- Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects.

4.5 BIOLOGICAL ENVIRONMENT

ANTICIPATED IMPACT

There are no National Park and Archaeological monuments within project area. There are no migratory corridors, migratory avian-fauna, rare endemic and endangered species. There are no wild animals in the area. No breeding and nesting site were identified in project site. No National Park and Wildlife Sanctuary found within 10km radius. The dumps / bunds around the mine itself act as a good barrier for entry of stray animals. In the post mining stage, barbed wire fencing is proposed all around the mined-out void to prevent fall of animals in the mine pits.

MITIGATION MEASURES

To reduce the adverse effects on natural flora/fauna status of the area due to deposition of dust generated from mining operations, water sprinkling and water spraying systems will be ensured in all dust prone areas to arrest dust generation. Methodical and well-planned plantation scheme will be carried out.

4.6 GREENBELT DEVELOPMENT PLAN

Project	Project	
	No. of Sapling	Area (in Sq.m.)
P1	1500	Plantation along safety distance, village road etc.
P2	1100	
P3	1300	
Total	3900	

4.7 SOCIO ECONOMIC ENVIRONMENT

ANTICIPATED IMPACT Employment generation due to the project will provide direct employment for about 70 persons.

MITIGATION MEASURES

- Good maintenance practices will be adopted for plant machinery and equipment, which will help to avert potential noise problems.
- Green belt will be developed in and around the project site as per Central Pollution Control Board (CPCB) guidelines.
- Appropriate air pollution control measure will be taken to minimize the environmental impact within the core zone.
- For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices will be provided as per mines act and rules.

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- Benefit to the State and the Central governments through financial revenues by way of royalty, tax, DMF, NMET etc, from this project directly and indirectly.

ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

- The site has been selected based on geological investigation and exploration as below:
- Occurrence of minerals at the specific site.
- Transportation facility for materials & manpower.
- Overall impact on environment and mitigation feasibility
- Socio – economic background.
- The mineral deposits are site specific in nature; hence question of seeking alternate site does not arise for this project.

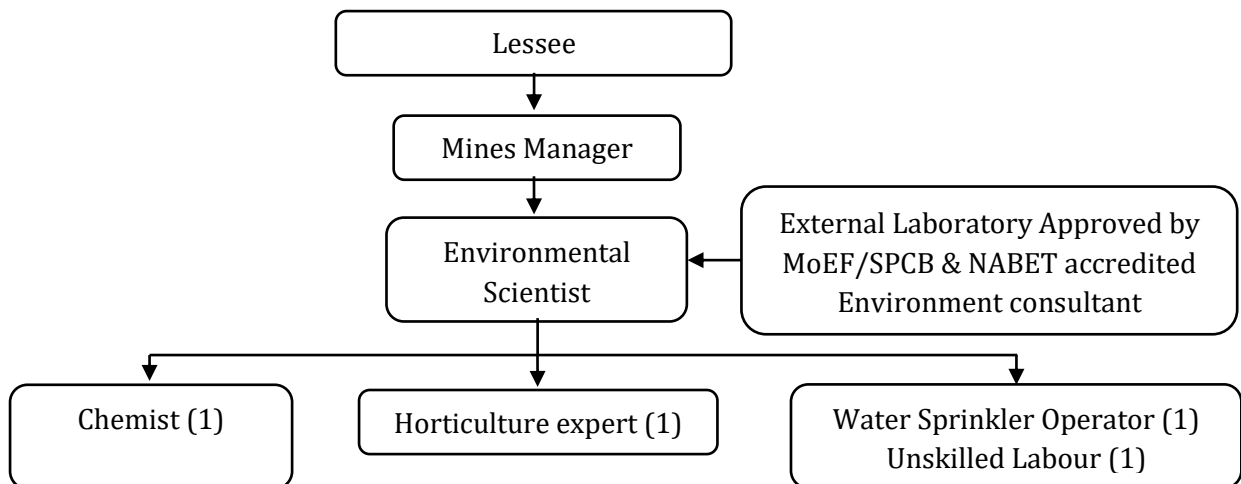
➤ **ENVIRONMENT MONITORING PROGRAM**

Usually, an impact assessment study is carried over short period of time and the data cannot bring out all variations induced by natural or human activities. Hence regular monitoring program of Environmental parameters is essential to take into account the changes in the Environment.

The Objective of Monitoring -

- To check or assess the efficiency of the controlling measures;
- To establish a data base for future impact assessment studies.

6.1 ENVIRONMENTAL MONITORING CELL



6.2 POST ENVIRONMENTAL CLEARANCE MONITORING SCHEDULE IN COMMON

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S. No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	
1	Air Quality	2 Locations (1 Core & 1 Buffer)	24 hours	Once in 6 months	Fugitive Dust, PM _{2.5} , PM ₁₀ , SO ₂ and NO _x .
2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall
3	Water Quality Monitoring	2 Locations (1SW & 1 GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms
4	Hydrology	Water level in open wells in buffer zone around 1 km at specific wells	-	Once in 6 months	Depth in bgl
5	Noise	2 Locations (1 Core & 1 Buffer)	Hourly – 1 Day	Once in 6 months	Leq, Lmax, Lmin, Leq Day & Leq Night
6	Vibration	At the nearest habitation (in case of reporting)	-	During blasting Operation	Peak Particle Velocity
7	Soil	2 Locations (1 Core & 1 Buffer)	-	Once in six months	Physical and Chemical Characteristics
8	Greenbelt	Within the Project Area	Daily	Monthly	Maintenance

7.0 ADDITIONAL STUDIES

7.1 RISK ASSESSMENT

The methodology for the risk assessment has been based on the specific risk assessment guidance issued by the Directorate General of Mine Safety (DGMS), Dhanbad, vide Circular No.13 of 2002, dated 31st December, 2002. The DGMS risk assessment process is intended to identify existing and probable hazards in the work environment and all operations and assess the risk levels of those hazards in order to prioritize those that need immediate attention. Further, mechanisms responsible for these hazards are identified and their control measures, set to timetable are recorded along with pinpointed responsibilities. The whole quarry operation will be carried out under the direction of a Qualified Competent Mine Manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad. Risk Assessment is all about prevention of accidents and to take necessary steps to prevent it from happening.

7.2 DISASTER MANAGEMENT PLAN

Draft EIA/EMP for Pachapalayam Rough Stone and Gravel Quarry Cluster with proposed area of 3.10.0 Ha, 2.09.5 Ha and 2.66.0 Ha respectively, while cluster area is 11.87.0 Ha, located in Survey No. 337/4A and 337/4B, 46/1 & 47 and 245/2A (Part), 246/1A (Part), 246/2, 248/2B and 248/5B of Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu.

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The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.

The objective of the Disaster Management Plan is to make use of the combined resources of the mine and the outside services to achieve the following:

- Rescue and medical treatment of casualties;
- Safeguard other people;
- Minimize damage to property and the environment;
- Initially contain and ultimately bring the incident under control;
- Secure the safe rehabilitation of affected area; and
- Preserve relevant records and equipment for the subsequent inquiry into the cause and circumstances of the emergency

7.3 CUMULATIVE IMPACT STUDY

SALIENT FEATURES

PROPOSAL "P1"		
Name of the Mine	Thiru. K. Raam Mohan	
Survey Nos	337/4A and 337/4B	
Land Type	Non-Forest Land / Patta Land	
Extent	3.10.0 Ha	
Mining Plan Period / Lease Period	5Years	
Ultimate Pit Dimension	130m (L) x 90m (W) x 32m (D) BGL	
Existing Pit Dimension	130m (L) x 90m (W) x 18m (D) BGL	
Latitude between	10°53'01.51"N to 10°53'11.66"N	
Longitude between	77°04'48.90"E to 77°04'53.83"E	
Highest Elevation	402m (Max) above Mean Sea Level	
Machinery Proposed	Jack Hammer (1.2m to 2.0m)	7
	Compressor (400 psi)	2
	Excavator bucket & Rock breaker attached	2
	Tippers (20 tonnes Capacity)	4
Proposed Blasting Method	Controlled Blasting Method	
Manpower Proposed	33 Nos	
Total Project Cost	Rs. 82,90,000/-	
PROPOSAL "P2"		
Name of the Mine	Thiru. R.K. Prabhu	
Survey Nos	46/1 & 47	
Land Type	Non-Forest Land / Patta Land	
Extent	2.09.5 Ha	
Mining Plan/Lease Period	5 Years	
Ultimate Pit Dimension	184m (L) x 86m (W) x 42m (D) BGL	
Latitude between	10°52'54.01"N to 10°53'01.74"N	
Longitude between	77°04'20.52"E to 77°04'25.29"E	

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Highest Elevation	390 m (Max) above Mean Sea Level	
Machinery Proposed	Jack Hammer	7
	Compressor	2
	Excavator bucket & Rock breaker attached	2
	Tippers (20 tonnes Capacity)	3
Proposed Blasting Method	Controlled Blasting Method	
Manpower Proposed	33 Nos	
Total Project Cost	Rs. 82,90,000/-	
PROPOSAL "P3"		
Name of the Mine	Thiru. E. Ananthakumar	
Survey Nos	245/2A (Part), 246/1A (Part), 246/2, 248/2B and 248/5B	
Land Type	Non-Forest Land / Patta Land	
Extent	2.66.0 Ha	
Mining Plan/Lease Period	5 Years	
Ultimate Pit Dimension	158m (L) x 171m (W) x 48m (D) BGL	
Existing Pit Dimension -I	153m (L) x 103m (W) x 30m (D) BGL	
Existing Pit Dimension -II	97m (L) x 64m (W) x 23m (D) BGL	
Latitude between	10°53'00.20"N to 10°53'07.15"N	
Longitude between	77°04'35.36"E to 77°04'41.56"E	
Highest Elevation	395 m (Max) above Mean Sea Level	
Machinery Proposed	Jack Hammer	6
	Compressor	2
	Excavator bucket & Rock breaker attached	2
	Tippers (20 tonnes Capacity)	3
Proposed Blasting Method	Controlled Blasting Method	
Manpower Proposed	32 Nos	
Total Project Cost	Rs. 88,23,000/-	
EXISTING "E1"		
Name of the Mine	Thiru. S.Sakthivel	
Survey Nos	334/2B, 334/3B, 334/4A & 334/4B	
Land Type	Non Forest Patta land	
Extent	2.28.5	
Mining Plan/Lease Period	24.11.2018 to 23.11.2023	
Latitude between	10°53'24.24"N to 10°53'31.23"N	
Longitude between	77°04'51.46"E to 77°04'57.51"E	
Machinery Proposed	Jack Hammer	6
	Compressor	2
	Excavator bucket & Rock breaker attached	2
	Tippers (20 tonnes Capacity)	3
Ultimate Pit Dimension	163 m (L) x 120m (W) x 37 m (D)	

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Proposed Blasting Method	Controlled Blasting Method
Manpower Proposed	11 Nos
Total Project Cost	Rs. 46,30,000/-

The Cumulative Impact is anticipated due to drilling & blasting and excavation and transportation activities from proposed mines within the 500-meter radius from the proposed mines and major impact anticipated is on Air & Noise Environment and Ground Vibrations due to blasting. The current monitoring was done as existing quarry are working which gives the ambient or present condition of air quality as well as noise.

PREDICTED AIR INCREMENTAL VALUE

S.No.	Locations	PM ₁₀ (µg/m ³)			PM _{2.5} (µg/m ³)			SO ₂ (µg/m ³)			NO ₂ (µg/m ³)		
		Inc	Max	Total	Inc	Max	Total	Inc	Max	Total	Inc	Max	Total
1	AAQ-1	2.8	83.5	86.3	1.7	42.04	43.74	1.1	12.94	14.04	1.3	22.96	24.26
2	AAQ-2	1.3	81.67	82.97	0.8	42.61	43.41	0.6	11.89	12.49	0.7	23.59	24.29
3	AAQ-3	2.7	95.41	98.11	1.6	57.28	58.88	1.1	15.79	16.89	1.3	27.41	28.71
4	AAQ-4	1.3	83.62	84.92	0.8	42.16	42.96	0.6	12.58	13.18	0.7	23.64	24.34
5	AAQ-5	2.7	96.58	99.28	1.6	56.91	58.51	1.1	15.59	16.69	1.3	26.96	28.26
6	AAQ-6	1.3	96.78	98.08	0.8	56.85	57.65	0.6	14.94	15.54	0.7	26.51	27.21
7	AAQ-7	1.3	94.15	95.45	0.8	53.91	54.71	0.6	16.38	16.98	0.7	26.51	27.21
8	AAQ-8	2.7	83.1	85.8	1.6	43.2	44.8	1	13.24	14.24	1.1	23.7	24.8
NAAQS (µg/m³)		100			60			80			80		

MAXIMUM GROUND LEVEL CONCENTRATION

Pollutants	Max. GLC observed, (µg/m ³)	Distance and Direction
PM ₁₀	13.3	1000 m towards E
PM _{2.5}	7.8	1000 m towards E
SO ₂	5.5	1000 m towards E
NO ₂	6.5	1000 m towards E

PREDICTED NOISE INCREMENTAL VALUE

Equipment with Highest Noise Level	Location ID	Background Value (Day) dB(A)	Incremental Value dB(A)	Total Predicted dB(A)	Residential Area Standards dB(A)
Drilling 90 dB(A)	N2 Sadaya Palayam, 1.43 Km	46.1	19.3	46.1	55
Shovel 85 dB(A)		46.1	14.3	46.1	
Tipper 75 dB(A)		46.1	4.3	46.1	
Compressor 85 dB(A)		46.1	14.3	46.1	
Excavator		46.1	31.3	46.2	

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Equipment with Highest Noise Level	Location ID	Background Value (Day) dB(A)	Incremental Value dB(A)	Total Predicted dB(A)	Residential Area Standards dB(A)
102 dB(A)					

The resultant Noise level due to monitored values and calculated values at the receptors are based on the mathematical formula considering attenuation due to Green Belt as 4.9 dB (A) the barrier effect. From the above table, the ambient noise levels at all the locations near habitations are within permissible limits of Residential Area (buffer zone)

ESTIMATED PEAK PARTICLE VELOCITY OF EXPLOSIVE CHARGE FROM CLUSTER

Distance from blasting site, m	Quantity of Explosive/Blast, Kg For different proposed project				PPV, mm/s For different proposed project			
	P1	P2	P3	E1	P1	P2	P3	E1
50	96	81	63	63	53.2	47.7	40.7	40.7
100	96	81	63	63	22.1	19.9	16.9	16.9
150	96	81	63	63	13.2	11.9	10.1	10.1
200	96	81	63	63	9.2	8.3	7.1	7.1
250	96	81	63	63	6.9	6.2	5.3	5.3
300	96	81	63	63	5.5	4.9	4.2	4.2
350	96	81	63	63	4.5	4.1	3.5	3.5
400	96	81	63	63	3.8	3.4	2.9	2.9
450	96	81	63	63	3.3	3.0	2.5	2.5
500	96	81	63	63	2.9	2.6	2.2	2.2
550	96	81	63	63	2.6	2.3	2.0	2.0
600	96	81	63	63	2.3	2.1	1.8	1.8
650	96	81	63	63	2.1	1.9	1.6	1.6
700	96	81	63	63	1.9	1.7	1.4	1.4
750	96	81	63	63	1.7	1.6	1.3	1.3

Note: The empirical formula does not consider the delay factor in blasting due to use of Delay Detonators.

The nearest habitation from cluster is Pachapalayam Village at 1.69 Km in N direction. From the above table, the blasting will not cause any significant ground vibrations in the area. The ground vibrations at nearest habitation will be well within the permissible limits recommended by DGMS.

SOCIO ECONOMIC BENEFITS FROM THE CLUSTER

	Project Cost in Rs.	CER in Rs.
P1	84,11,940	5,00,000
P2	73,39,920	5,00,000
P3	89,45,400	5,00,000

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	Project Cost in Rs.	CER in Rs.
E1	45,17,000	1,13,000
Total	2,92,14,260	1613000

CER allocation has been made as per MoEF & CC OM F.No.22-65/2017-IA.III, Dated: 01.05.2018. As per para 6 (II) of the office memorandum, all the mines being a green field project & Capital Investment is ≤ 100 crores, they shall contribute 2% of Capital Investment towards CER as per directions of EAC/SEAC and the total CER amount from the Cluster is **Rs. 16,13,000/-**.

EMPLOYMENT BENEFITS FROM THE CLUSTER

Mine Code	Direct Employment Nos	Indirect Employment Nos.
P1	33	20
P2	30	20
P3	32	20
E1	11	10
Total	106	70

Direct employment of 106 people and 70 will get indirect employment due to the cluster.

Greenbelt Development -

GREENBELT DEVELOPMENT BENEFITS FROM THE CLUSTER

Code	No of Trees proposed to be planted	Survival %	Area Covered Sq.m	Name of the Species	No. of Trees expected to be grown
P1	1500	80%	Plantation along safety distance, village road etc.	Neem, Pungan, Casuarinas and other regional trees Neem	1200
P2	1100	80%			880
P3	1300	80%			1040
E1	-	-			-
Total	3900				3120

Based on the Mining Plans its anticipated that there shall be growth of native species of Neem, Pungan, etc. in the Cluster 3900 nos of Trees Planted over a period of 5 Years with Survival Rate of 80% and expected growth is around 3120 Trees.

PROJECT BENEFITS

Proposed Project for Quarrying Rough Stone at Pachapalayam Village aims to produce Rough Stone over a period of 5 Years. This will enhance the socio-economic activities in the adjoining areas and will result in the following benefits

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- Increase in Employment Potential
- Improvement in Socio-Economic Welfare
- Improvement in Physical Infrastructure
- Improvement in Social infrastructure

CER COST AND ACTIVIES

	Activity	Cost
Project P1		
1.	Installation of Solar Street Light Pachapalayam Village and Madukkarai Village	1,00,000
2.	Construction for Separate Toilet for Girls and Boys In GHS Panipatti	1,00,000
3.	Painting of Class Room and School Campus	2,00,000
4.	Drilling of Borewells along with installation of motor in GHS Panipatti	1,00,000
Total		5,00,000
Project P2		
1.	Installation of Paver Blocks in Panipatti Village	2,00,000
2.	Construction for Separate Toilet for Girls and Boys In Kavilipalayam Govt School	1,00,000
3.	Painting of Class Room and School Campus	1,00,000
4.	Drilling of Borewells along with installation of motor in Kavilipalayam Govt School	1,00,000
Total		5,00,000
Project P3		
1.	Installation of Paver Blocks in Ponnakkani Village	2,00,000
2.	Construction for Separate Toilet for Girls and Boys In Ponnakkani High School	1,00,000
3.	Painting of Class Room and School Campus	1,00,000
4.	Drilling of Borewells along with installation of motor in Kavilipalayam Govt School	1,00,000
Total		5,00,000

ENVIRONMENT MANAGEMENT PLAN FOR P1, P2 & P3

The Environment Monitoring Cell discussed formed by the mine management will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through Mine Management Level.

The said team will be responsible for:

- Implementation of pollution control measures as suggested in Environmental Management Plan and recommended in EC
- Conducting environmental monitoring as per EMP and EC stipulation through external laboratories approved by MoEF/SPCB and NABL
- Ensuring compliance with other conditions stipulated in Environmental Clearance for the project.
- Ensuring compliance with the conditions stipulated in 'Consent to Operate' for the project.

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- Timely submission of compliance status to MoEF/ SPCB
- Seeking experts' guidance, as and when required.
- Conducting CSR activities in nearby villages.
- Co-ordination of the environment related activities within the project as well as with outside agencies
- Collection of health statistics of the workers and population of the surrounding villages
- Green belt development
- Monitoring the progress of implementation of the environmental monitoring programme
- Monitoring of the water/ waste water quality, air quality and solid waste generated
- Analysis of the water and air samples collected through external laboratory
- Implementation and monitoring of the pollution control and protective measures/ devices which shall include financial estimation, ordering, installation of air pollution control equipment, waste water treatment plant, etc
- Compliance to statutory provisions, norms of State Pollution Control Board, Ministry of Environment and Forests and the conditions of the environmental clearance as well as the consents to establish and consents to operate.

EMP COST FOR PROJECTS

Project Code	Costing
P1	11,870,583
P2	11,774,283
P3	11,980,783

➤ **CONCLUSION**

It can be concluded from overall assessment of the impacts, in terms of positive and negative effects on various environmental components, that the mining activities will not have any adverse effect on the surrounding environment.

To mitigate any impacts due to the mining activities, a well-planned EMP and a detailed post project monitoring system is provided for regular monitoring and immediate rectification at site. Due to the cluster quarrying activities, socio economic conditions in and around the project site will be improved substantially. Hence, the Prior Environmental Clearance shall be granted at the earliest.