EXECUTIVE SUMMARY

"B1" CATEGORY – MINOR MINERAL – NON-FOREST LAND – PATTA LAND/ EXISTING QUARRY

THIRU. S. NANDHAGOPAL ROUGH STONE AND GRAVEL QUARRY

CLUSTER EXTENT = 29.63.50 ha

At

Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State

For Obtaining
Environmental Clearance under EIA Notification – 2006
Schedule Sl. No. 1 (a) (i): Mining Project

Project Proponent	Proposed Project	Extent
THIRU.S. NANDHAGOPAL, S/o. Subramaniam, No.6/215, Kadukuttai Road, Pattanam, Coimbatore, Tamil Nadu State – 641 016.	S.F.Nos. 82/3 Pachapalayam Village, Sulur Taluk, Coimbatore District.	**2.25.0 ha**
ToR obtained vide **Lr No. SEIAA-TN/F.No.9516/TOR-1304/2022 Dated :07.12.2022**		

Environmental Consultant

GEO EXPLORATION AND MINING SOLUTIONS

Old No. 260-B, New No. 17,
Advaitha Ashram Road, Alagapuram,
Salem – 636 004, Tamil Nadu, India
Accredited for sector 1 Category 'A', 31 & 38 Category 'B'
Certificate No : NABET/EIA/2225/RA 0276
Phone: 0427-2431989,
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ENVIRONMENTAL LAB

EHS 360 LABS PRIVATE LIMITED,

NABL Accredited

10/2 Ground floor, 50th street, 7th Avenue,
Ashok Nagar, Chennai – 600 083.

BASELINE MONITORING SEASON – MARCH 2023 to MAY 2023

MAY - 2024

1. INTRODUCTION

Environmental Impact Assessment (EIA) is the management tool to ensure the sustainable development and it is a process, used to identify the environmental, social and economic impacts of a project prior to decision-making. It is a decision-making tool, which guides the decision makers in taking appropriate decisions for any project. EIA systematically examines both beneficial and adverse consequences of the project and ensures that these impacts are taken into account during the project designing. It also reduces conflicts by promoting community participation, information, decision makers, and helps in developing the base for environmentally sound project.

Rough Stone and Gravel is the major requirement for construction industry. This EIA Report is prepared for Thiru. S. Nandhagopal Rough stone and Gravel quarry project Over an Extent of 2.25.0 Ha in S.F.No 82/3, Pachapalayam Village, Sulur Taluk, Coimbatore District considering Cumulative impact from the Cluster quarries,

Cluster Quarries consisting of Eighteen (18) quarries total **Cluster extent of 29.63.50 ha**

(1 Proposals applied for public hearing {2.25.0 ha},
13 Proposals already public hearing conducted (20.82.0 ha)}
& 4 Existing quarries under operation {6.56.5 ha}

Total extent of Cluster of 29.63.50 Ha in Pachapalayam Village, Sulur Taluk, Coimbatore District and Tamil Nadu State, cluster area calculated as per MoEF & CC Notification S.O. 2269 (E) Dated 1st July 2016.
The Baseline Monitoring study has been carried out during the period of March – May 2023 (Baseline Data Used is as per MoEF & CC Office Memorandum No. J-11013/41/2006-IA-II (I) (Part) Dated 29th August 2017 & MoEF & CC Office Memorandum F. No. IA3-22/10/2022-IA.III [E 177258] Dated: 08.06.2022) 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 for carrying out Public Hearing for the Grant of Environmental Clearance from SEIAA, - Tamil Nadu"

1.1 DETAILS OF PROJECT PROPONENT –

Name of the Project	Thiru. S. Nandhagopal Rough Stone and Gravel Quarry
Address	S/o.Subramaniam, residing at No.6/215, Kadukuttai Road, Pattanam, Coimbatore, Tamil Nadu State – 641 016
Mobile	+91 98424 43159
Status	Individual
Email	svbmetals@gmail.com

1.2 QUARRY DETAILS WITHIN 500 M RADIUS

PROPOSED QUARRY (A)				
CODE	**Name of the Proponent and Address**	**S.F. Nos, Village & Taluk**	**Extent in Ha**	**Status**
P1	Thiru.S.Nandhagopal, S/o. Subramaniam, No.6/215, Kadukuttai Road, Pattanam, Coimbatore, Tamil Nadu State – 641 016.	82/3, Pachapalayam & Sulur	2.25.0	Tor Obtained Lr No,SEIAA-TN/F.No.9516/T0R-1304/2022 Dated :07. 12.2022
Total			**2.25.0**	
PROPOSED QUARRIES – PUBLIC HEARING COMPLETED FILES (B)				
CODE	**Name of the Proponent and Address**	**S.F.Nos ,Village & Taluk**	**Extent in Ha**	**Status**
P2	Thiru.R.Nataraj,	90/2(P) & 91/1A(P0),	1.34.5	Public hearing completed on 21.01.2022

	No.3/183, Karachery, Chettipalayam (via), Kinathukadavu, Coimbatore District – 641 201	Pachapalayam & Sulur		EC Granted on 16.09.2022
P3	Thiru.K.Nataraj, Theerthakinaru Thottam, Karacheri, Chettipalayam via, Kinathukadavu Taluk, Coimbatore District – 641 201	84/5A(Part), Pachapalayam & Sulur	1.48.0	Public hearing completed on 21.01.2022 EC Granted on 17.09.2022
P4	Tmt.R.Baby, W/o. R.S. Radhakrishnan, No.96/65G, Ruba Nagar, Ramanathapuram, Coimbatore District – 641 045	83/1C1B & 83/1C2, Pachapalayam & Sulur	1.33.0	Public hearing completed on 21.01.2022 EC Granted on 16.09.2022
P5	Thiru.M.Ramasamy, S/o. Mariyagounder, Kalavaithottam, Thegani, Periyakuyili Post, Coimbatore District – 641 201	80/1E1, 80/1E2 & 80/1E4, Pachapalayam & Sulur	1.37.0	Public hearing completed on 19.01.2022 EC Granted on 08.11.2022
P6	Thiru.M.Anandha Prabhu S/o. Marimuthu, No. 3/226A, Karachery, Kinathukadavu, Coimbatore – 641 201	90/3A, 3B, 91/1B1, 1B2,1B3, 1C, 2A & 91/2B, Pachapalayam & Sulur	1.41.5	Public hearing completed on 21.01.2022 EC Granted on 18.09.2022
P7	Thiru. K.M. Subramanian, S/o. A. Muthusamy, No. 46/3, P.K.P Layout, R.S.Puram, Coimbatore District – 641 002	94/1A, 94/9A & 94/10A Pachapalayam & Sulur	1.45.0	EC Granted on 17.11.2023
P8	Thiru. C. Kathirvel, S/o. R. Chinnaswamy Gounder, Kallikattu Thottam, Thekani, Chettipalayam Via, Coimbatore District.	92/3(P), 92/4(P), 93/1A (P), 93/1B (P), 93/2A 93/2B (P), 110/3 and 110/4 Pachapalayam & Sulur Taluk	4.91.50	EC Granted on 20.11.2023
P9	Thiru. C. Palanisamy, S/o. Chinnaiya Gounder, 3/84, Karacheri, Periyakuyilai Post, Kinathukadavu, Coimbatore District	82/2B Pachapalayam & Sulur	0.97.5	EC Granted on 10.07.2023
P10	Thiru. M. Sundarraj, S/o. Myilsamy Gounder, Karacheri, Chettipalayam Via, Coimbatore District – 641 201	92/1 Pachapalayam & Sulur	1.14.5	EC Granted on 10.07.2023
P11	Thiru. T. Pushparaj, S/o. R. Thangamuthu, No. 7/6A, Vayakkattu Thottam, Karacheri, Chettipalayam Via, Coimbatore District – 641 201	90/4, 91/2D (P) and 111/3 Pachapalayam & Sulur	1.56.0	EC Granted on 10.07.2023
P12	Thiru. M. Viswanathan, S/o. Mailsamy Gounder, West Thottam, Chettipalayam via, Coimbatore District.	360/1A5 and 360/1A6 Arasampalayam & Kinathukadavu	1.00.5	EC Granted on 20.05.2024
P13	Thiru. K. Ravikumar S/o. R. Kumarasamy,	355/2A (P), 355/2C (P) and 355/2D1A (P)	1.40.0	EC Granted on 30.08.2023

	7/68, West Thottam, Karacheri, Periyakuyili Post, Chettipalayam via, Coimbatore District.	Arasampalayam, Kinathukadavu		
P14	Thiru. V.Somasundaram, S/o. Velusamy, 7/73, Karachery, Kinathukadavu, Coimbatore District.	360/1B (P), 360/1E and 360/1G Arasampalayam & Kinathukadavu	1.43.00	EC Granted on 30.08.2023
Total			**20.82.0**	

EXISTING QUARRIES (D)				
CODE	**Name of the Proponent and Address**	**S.F.Nos**	**Extent in Ha**	**Lease Period**
E-1	Thiru.R.Senthilkumar	94/6B, 94/7(P), 94/12, 94/13 & 94/1/	2.07.00	13.04.2018 to 12.04.2023
E-2	Thiru.S.Ganesan	94/4, 94/6A & 94/8A	1.43.50	13.04.2018 to 12.04.2023
E-3	Thiru.S.Arunachalam	83/1C1A	1.33.00	13.04.2018 to 12.04.2023
E-4	Thiru.R.Chinnasamy	83/1A(P) & 83/2(P)	1.73.00	13.04.2018 to 12.04.2023
Total			**6.56.5**	

EXPIRED QUARRIES (E)				
CODE	**Name of the Proponent and Address**	**S.F.Nos**	**Extent in Ha**	**Lease Period**
Ex-1	Thiru.R.Sampathkumar	84/4C Pachapalayam	0.46.5	10.06.2014 to 09.06.2018
Ex-2	Thiru.Sivasamy	269/2 Pachapalayam	0.69.0	26.04.2015 to 25.04.2020
Ex-3	Thiru.A.Dharmaraj	94/2C Pachapalayam	0.46.0	15.09.2016 to 14.09.2021
Total			**1.61.5**	

ABANDONED QUARRIES (F)				
CODE	**Name of the Proponent and Address**	**S.F.Nos**	**Extent in Ha**	**Lease Period**
A-1	Thiru.S.Rajan	354/2B Arasampalayam	2.20.0	08.10.2010 to 07.10.2015
A-2	S.A.Jappar	80/1A1, 81/1, 81/2 & 81/3	1.44.5	08.10.2010 to 07.10.2015
Total			**3.64.5**	
TOTAL CLUSTER EXTENT			**29.63.50**	

1.3 SALIENT FEATURES OF THE PROPOSAL

Name of the Mine	Thiru. S. Nandhagopal Rough Stone and Gravel Quarry	
Land Type	It is a Patta land. Registered in the name Thiru.Mohan Dass vide Patta No.193.	
S.F. Nos	82/3	
Extent	2.25.0 ha	
Proposed depth of mining As per Mining plan	40m(2m Gravel +38m Roughstone) bgl.	
Proposed depth considering bench safety parameters	40m bgl	
Previous Lease details	The quarry lease was previous granted in favour of Thiru.Mohan dass, over an extent of 1.17.0 Hectares of patta lands in S.F.No. 82/3 Pachapalayam Village, Sulur Taluk, Coimbatore District vide District Collector's proceedings letter R.C.No. 1657/2003/MM2, dated: 20.11.2003 five years from 01.12.2003 to 30.11.2008. in favour of Thiru.Mohan dass, over an extent of 2.25.0 Hectares of patta lands in S.F.No. 82/3 of Pachapalayam Village, Sulur Taluk, Coimbatore District vide District Collector's proceedings letter R.C.No. 2011/2008/X1, dated: 06.07.2009 for the period of five years from 06.07.2009 to 05.07.2014. The quarry lease was again granted in favour of Thiru.Mohan dass, over an extent of 3.24.5 Hectares of patta lands in S.F.No. 82/3 and 80/1C1 of Pachapalayam Village, Sulur Taluk, Coimbatore District vide District Collector's proceedings letter R.C.No. 204/Mines/2016, dated: 07.03.2017 for the period of five years from 07.03.2017 to 06.03.2022 for quarrying of rough stone and Gravel. issued in the precise area communication letter the applicant has obtained Environment Clearance from the State Level Environment Impact Assessment Authority, Tamil Nadu vide letter **No. Lr. No. SEIAA-TN/F.No.5561/1(a)//EC.No:3558/2016 Dated:10.08.2016.**	
Existing pit dimension (As per Ad Letter)	Pit-1: 94m (L) X 78m (W) X 13m Bgl (D) Pit -II: 109m (L) X 92m (W) X 17m Bgl (D)	
Geological Resources in m^3	Rough Stone	Gravel
	5,64,031 m^3	554
Mineable Reserves	Rough Stone	Gravel
	2,26,817 m^3	NIL
Year wise production	Rough Stone	Gravel
	2,26,817 m^3	NIL
Mining Plan Period / Lease Period	5 Years	
Ultimate Pit Dimension	187m (L) x 94 m(W) x 40 m (D) BGL	
Toposheet No	58-F/01	
Latitude between	$10^0$52'45.41"N to $10^0$52'52.71" N	
Longitude between	$77^0$02'57.06"E to $77^0$03'01.51"E	
Topography	The lease applied area is flat terrain. The area has gentle sloping towards Southwestern side and altitude of the area is **396m above from Mean Sea level**. The area is covered by 2m thickness of Gravel and followed by Massive Charnockite which is clearly inferred from the existing quarry pit.	
Machinery proposed	Jack Hammer	6
	Compressor	2
	Excavator with Bucket and Rock Breaker	1
	Tippers	3
Blasting	Usage of Slurry Explosive with MSD detonators	

Manpower Deployment	23Nos	
Total Project Cost	Project cost	Rs 68,67,000/-
	EMP Cost	Rs 3,80,000/-
	Total	Rs 72,47,000/-
Proposed CER Cost	Rs. 5,00,000/-	

Source: Approved Mining Plan

1.4 STATUTORY DETAILS

Project – P1

- The proponent applied for Rough Stone and Gravel Quarry Lease Dated: 05.01.2022
- Precise Area Communication Letter was issued by the District Collector, Coimbatore R. C. No.9/Mines/2022 Dated: 05.07.2022.
- The Mining Plan was prepared by Qualified Person and approved by Assistant Director, Department of Geology and Mining, Coimbatore District, vide R. C. No.9/Mines/2022 Dated: 11.07.2022.
- 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 vides online Proposal No. SIA/TN/MIN/401522/2022, Dated:27.09.2022.
- The proposal was placed in 331st SEAC meeting held on 24.11.2022 and the committee recommended for issue of ToR.
- The proposal was considered in 576th SEIAA meeting held on 07.12.2022 and issued ToR vide Letter No SEIAA-TN/F.No.9516/ToR-1304/2022 Dated:07.12.2022.

2. PROJECT DESCRIPTION

The proposed projects are site specific and there is no additional area required for this project. There is no effluent generation/discharge from the proposed quarries.

Method is mining is common for all the proposed quarries in the cluster. Rough Stone is proposed to be excavated by opencast mechanized method involving splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers and rock breakers to avoid secondary blasting.

2.1 SITE CONNECTIVITY TO THE PROJECT AREA

Nearest Roadway	The Nearest National Highway (NH-83) Dindigul-Coimbatore 4.0Km- SW The Nearest State Highway (SH-163) Othakalmandapam-Palladam Frontier Road-3Km- NW Myleripalayam-Pachapalayam Road- 10m- Northern side of the lease applied area.
Nearest Village	Thekani – 850m - NE
Nearest Town	Kinathukadavu - 7km- SW
Nearest Railway	Chettipalayam Railway station - 4.0km - NW
Nearest Airport	Coimbatore Airport – 16 km – North
Seaport	Kochi- 133Km-SW

2.2 LAND USE PATTERN OF THE LEASE APPLIED AREA

Description	Present area in (ha)	Area at the end of life of quarry (Ha)
Area under quarry	1.80.0	1.80.0
Infrastructure	0.02.0	0.02.0
Roads	0.02.0	0.02.0
Green Belt	Nil	0.10.0
Un – utilized area	0.41.0	0.31.0
Grand Total	**2.25.0**	**2.25.0**

2.3 OPERATIONAL DETAILS OF LEASE APPLIED AREA

PARTICULARS	DETAILS	
	Rough Stone (5Year Plan period)	**Gravel (1 years)**
Geological Resources	5,64,031 m^3	554 m^3
Mineable Reserves	2,26,817 m^3	-
Production for five year plan period	2,26,817 m^3	-
Mining Plan Period	5Years	
Number of Working Days	300 Days	
Production per day	151m^3	-
No of Lorry loads (6 m^3 per load)	25	-
Total Depth of Mining proposed as per Mining plan	40m(2m Gravel +38m Roughstone) bgl.	

Source: Approved mining plan

2.4 RESOURCES AND RESERVES OF THE PROPOSAL

ROUGH STONE AND GRAVEL PRODUCTION FROM THE PROPOSAL

YEAR	ROUGH STONE (m^3)
I	44,050
II	50,597
III	44,950
IV	50,225
V	36,995
TOTAL	**2,26,817**

FIGURE – 1: GOOGLE IMAGE SHOWING APPLIED QUARRY LEASE AREA – P1

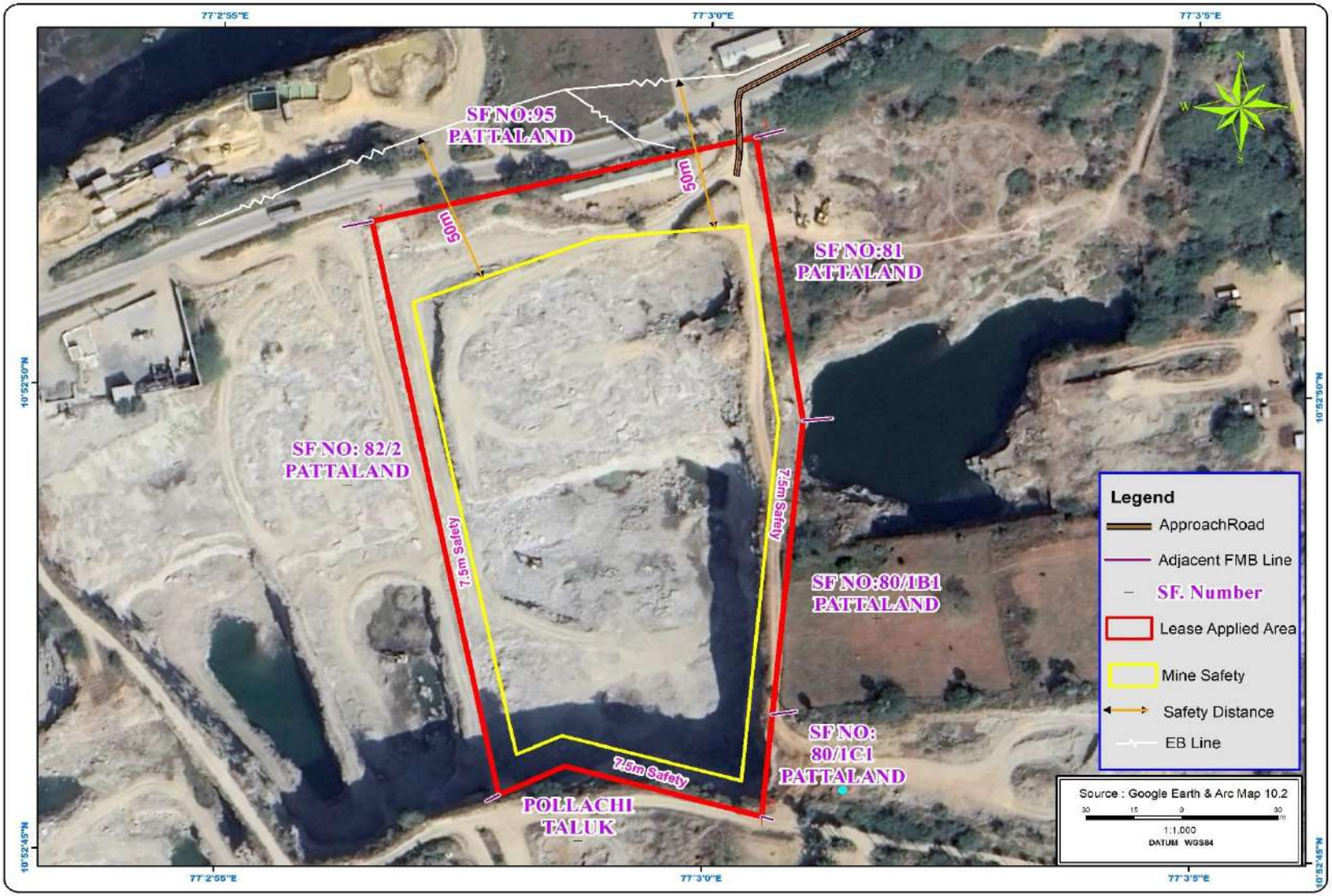


FIGURE – 2: GOOGLE IMAGE SHOWING CLUSTER (500 m QUARRIES)

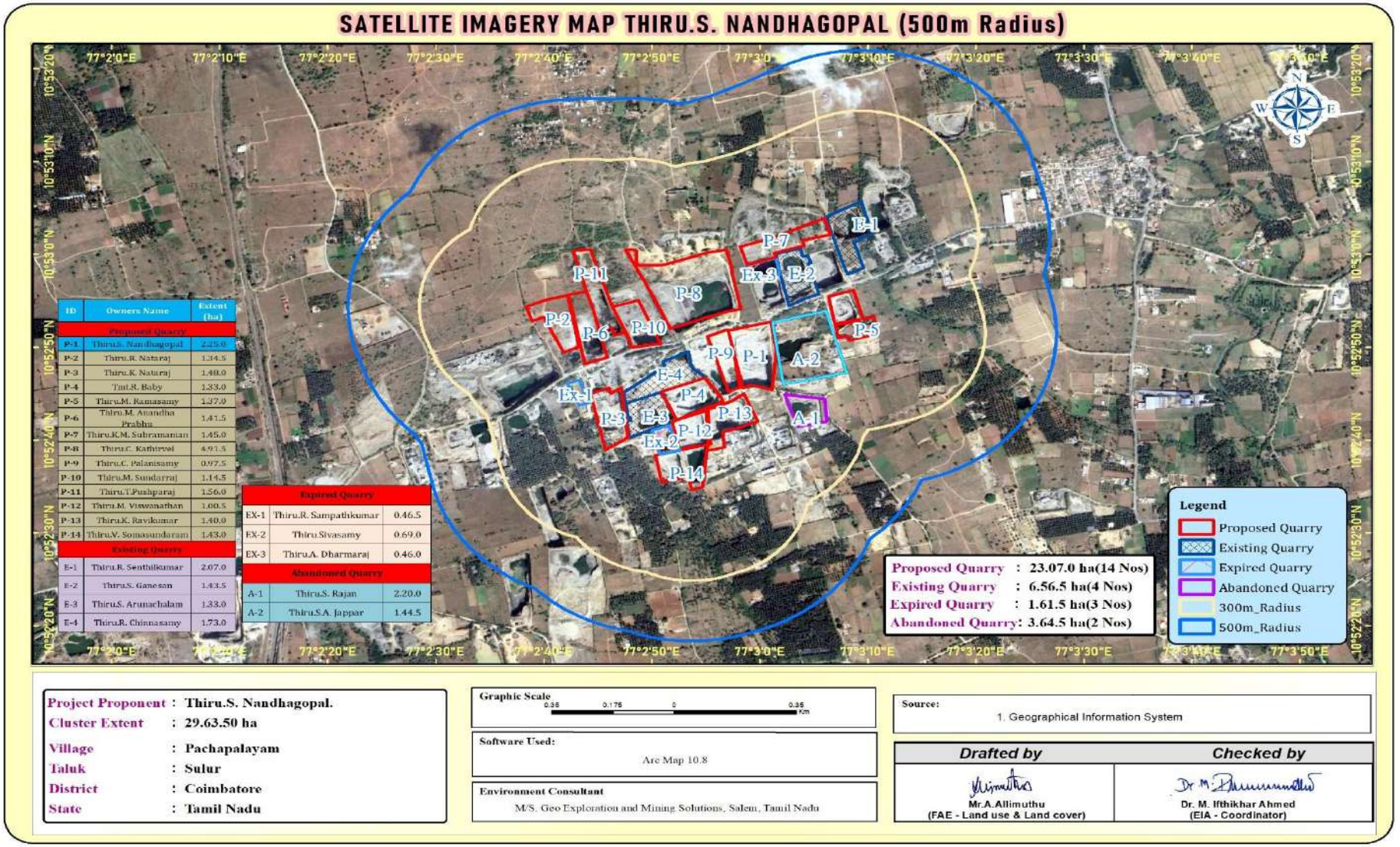
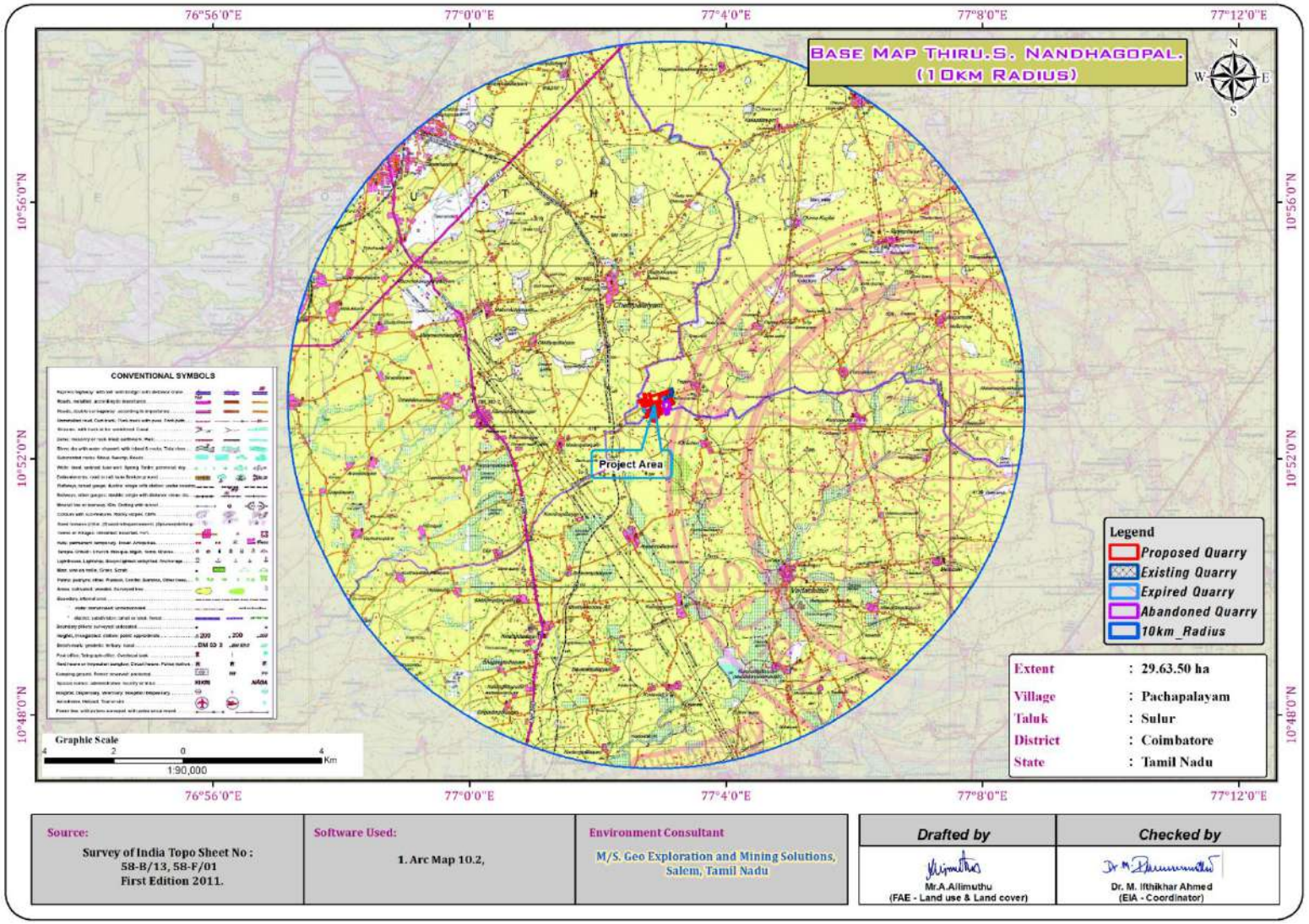


FIGURE – 3: TOPOSHEET MAP COVERING 10 KM RADIUS



2.5 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 into the tippers and then the stone is transported from pithead to the nearby crushers.

2.6 PROPOSED MACHINERY DEPLOYMENT

PROPOSAL – P1				
S.NO.	**TYPE**	**NOS**	**SIZE/CAPACITY**	**MOTIVE POWER**
1	Jack hammers	6	1.2m to 2.0m	Compressed air
2	Compressor	2	400psi	Diesel Drive
3	Excavator with Bucket / Rock Breaker	1	300 HP	Diesel Drive
4	Tippers	3	20 Tonnes	Diesel Drive

2.7 CONCEPTUAL MINING PLAN/ FINAL MINE CLOSURE PLAN

- 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.
- After mine closure the greenbelt developed along the safety barrier and top benches and temporary water reservoir will enhance the ecosystem.
- 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.
- The principle 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.

2.8 ULTIMATE PIT DIMENSION

PROPOSAL – P1			
Pit	**Length (Max) (m)**	**Width (Max) (m)**	**Depth (Max)**
I	187	94	40 m bgl

3. DESCRIPTION OF THE ENVIRONMENT

Field monitoring studies to evaluate the base line status of the project site were carried out during March to May 2023 as per CPCB guidelines. Environmental Monitoring data has been collected with reference to proposed mine EHS 360 labs Pvt Ltd, accredited by ISO/IEC-17025:2017 (NABL) & UPPCB Certified & MoEF Notified Laboratory

3.1 ENVIRONMENT MONITORING ATTRIBUTES

ATTRIBUTE	PARAMETERS	FREQUENCY OF MONITORING	NO. OF LOCATIONS	PROTOCOL
Land-use Land cover	Land-use Pattern within 10 km radius of the study area	Data's from census handbook 2011 and from the satellite imagery	Study Area	Satellite Imagery Primary Survey
Soil	Physio - Chemical Characteristics	Once during the study period	6 (1 core & 5 buffer zone)	IS 2720 Agriculture Handbook - Indian Council of Agriculture Research, New Delhi
Water quality	Physical, Chemical and Bacteriological Parameters	Once during the study period	1 (1 surface water & 5 ground water)	IS 10500& CPCB Standards
Meteorology	Wind Speed Wind Direction Temperature Cloud cover Dry bulb temperature Rainfall	1 Hourly Continuous Mechanical/Automatic Weather Station	1	Site specific primary data& Secondary Data from IMD Station
Ambient Air Quality	PM_{10} $PM_{2.5}$ SO_2, NO_X CO Fugitive Dust	24 hourly twice a week (March 2023 – May 2023)	7 (1 core & 6 buffer)	IS 5182 Part 1-23 National Ambient Air Quality Standards, CPCB
Noise Levels	Ambient Noise	Hourly observation for 24 Hours per location	7 (1 core & 6 buffer zone)	IS 9989 As per CPCB Guidelines
Ecology	Existing Flora and Fauna	Through field visit during the study period	Study Area	Primary Survey by Quadrate & Transect Study & Secondary Data
Socio Economic Aspects	Socio–Economic Characteristics, Population Statistics and Existing Infrastructure in the study area	Site Visit & Census Handbook, 2011	Study Area	Primary Survey, census handbook & need based assessments.

Source: On-site monitoring/sampling by EHS 360 Laboratories in association with GEMS

* All monitoring and testing are been carried out as per the Guidelines of CPCB and MoEF & CC.

3.2 LAND ENVIRONMENT

S.No	CLASSIFICATION	AREA_HA	AREA_%
	BUILTUP		
1	URBAN	728.08	1.96
2	RURAL	1138.75	3.06
3	MINING	587.02	1.58
	AGRICULTURAL LAND		
4	CROP LAND	17360.11	46.62
5	PLANTATION	6276.64	16.85
6	FALLOW LAND	10031.47	26.94
	BARREN/WASTE LANDS		
7	SCRUB LAND	1055.70	2.83
	WETLANDS/ WATER BODIES		
8	WATER BODIES/LAKE	61.82	0.17
TOTAL		37239.59	100.00

Interpretation:

Built-up area = 1866.83 ha ie., 5.02 %

Agriculture land = 33281.63 ha ie., 90.2 %

Barren land = 1050.37 ha ie., 2.85%

Mining area = 583.13ha ie., 1.58 %

Cluster of quarries within 500m radius is 29.63.50 ha ie.,7.95 % of the total Mining areas within the study area. This small percentage of Mining Activities shall not have any significant impact on the environment.

3.3 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 to Sandy Soil and Bulk Density of Soils in the study area varied between 1.01– 1.19 g/cc. The Water Holding Capacity and Porosity of the soil samples is found to be medium i.e. ranging from 43.4-48.1 %.

Chemical Characteristics –

- The nature of soil is slightly alkaline to strongly alkaline in nature with pH range 7.98 to 8.82
- The available Nitrogen content range between 425.6 to 510.2 kg/ha
- The available Phosphorus content range between 2.57 to 7.15 kg/ha
- The available Potassium range between 24 to 44.2 mg/kg

Whereas, the micronutrient as zinc (Zn), iron (Fe) and copper (Cu) were found in the range of 3.16 to 12.45 mg/kg; 1.10 to 11.2 mg/kg and ND

3.4 WATER ENVIRONMENT

Surface Water

The pH of surface 8.02 while turbidity found within the standards. Total Dissolved Solids 608 mg/l and Chloride 125 mg/l. Nitrates 14.5 mg/l, while sulphates 52.6 mg/l.

Ground Water

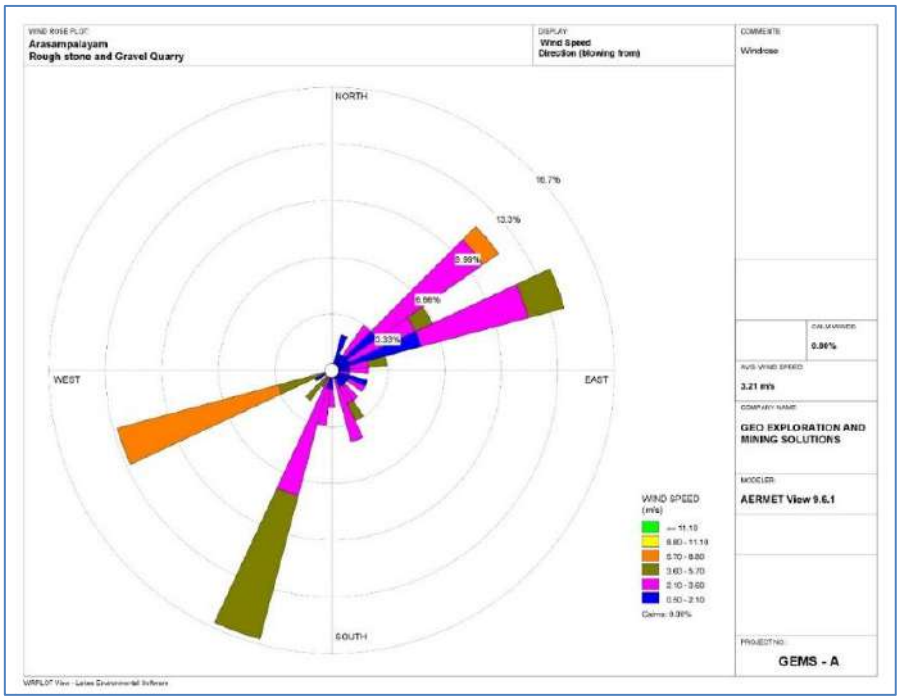
The pH of the water samples collected ranged from 7.29 to 8.02 and within the acceptable limit of 6.5 to 8.5. pH, Sulphates and Chlorides of water samples from all the sources are within the limits as per the Standard. on Turbidity, the water samples meet the requirement. The Total Dissolved Solids were found in the range of 517-624 mg/l in all samples. The Total hardness varied between 174.4-213.16 mg/l for all samples.

On Microbiological parameters, the water samples from all the locations meet the requirement. The parameters thus analysed were compared with IS 10500:2012 and are well within the prescribed limits.

3.5 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 – 4: WIND ROSE DIAGRAM



As per monitoring data, PM10 ranges from 39.5 to 46.7 µg/m3 , PM2.5 data ranges from 17.1 µg/m3 to 21.9 µg/m3, SO2 ranges from 4.0 µg/m3 to 7.9 µg/m3 and NO2 data ranges from 20.3 µg/m3 to 43.7 µg/m3. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

3.6 NOISE ENVIRONMENT

Ambient noise levels were measured at 7 (seven) locations around the project area considering cluster quarries. Noise levels recorded in core zone during day time were from 42.8 dB (A) Leq and during night time were from 35.9 dB (A) Leq. Noise levels recorded in buffer zone during day time were from 37.6 to 42.5 dB (A) Leq and during night time were from 35.7 to 36.6 dB (A) Leq.

3.7 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.

3.8 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 feature 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 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. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES – IN COMMON FOR PROPOSED QUARRY

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 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., 7.5 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
  - 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 judicially 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.
- 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 taurpaulin
- 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
- 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;
- 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 though 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.

4.5.1 GREENBELT DEVELOPMENT PLAN

Year	No. of trees proposed to be planted	Survial %	Area to be planted	Name of the species
I	It is proposed to plant **1,125 Nos** of trees in the 1st year	85%	Safety barrier, Un utilized area's and nearby village roads	Neem, Pungam,Sengondrai, Panai, Naval

4.6 SOCIO ECONOMIC ENVIRONMENT

ANTICIPATED IMPACT

Employment generation due to the project will provide direct employment for about 105 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.
- 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.

5. 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.

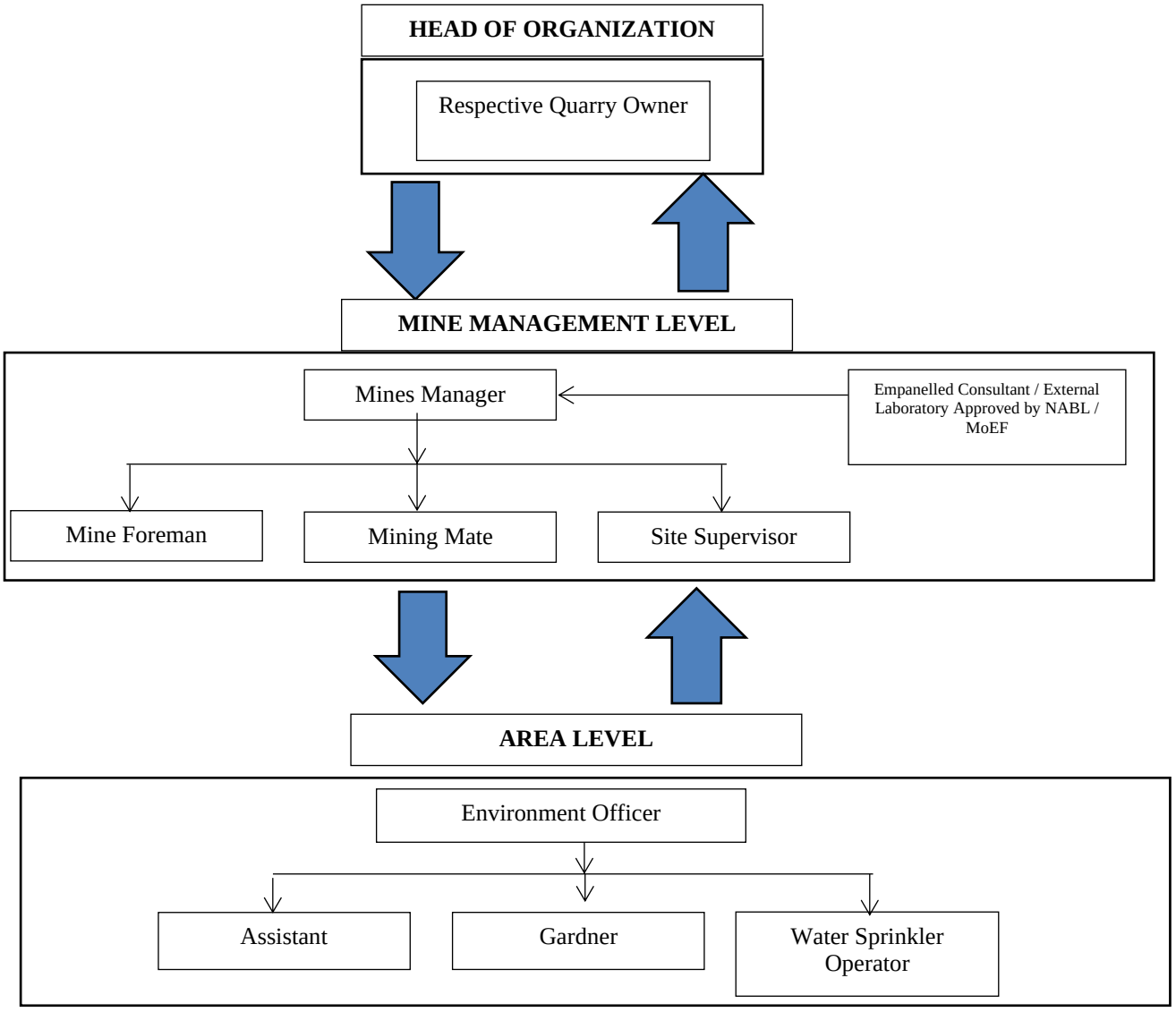
6. ENVIRONMENT MONITORING PROGRAM

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

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. ADDITIONAL STUDIES

7.1 RISK ASSESSMENT FOR PROPOSAL QUARRY

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 FOR PROPOSAL QUARRY

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

CUMULATIVE PRODUCTION LOAD OF ROUGH STONE IN CLUSTER

PROPOSED QUARRIES -A				
Quarry	**Production for five-year plan period considering safety parameters m^3**	**Per Year Production in m^3**	**Per Day Production in m^3**	**Number of Lorry Load Per Day @ 12m^3 per load**
P1	226817	45363	151	13 Trips /Day
TOTAL	**2,26,817**	**45,363**	**151**	**13 Trips /Day**
PROPOSED QUARRIES – PUBLIC HEARING COMPLETED FILES -B				
P2	1,53,750	30,750	103	9 Trips /Day
P3	59,704	11,941	40	3 Trips /Day
P4	68,288	13,658	45	4 Trips /Day
P5	71,510	14,302	48	4 Trips /day
P6	72,540	14,508	48	4 Trips /day
TOTAL	**4,25,792**	**85,159**	**284**	**24 Trips /Day**
PROPOSED PROJECTS TO CONDUCT PUBLIC HEARING -C				
Quarry	**Mineable Reserves in m^3**	**Per Year Production in m^3**	**Per Day in m^3**	**Number of Lorry Load @ 12m^3 per load**
P7	1,01,330	20,266	67	6 Trips /day
P8	5,72,260	114452	382	32Trips /Day
P9	28,565	5713	19	2 Trips /Day
P10	45,730	9,146	30	3 Trips /Day
P11	79,460	15,892	53	4Trips /Day
P12	59,704	11,941	40	3 Trips /Day
P13	48,251	9,650	32	3 Trips/Day
P14	48,923	9785	33	3 Trips /Day
TOTAL	**9,84,223**	**1,96,845**	**656**	**56Trips /Day**
EXISTING QUARRIES -D				
Quarry	**Production for five-year plan period**	**Per Year Production in m^3**	**Per Day Production in m^3**	**Number of Lorry Load Per Day @ 12m^3 per load**
1	47050	9410	31	3 Trips /Day
2	45860	9172	31	3 Trips /Day
3	99400	19,880	66	6 Trips /Day
4	108440	21688	72	6 Trips /Day
TOTAL	**3,00,750**	**60,150**	**200**	**18 Trips/ Day**

CUMULATIVE PRODUCTION LOAD OF GRAVEL IN CLUSTER

Proposed Projects – A				
Quarry	**Production for five-year plan period considering safety parameters m^3**	**Per Year Production in m^3**	**Per Day Production in m^3**	**Number of Lorry Load Per Day @ 12m^3 per load**
P1	**NIL**			
PROPOSED QUARRIES – PUBLIC HEARING COMPLETED FILES -B				
P2	15,580	5,193	17	1 Trips /Day, 6- Trips /week
P3	1,950	650	2	1- Trips /week
P4	2,430	810	3	1- Trips /week

P5	4524	1508	5	1- Trips /week
P6	3816	763	3	1- Trips /week
TOTAL	**28300**	**4324**	**30**	**5- Trips /Day**
PROPOSED PROJECTS TO CONDUCT PUBLIC HEARING -C				
Quarry	**Mineable Reserves in m^3**	**Per Year Production in m^3**	**Per Day in m^3**	**Number of Lorry Load @ 12m^3 per load**
P7	3816	1272	4	1- Trips /week
P8	15456	5152	17	1- Trips /week
P9	NIL			
P10				
P11	14054	4685	16	1- Trips /week
P12	NIL			
P13				
P14	1,350	450	2	1- Trips /week
TOTAL	**34,676**	**11559**	**39**	**4-Trips /Day**
EXISTING QUARRIES -D				
Quarry	**Production for five-year plan period**	**Per Year Production in m^3**	**Per Day Production in m^3**	**Number of Lorry Load Per Day @ 12m^3 per load**
1	12012	6006	20	2- Trips /week
2	7420	7420	25	2- Trips /week
3	3960	3960	13	1- Trips /week
4	3570	3570	12	1- Trips /week
TOTAL	**26,962**	**20,956**	**70**	**6- Trips/ Day**

SOCIO ECONOMIC BENEFITS FROM CLUSTER IN MINES

PROPOSED QUARRIES -A			
Code	Employment	Project Cost	CER
P1	23	Rs 72,47,000/-	Rs 5,00,000/-
TOTAL	**23**	**Rs 72,47,000/-**	**Rs 5,00,000/-**
PROPOSED QUARRIES – PUBLIC HEARING COMPLETED FILES -B			
P2	20	Rs. 42,27,800/-	Rs 5,00,000/-
P3	16	Rs.51,01,900/-	Rs 5,00,000/-
P4	19	Rs.47,30,600/-	Rs 5,00,000/-
P5	20	Rs 38,54,500/-	Rs 5,00,000/-
P6	14	Rs 49,35,000/-	Rs 5,00,000/-
TOTAL	**89**	**Rs.22,849,800/-**	**Rs 25,00,000/-**
PROPOSED PROJECTS TO CONDUCT PUBLIC HEARING -C			
P7	18	Rs. 33,90,000/-	Rs 5,00,000/-
P8	27	Rs. 1,45,18,000/-	Rs 5,00,000/-
P9	13	Rs. 32,80,000/-	Rs 5,00,000/-
P10	14	Rs. 49,69,000/-	Rs 5,00,000/-
P11	15	Rs. 54,26,000/-	Rs 5,00,000/-
P12	16	Rs. 25,93,000/-	Rs 5,00,000/-
P13	14	Rs 36,62,000/-	Rs 5,00,000/-
P14	14	Rs. 36,54,000/-	Rs 5,00,000/-
TOTAL	**131**	**Rs. 41,492,000/-**	**Rs. 40,00,000/-**
Existing quarries – Falls in the Cluster -D			
Code	Employment	Project Cost	CER
E1	13	Rs.34,10,000/-	Rs. 68,200/-
E2	13	Rs.30,92,500/-	Rs. 61,850/-
E3	11	Rs.38,26,000/-	Rs. 76,520/-
E5	11	Rs.39,06,000/-	Rs. 78,120/-

TOTAL	**48**	**Rs. 14,234,500/-**	**Rs.2,84,420/-**
Grand Total (A+B+C+D)	**291**	**Rs. 85,823,300**	**Rs. 7,284,420**

GREENBELT DEVELOPMENT BENEFITS FROM PROPOSAL MINE

Proposed projects				
CODE	No of Trees proposed to be planted	Survival %	Area to be covered	Name of the Species
PROPOSED QUARRIES -A				
P1	1125	85	Safety barrier, Un utilized area and Village roads	Neem, Pungam,Sengondrai, Panai, Naval
PROPOSED QUARRIES – PUBLIC HEARING COMPLETED FILES -B				
P2	670			
P3	740			
P4	665			
P5	685			
P6	700			
PROPOSED PROJECTS TO CONDUCT PUBLIC HEARING -C				
P7	725			
P8	2460			
P9	490			
P10	575			
P11	780			
P12	500			
P13	700			
P14	715			
Total	**11,530**			

8. PROJECT BENEFITS

The proposed Rough stone and Gravel projects belongs to Thiru.S. Nandagopal aims to produce 2,26,817m3 Rough Stone and None of the Gravel over a period of 5 Years. This will enhance the socio-economic activities in the adjoining areas and will result in the following benefits.

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

9. ENVIRONMENT MANAGEMENT PLAN FOR PROPOSAL QUARRY

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:

- 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.
- 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
- 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.

10. 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.