

EXECUTIVE SUMMARY

For

PAVOOR AND EZHACHERI ROUGH STONE AND GRAVEL QUARRY

OVER AN EXTENT OF 10.90.35 Ha.

At

**Survey Nos: 1/1A, 1/1B(P), 1/2, 1/3, 1/4, 1/5B, 1/6A of Pavoor
village & 412/1A, 412/1B, 412/2A, 412/2B, 412/2C, 412/2D, 412/2E,
412/2F, 415/1A, 415/1B, 415/1C, 415/1D, 415/1F, 415/1G, 415/2E,
415/2F, 415/2G, 415/2H, 415/2I, 415/2J, 415/2K, 416/1, 416/2,
416/3, 416/5, 416/6, 416/7, 416/8, 416/9, 416/10, 416/11, 416/12**

& 416/13 of Ezhacheri village

Pavoor and Ezhacheri Village

Vembakkam Taluk

Tiruvannamalai District

Tamil Nadu.

By

**M/s. Rajiraj Minerals Pvt. Ltd
Penna Complex, Vellore Main Road,
3rd Street, Anna Nagar, Arcot,
Vellore District - 632 503.**

EIA Consultant

HUBERT ENVIRO CARE SYSTEMS PRIVATE LIMITED, CHENNAI

OCTOBER 2019

EXECUTIVE SUMMARY

I. Project Background

The total extent area of the quarry is 10.90.35 Ha, at S.F.No. . 1/1A, 1/1B(P), 1/2, 1/3, 1/4, 1/5B, 1/6A of Pavoor and 412/1A, 412/1B, 412/2A, 412/2B, 412/2C, 412/2D, 412/2E, 412/2F, 415/1A, 415/1B, 415/1C, 415/1D, 415/1F, 415/1G,415/2E, 415/2F, 415/2G, 415/2H, 415/2I, 415/2J, 415/2K, 416/1, 416/2, 416/3, 416/5, 416/6, 416/7, 416/8, 416/9, 416/10, 416/11, 416/12 and 416/13 of Ezhacheri Village, Vembakkam Taluk, Thiruvannamalai District, Tamil Nadu State.

The quarry lease was applied at the date of 07.01.2019. The letter was issued by the District Collector, Tiruvannamalai letter vide Rc.No.182/Kanimam/2018 dated 20.05.2019. Lease documents are enclosed as **Annexure-I**.

The proposal was appraised during 130th SEAC meeting held on 11.06.2019 and 350th SEIAA meeting held on 29.07.2019 and ToR was issued Lr No. SEIAA-TN/F.No.6847/SEAC/ToR-634/2019 dated: 29.07.2019 for the preparation of EIA/EMP report with ecological damage assessment, remediation plan, natural resource augmentation plan and community resource augmentation plan. The monitoring has been done prior to the ToR stipulations as it is a Patta land and urgent requirement of Environmental Clearance. (As per MoEF Circular F.No.22-83/2014-IA-III Dated 7th October, 2014)

II. Management Commitment

Project Proponent will firmly address all the EC and its requirements and will execute the Environmental Management Plan and also address the ecological damage assessment, remediation plan, natural resource augmentation and community resource augmentation.

III. Environmental Sensitive Areas

As see in **Table-I** below, there are no notified ecologically sensitive areas, State and National boundary within 15km from Project Boundary. Thus the project does not attract the special conditions and general conditions as per EIA Notification.

Table-1 Environmental Sensitive areas within 15km of the project

S. No	Areas	Distance & Direction from the project boundary			
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	Monuments			
		S.No	Name	Distance(~km)	Direction
		1	Pallavas Cave (Kuranganilmuttam)	5.47	NNW
		2	Ancient Jain Beds (Mamandur)	4.66	NW
		3	Mamandur Cave temple	4.52	NW
		4	Cave Temple (Mamandur)	4.28	NW
		5	Shri Vaikunta Perumal temple (Uttiramerur)	12.69	SSW
		6	Kailasanathar Temple (Kanchipuram)	13.67	NNW
		7	Mathangesvara Temple (Kanchipuram)	12.96	N
		8	Sri Vaikunta Perumal Temple (Kanchipuram)	13.12	N
2	Areas which are important or sensitive for ecological reasons – Wetlands, Watercourses or other water bodies, coastal zone, biospheres, mountains, forests	Water bodies			
		S.No	Description	Dist. (Km) Ariel distance from site boundary	Direction
		1	Palar River	7.96	N
		2	Mamandur Tank	4.68	NW
		3	Vegavati River	10.72	NNE
		4	Nathapettai Lake	12.22	NNE
		5	Cheyyar River	4.75	ESE
		6	Uttiramerur Tank	8.32	SSE
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration	Nil within 15 km radius of the Project site.			
4	Inland, coastal, marine or underground waters	Water bodies:			
		S.No	Description	Dist. (Km) Ariel distance from site boundary	Direction
		1	Palar River	7.96	N
		2	Mamandur Tank	4.68	NW
		3	Vegavati River	10.72	NNE
		4	Nathapettai Lake	12.22	NNE
		5	Cheyyar River	4.75	ESE
6	Uttiramerur Tank	8.32	SSE		

		7	Canal (near Periya Nallur)	4.28	NNE
5	State, National boundaries	None within 15 km radius of the Project site.			
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	(SH-116)- Kanchipuram - Vandavasi is about 3Km-W (NH-46) Chennai – Krishnagiri is about 17Km-N			
7	Defence installations	Nil within 15 km radius of the Project site.			
8	Densely populated or built-up area (Nearest Town, City, District)	Mathur (1.85Km towards WSW) is densely populated village.			
		S.No	Name of the Village	Approximate distance from lease applied area	Direction
		1	Bagavandapuram	0.72km	NNE
		2	Narasamangalam	1.36km	W
		3	Pavoor	1.50km	SSE
		4	Mathur	1.85km	WSW
					Approximate population (Nos)
					777
					1703
					1370
					2147
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Educational Places			
		S. No	Name of the Institution	Distance(km)	Direction
		1	Government School	4.16km	NW
		2	Government school	1.60km	SE
		3	Government High School	5.17km	SW
		4	Sre Kagabujandar Gurukulam School	0.66km	W
		5	Adithyaa Matriculation School	9.82km	SSW
		6	MGR Government Arts College	7.55km	SE
		7	Sri Annamalaiyar Polytechnic College	3.54km	WSW
		8	Kanchi Pallavan Engineering College	9.11km	NNW
		9	Dusi Polytechnic College	7.26km	NNW
		Religious Places			
		S. No	Name of the Place	Distance (Km)	Direction
		1	Sri Thiru Makaraleswarar Temple	5.70km	E
		2	Sri Valeeswarar Temple	6.45km	N
		3	Sri Amirthagujalambal samedha	8.70km	SE
		4	AG Miracle Christian Assembly Church	2.94km	W
		5	Almighty Christ Church	3.06km	W
		6	Abdullapuram Mosque	8.01km	NNW
		7	Masjid	3.69km	WSW
		Hospitals			
		S. No	Name of the Hospital	Distance	Direction
		1	Government Hospital	4.34km	NW
		2	Government Hospital	9.02km	WNW
		3	Rural Aid Charity Hospital	2.99km	WNW

		4	Government primary health center	7.90km	NE
		5	Government primary hospital	8.42km	S
		Common places			
		S. No	Name of the places	Distance	Direction
		1	Magaral Police Station	5.75km	E
		2	Post office	4.40km	NW
		3	Sub Registrar Office Dusi	6.85km	NNW
		4	Panchayat office	4.59km	NW
		Industries			
		S. No	Name of the places	Distance	Direction
		1	Lotus Footwear Enterprises Ltd.	3.11Km	WNW
		2	Forech India (P) Ltd.	4.37Km	WNW
		3	Ashley Alteams India Ltd.	4.88Km	W
		4	Rockman Industries Ltd.	4.78Km	WNW
		5	Surya Packaging	2.66Km	WSW
		6	Govt. Work Shop	9.93Km	N
		7	Rajan & Rajan Industries	10.19Km	N
		8	Alpha Engg. Industries	10.16Km	N
		9	TNSMC Ltd	10.29Km	N
		10	Aluminium Ingot Factory	8.20Km	W
		11	SRC Projects (P) Ltd.	9.65Km	WNW
10	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	The quarry operation is restricted to only 74m (The ground water table is reported as 130m below ground level). Hence the ground water will not be affected by the quarrying operation.			
11	Areas already subjected to pollution or environmental damage (those where existing legal environmental standards are exceeded)	This is a fresh quarry, hence the area has not subjected to pollution or environmental damage. The atmosphere is quite fresh and it is proposed to carry out the quarrying operations an Eco friendly manner.			
	Areas susceptible to natural hazard	The area comes under seismic zone-III (Moderate risk area). There is no susceptible to natural hazards like subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions. Note :			

12	which could cause the project to present environmental problems, (earthquakes, subsidence, landslides, erosion or extreme or adverse climatic conditions)	Seismic Zone-II : Low risk Seismic Zone-III : Moderate Risk Seismic Zone-IV : High Risk Seismic Zone-V Very high Risk
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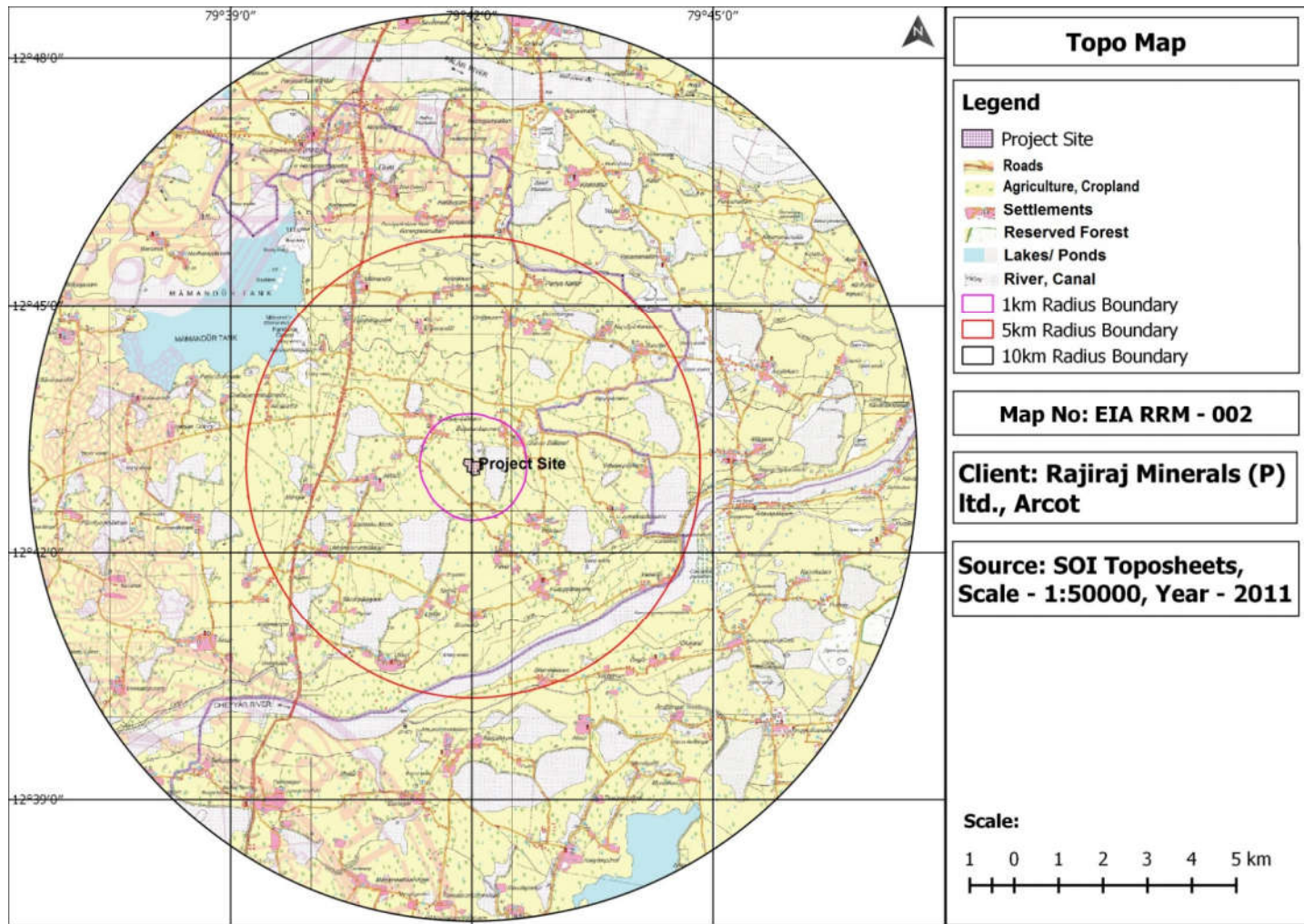


Figure 1 Topo map of the project

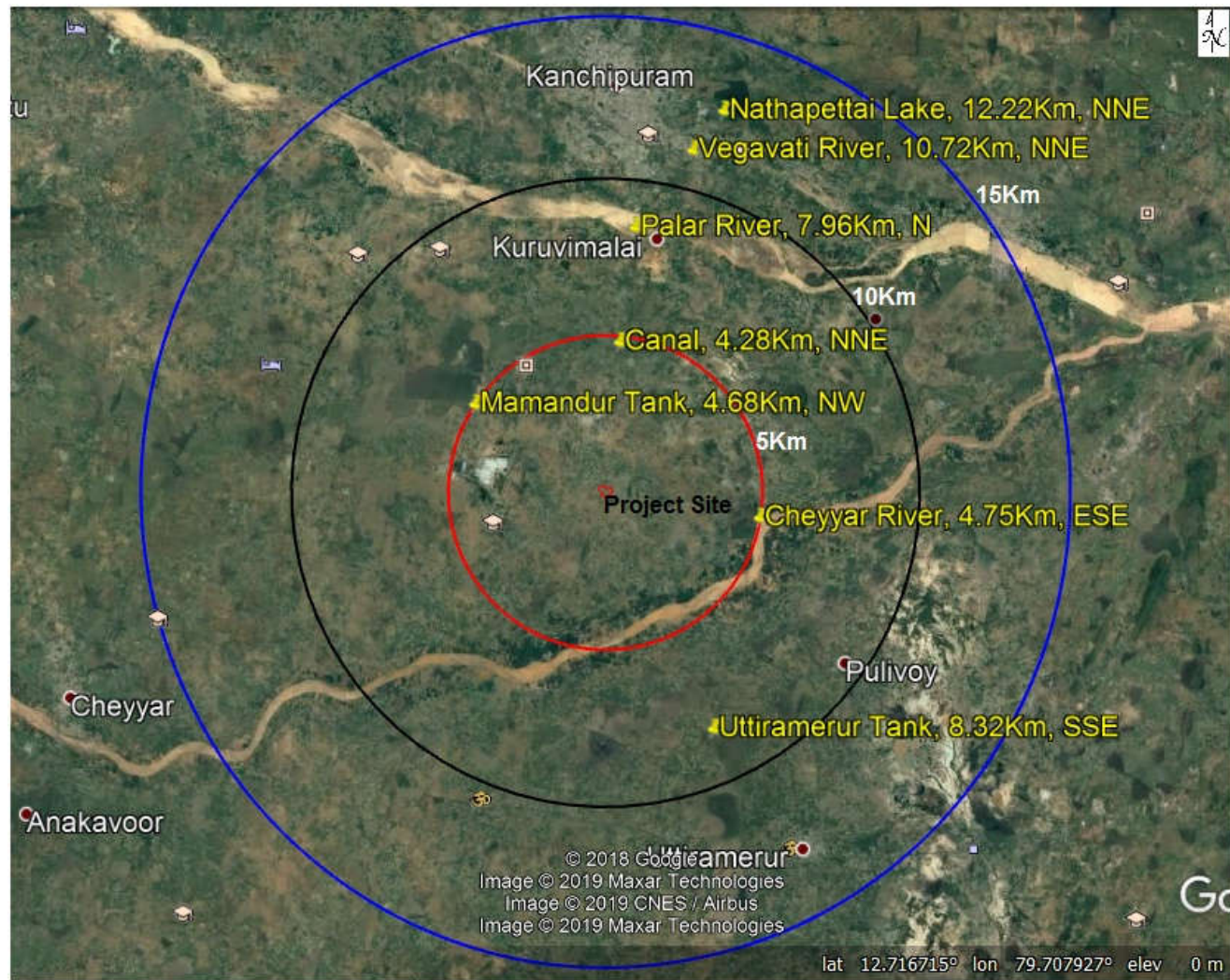


Figure-2 Environmental Sensitive map within 15km from Project boundary

IV. Project Description and Requirements

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1	Name of the Quarry	Pavoor and Ezhahceri Village Rough Stone and Gravel Quarry over extent of 10.90.35 Hectare																																																																																																				
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5	Mining Plan	The Mining Plan was approved by the Deputy Director, Department of Geology and Mining, Tiruvannamalai vide Rc.No. 182/Kanimam/2018 dated 24.05.2019..																																																																																																				
6	Boundary co-ordinates	<table border="1"> <thead> <tr> <th>B. P. No.</th> <th>Latitude</th> <th>Longitude</th> <th>Distance between the corners</th> </tr> </thead> <tbody> <tr><td>1</td><td>12°42'58"N</td><td>79°41'56"E</td><td>1-2 = 132.8 m</td></tr> <tr><td>2</td><td>12°43'02"N</td><td>79°41'56"E</td><td>2-3 = 45.4m</td></tr> <tr><td>3</td><td>12°43'02"N</td><td>79°41'55"E</td><td>3-4 = 12.2m</td></tr> <tr><td>4</td><td>12°43'03"N</td><td>79°41'55"E</td><td>4-5 = 55.0m</td></tr> <tr><td>5</td><td>12°43'04"N</td><td>79°41'53"E</td><td>5- 6 = 125.2m</td></tr> <tr><td>6</td><td>12°43'08"N</td><td>79°41'54"E</td><td>6-7 = 92.0m</td></tr> <tr><td>7</td><td>12°43'08"N</td><td>79°41'57"E</td><td>7-8 = 11..6m</td></tr> <tr><td>8</td><td>12°43'07"N</td><td>79°41'57"E</td><td>8-9=48.0m</td></tr> <tr><td>9</td><td>12°43'07"N</td><td>79°41'59"E</td><td>9-10=26.4m</td></tr> <tr><td>10</td><td>12°43'08"N</td><td>79°41'59"E</td><td>10-11=24.8m</td></tr> <tr><td>11</td><td>12°43'08"N</td><td>79°42'00"E</td><td>11-12=29.4m</td></tr> <tr><td>12</td><td>12°43'08"N</td><td>79°42'01"E</td><td>12-13=63.6m</td></tr> <tr><td>13</td><td>12°43'05"N</td><td>79°42'00"E</td><td>13-14=56.0m</td></tr> <tr><td>14</td><td>12°43'05"N</td><td>79°42'02"E</td><td>14-15=10.0m</td></tr> <tr><td>15</td><td>12°43'06"N</td><td>79°42'02"E</td><td>15-16=126.8m</td></tr> <tr><td>16</td><td>12°43'06"N</td><td>79°42'06"E</td><td>16-17=48.2m</td></tr> <tr><td>17</td><td>12°43'05"N</td><td>79°42'08"E</td><td>17-18=96.2m</td></tr> <tr><td>18</td><td>12°43'02"N</td><td>79°42'07"E</td><td>18-19=15.2m</td></tr> <tr><td>19</td><td>12°43'02"N</td><td>79°42'08"E</td><td>19-20=61.2m</td></tr> <tr><td>20</td><td>12°43'00"N</td><td>79°42'08"E</td><td>20-21=36.6m</td></tr> <tr><td>21</td><td>12°43'00"N</td><td>79°42'07"E</td><td>21-22=57.6m</td></tr> <tr><td>22</td><td>12°42'59"N</td><td>79°42'05"E</td><td>22-23=35.2m</td></tr> <tr><td>23</td><td>12°42'59"N</td><td>79°42'04"E</td><td>23-24=32.6m</td></tr> <tr><td>24</td><td>12°42'58"N</td><td>79°42'04"E</td><td>24-25=38.4m</td></tr> </tbody> </table>	B. P. No.	Latitude	Longitude	Distance between the corners	1	12°42'58"N	79°41'56"E	1-2 = 132.8 m	2	12°43'02"N	79°41'56"E	2-3 = 45.4m	3	12°43'02"N	79°41'55"E	3-4 = 12.2m	4	12°43'03"N	79°41'55"E	4-5 = 55.0m	5	12°43'04"N	79°41'53"E	5- 6 = 125.2m	6	12°43'08"N	79°41'54"E	6-7 = 92.0m	7	12°43'08"N	79°41'57"E	7-8 = 11..6m	8	12°43'07"N	79°41'57"E	8-9=48.0m	9	12°43'07"N	79°41'59"E	9-10=26.4m	10	12°43'08"N	79°41'59"E	10-11=24.8m	11	12°43'08"N	79°42'00"E	11-12=29.4m	12	12°43'08"N	79°42'01"E	12-13=63.6m	13	12°43'05"N	79°42'00"E	13-14=56.0m	14	12°43'05"N	79°42'02"E	14-15=10.0m	15	12°43'06"N	79°42'02"E	15-16=126.8m	16	12°43'06"N	79°42'06"E	16-17=48.2m	17	12°43'05"N	79°42'08"E	17-18=96.2m	18	12°43'02"N	79°42'07"E	18-19=15.2m	19	12°43'02"N	79°42'08"E	19-20=61.2m	20	12°43'00"N	79°42'08"E	20-21=36.6m	21	12°43'00"N	79°42'07"E	21-22=57.6m	22	12°42'59"N	79°42'05"E	22-23=35.2m	23	12°42'59"N	79°42'04"E	23-24=32.6m	24	12°42'58"N	79°42'04"E	24-25=38.4m
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		31	12°42'57"N	79°41'59"E	31-32=9.2m
		32	12°42'57"N	79°41'59"E	32-33=42.4m
		33	12°42'58"N	79°41'58"E	33-1=73.0m
7	Mining Methodology	Open Cast Semi Mechanism			
8	List of Machineries	S. No	Machinery	Capacity	Numbers
		1	Excavator with 0.90 m ³ bucket capacity)	0.90 m ³	1
		2	Compressor	175 CFM	2
		3	Jack Hammer	-	1
		4	Tipper	5/10 T	10
		5	JCB	75 HP	1
9	Project Categorization	B2 Category, Schedule 1(a) Mining of Minerals			
10	Land Requirement	S. No.	Land Use	Present Area (Ha)	Area in use during the quarrying period (Ha)
		1.	Quarrying Pit	Nil	8.80.00
		2.	Infrastructure	Nil	0.01.00
		3.	Roads	Nil	0.04.00
		4.	Green Belt	Nil	0.30.00
		5.	Unutilized	10.90.35	1.75.35
			Total	10.90.35	10.90.35
11	Mine Resources	Description		Rough Stone (m³)	Gravel(m³)
		Geological Resources		76,30,070	4,36,006
		Available Mineable reserves		41,22,050	3,61,396
		Recoverable within five years as per approved mining plan		41,22,050	3,61,396
12	Production Details (m ³)	<ul style="list-style-type: none"> • Rough stone: 41,22,050 • Gravel: 3,61,396 			
13	Water Requirement	S. No	Water Requirement	Capacity (KLD)	
		1.	Drinking water& Domestic	2.5	
		4.	Dust Suppression on roads	1.0	
		5.	Green Belt	1.0	
			Total	4.5	

14	Fuel Requirement	<table border="1"> <thead> <tr> <th>S. No</th> <th>Details</th> <th>Gravel (Capacity)</th> <th>Rough stone (Capacity)</th> <th>Source</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Diesel Requirements approx. (ltrs/Hour)</td> <td>60,230</td> <td>20,61,030</td> <td>HP/BPCL/ IOCL/Reliance</td> </tr> </tbody> </table>	S. No	Details	Gravel (Capacity)	Rough stone (Capacity)	Source	1	Diesel Requirements approx. (ltrs/Hour)	60,230	20,61,030	HP/BPCL/ IOCL/Reliance								
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16	Solid Waste Generation Management	<table border="1"> <thead> <tr> <th>S. No</th> <th>Type</th> <th>Kg/day</th> <th>Disposal method</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Organic</td> <td>16.25</td> <td>Municipal bin including food waste</td> </tr> <tr> <td>2</td> <td>Inorganic</td> <td>8.75</td> <td>TNPCB authorized recyclers</td> </tr> <tr> <td colspan="2">Total</td> <td>25</td> <td></td> </tr> </tbody> </table>	S. No	Type	Kg/day	Disposal method	1	Organic	16.25	Municipal bin including food waste	2	Inorganic	8.75	TNPCB authorized recyclers	Total		25			
		S. No	Type	Kg/day	Disposal method															
		1	Organic	16.25	Municipal bin including food waste															
		2	Inorganic	8.75	TNPCB authorized recyclers															
Total		25																		
17	Hazardous waste generation	<table border="1"> <thead> <tr> <th>S. No</th> <th>Waste Category No</th> <th>Description</th> <th>Quantity (kL/Year)</th> <th>Mode of Disposal</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>5.1</td> <td>Waste Oil</td> <td>4.24</td> <td>Will be Collected in leak proof containers and disposed TNPCB Authorized Agencies for Reprocessing/Recycling</td> </tr> </tbody> </table>	S. No	Waste Category No	Description	Quantity (kL/Year)	Mode of Disposal	1	5.1	Waste Oil	4.24	Will be Collected in leak proof containers and disposed TNPCB Authorized Agencies for Reprocessing/Recycling								
		S. No	Waste Category No	Description	Quantity (kL/Year)	Mode of Disposal														
1	5.1	Waste Oil	4.24	Will be Collected in leak proof containers and disposed TNPCB Authorized Agencies for Reprocessing/Recycling																
18	Analysis of Alternative Sites Considered	It is a fresh quarry. The entire rough stone and gravel will be directly loaded into tipper to the needy crushers, Rough Stone and gravel is widely used for domestic construction project.																		
19	Project Cost	<table border="1"> <thead> <tr> <th>S. No.</th> <th>Cost</th> <th>Cost in Lakhs</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Fixed Asset cost</td> <td>46, 61,400</td> </tr> <tr> <td>2</td> <td>Operational Cost</td> <td>1,05,00,000</td> </tr> <tr> <td>3</td> <td>EMP Cost</td> <td>1,80,000</td> </tr> <tr> <td>4</td> <td>Expenditure & Maintenance</td> <td>6,50,000</td> </tr> <tr> <td colspan="2">TOTAL</td> <td>1,59,91,400/-</td> </tr> </tbody> </table>	S. No.	Cost	Cost in Lakhs	1	Fixed Asset cost	46, 61,400	2	Operational Cost	1,05,00,000	3	EMP Cost	1,80,000	4	Expenditure & Maintenance	6,50,000	TOTAL		1,59,91,400/-
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		1	Fixed Asset cost	46, 61,400																
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		3	EMP Cost	1,80,000																
4	Expenditure & Maintenance	6,50,000																		
TOTAL		1,59,91,400/-																		

V. Scope of Baseline Study

S. No	Description	Details
1	Monitoring Study Period	March 2019- May 2019

2	Meteorological Environment	S. No	Parameter	Observation			
		1.	Temperature	Max Temperature : 39°C Min Temperature : 22°C Avg Temperature : 30.47°C			
		2.	Average Relative Humidity	68.9%			
		3.	Average Wind Speed	3.6m/s			
		4.	Predominant Wind Direction	South West			
3	Air, Noise, GW & Soil Quality monitoring locations	Station Code	Location	Type of Wind	Distance (km) from Project boundary	Azimuth Directions	
		A1	Project Site	-	-		
		A2	Vedal	c/w	6.37	NNE	
		A3	Chinna Ezhacheri	d/w	0.94	E	
		A4	Sittalappakkam	d/w	3.65	E	
		A5	Alisur	c/w	6.04	SSE	
		A6	Vellamalai	c/w	5.73	SW	
		A7	Narasamangalam (near Mattur)	u/w	1.54	W	
		A8	Abdullapuram	c/w	7.12	NNW	
4	Surface Water Sampling Locations	S. No	Name of the Water body	Location Code	Distance from Project Boundary	Direction from project boundary	
		1	Lake near Suruttal	SW1	4.02	NE	
		2	Palar River d/s	SW2	8.6	NE	
		3	Cheyyar River d/s	SW3	7.37	E	
		4	Uttiramerur Tank	SW4	8.4	SSE	
		5	Cheyyar River u/s	SW5	6.32	SW	

		6	Lake near Mangal	SW6	3.47	WSW
		7	Mamandur Tank	SW7	5.23	NW
		8	Palar River u/s	SW8	8.83	N

VI. Baseline Summary of the Study Area

S. No	Parameters	Baseline Status
1	Ambient Air Quality	PM10 – 42.13-69.77µg/m ³ PM2.5 – 17.68-29.10µg/m ³ NO2 – 13.39-27.92µg/m ³ SO2– 6.28-13.36µg/m ³ CO -0.058 – 0.126 mg/m ³
2	Water Quality	Surface Water pH -7 – 7.48 TDS – 1147 mg/l – 2090 mg/l Total Hardness – 491.5 mg/l –800.9 mg/l Chloride varies from 256.4 mg/l – 791.81 mg/l. Ground Water pH –6.94-7.81 TDS - 366 mg/l to 1261 mg/l Total Hardness - 146 mg/l – 697 mg/l. Chloride varies from 96.8 mg/L to 326.42 mg/L
3	Noise Level	<u>Quarry area:</u> In Industrial area day time noise levels varied from 57 dB(A) and 55 dB(A) and Night time noise levels varied from 50.2 dB(A) and 49.3 dB(A). <u>Study area :</u> In residential area day time noise levels varied from 44.8 dB(A) to 52.3 dB(A) and night time noise levels varied from 43 dB(A) to 48.3dB(A) across the sampling stations.
4	Soil Quality	pH – 7.09-8.63 EC – 36.9– 269 µS/cm. (< 2000 µS/cm) Water holding capacity – 5.9-12.43 (%). Nitrogen – 157 -931.6 mg/kg Phosphorous – 28 to 136.52 kg/ha Potassium – 169 to 339 kg/ha
5	Ecology and Biodiversity	The study area comprise of barren land and agricultural cropland. The flora observed in the study area comprise of Azadiracta indica, Ficus bengalensis, Ficus religiosa, Embilica officinalis, Ziziphus jojoba, etc.
6	Socio Economic	The project is in the village of Pavor and Ezhacheri of Vembakkam taluk of Tiruvanmalai district. The district Tiruvanmalai is bounded on the north and west by Vellore district, on the southwest by part of Dharmapuri and part of Krishnagiri district, on the south by Viluppuram district and on the east by Kancheepuram district. The population of the district is 24,64,875 which comprises of 12,35,889 males and 12,28,986 females as per 2011 Census.

VII. Anticipated Environmental Impacts

S. No	Description	Details					
	Water Environment	The total water requirement is 4.5 KLD. The total water requirement met from road tankers suppliers. The Rough Stone and gravel quarry operations will not produce any effluent. No wastewater will be discharged by quarry operation. Domestic sewage is being disposed to septic tank followed by soak pit. Septic Tank will be cleaned periodically. Mine pit water is being used for water sprinkling and greenbelt belt development					
	Air Environment	Pollutant	Max Base line Conc. (µg/m3)	Predicted Conc. at source (µg/m3)	Total Conc. (µg/m3)	NAAQ standard	% Increase
		PM10	69.77	74.87899	144.649	100	107.3226
		PM2.5	29.10	30.18223	59.28223	60	103.719
		SO ₂	13.36	0.00455	13.36455	80	0.034057
		NOx	27.92	3.63077	31.55077	80	13.00419
	Noise Environment	As a preventive measure for the noise reduction the following will be adopted. <ul style="list-style-type: none"> ➤ Greenbelt development and maintenance will attenuate the noise level. ➤ The designed equipment with noise levels not exceeding beyond the requirements of Occupational Health and Safety Administration Standard will be employed. 					
	Land Use	The mineral deposits are site specific in nature; hence question of seeking alternate site does not arise. The quarry activity does not change the land use classification of the site.					

VIII. Other

S. No	Description	Details				
		S. No	Area of Monitoring	Number of Sampling Stations	Frequency of Sampling	Parameters to be Analyzed
1	Environmental Monitoring Program	1.	Meteorology	One	Hourly and Daily basis.	Wind speed and direction, Temperature, Relative Humidity, Atmospheric pressure, Rainfall.
		2.	Ambient Air Quality	2 Stations (In downwind)	Twice a week:24 hourly period	PM ₁₀ , PM _{2.5} , SO ₂ , VOC and NO ₂
		3.	Noise	4 (two within plant premises and two outside plant premises)	Once every season	Ambient Equivalent continuous Sound Pressure Levels (Leq) at day and Night time.
		4	Exhaust from DG set	Stack of DG set	Quarterly	PM ₁₀ , PM _{2.5} , SO ₂ & CO
		5	Vehicular Emissions	Parking area	Periodic monitoring of vehicles	Air emission and noise, PCU

		6	Solid waste / Hazardous waste	Check conformance to HWM rules	Quantity and Quality monitoring	Physical state, Paint Filter Liquid test (PFLT), Loss On Drying (LOD), Loss On Ignition & Calorific Value.	
		7	Soil	Two Locations within the Project Site	Yearly Once	Physico chemical properties, Nutrients, Heavy metals	
		8	Terrestrial Ecology	Within 10km, around the project	Once in three years	Symptoms of injuries on plants	
		9	Surface/ Ground water quality	Two Locations Within Project Site	Yearly Once	As per ISO 10500 Standard parameters	
2	Pollution Control Measures	The following air pollution control measures will be adopted:					
		<ul style="list-style-type: none"> ➤ Stack will be provided with adequate height (6 m) for DG Sets. ➤ Greenbelt of 0.30.00 Ha. of land is allotted for development and maintenance will attenuate the air pollutants. ➤ Municipal Solid Wastes including food waste are disposed to municipal bin. ➤ Hazardous waste materials will be properly disposed as per the Hazardous and Other wastes (Management and Transboundary Movement) Rules 1989 and subsequent amendment in 2016 					
3	Green Belt Development	All along the boundary barrier is selected for Green belt development by planting and maintaining native species. The total area for proposed for Green belt is around 0.30.00 Ha out of 10.90.35 Ha					
4	CER plan with proposed expenditure	S. No	Period/Year	CER Activity	Beneficiary	Amount allocated (INR)	Remarks
		1	2019-2020	Writing materials and school note books	Pavoor Govt. Primary school	1,06,600	--
		2	2020-2021	Uniforms to primary School children below poverty level	Pavoor Govt. Primary school	1,06,600	--
		3	2021-2022	Bore wells for public use in nearby villages	Nearby villages	1,06,628	--
		TOTAL				3,19,828	

XI. Summary

As seen above there is no marginal impacts on air, noise, water & soil environments. The green belt will enhance the green coverage in the area & aesthetics. Rain water harvesting will enhance the ground water table. Employment generation is about 70 Nos. Fulfill the market requirement and play a vital role in the construction sectors and thereby reduce imports and address the market demand and Social benefits. ESR will provide the well-being of the society and the protection of the environment will help in conserving the ecosystem. It will also provide employment opportunities to larger population.