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6. ENVIS Centre on Wildlife and Protected Area.
7. Birds Life Data Zone
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10. http://tnenvis.nic.in/Content/1_2878.aspx
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3.9.5.3. Data compilation and analysis

Based on the collected data, analysis was done for species identification, habit distribution pattern analysis, and phytosociological relationship, and ecological index and identify the REET categories. Endemic species were analysed using distribution in the regional and local floras and online databases. Rare or Endangered or Endemic or Threatened species were analysed based on the IUCN Red List database and threatened plants of BSI (India database of Botanical Survey of India)

<https://bsi.gov.in/uploads/documents/research-program/Threatened-plants-of%20India.pdf>

<https://www.iucnredlist.org/>

3.9.6. Phytosociological Studies

Phytosociological studies are the scientific investigations that focus on understanding the structure, composition, and distribution of plant communities within a specific area. These studies examine how different plant species interact with each other and their environment, and how these interactions contribute to the overall ecological balance. Phytosociology involves categorizing plant communities based on factors like species diversity, abundance, and the physical environment, such as soil, moisture, and light availability. Sample plots were selected in such a way to get maximum representation of different types of vegetation and plots were laid out in different part of the study area. Analysis of the vegetation will help in determining the relative importance of each species in the study area and to reveal if species is threatened. Phytosociological parameters, such as Density, Frequency, Abundance and Importance Value Index of individual species were determined in randomly placed quadrat of different sizes in the study area, as shown the formula below.

$$\text{Density} = \frac{\text{Total No. of individuals of species}}{\text{Total No. of Quadrats used in sampling}}$$

$$\text{Frequency (\%)} = \frac{\text{Total No. of Quadrats in which species occur}}{\text{Total No. of Quadrats studied}} \times 100$$

$$\text{Abundance} = \frac{\text{Total No. of individuals of species}}{\text{No. of Quadrats in which they occur}}$$

$$\text{Relative Density} = \frac{\text{Total No. of individuals of species}}{\text{Sum of all individuals of all species}}$$

$$\text{Relative Frequency} = \frac{\text{Total No. of Quadrats in which species occur}}{\text{Total No. of Quadrats occupied by all species}} \times 100$$

3.9.6.1. Shannon – Wiener Index, Evenness and Richness

Biodiversity index is a quantitative measure that reflects how many different types of species, there are in a dataset, and simultaneously considers how evenly the basic entities (such as individuals) are distributed among those types of species. The value of biodiversity index increases both when the number of types increases and when evenness increases. For a given number of type of species, the value of a biodiversity index is maximized when all type of species is equally abundant. The corresponding formulas are given below.

Shannon-Wien Index $H = \sum [(p_i) * \ln(p_i)]$

Where p_i : Proportion of total sample represented by species
 i : number of individuals of species i / total number samples

Evenness H/H_{max}

Where $H_{max} = \ln(s) = \text{maximum diversity possible}$; $S = \text{No. of species}$

Species Richness by
Margalef $RI = S - 1 / \ln N$

Where $S = \text{Total Number of species in the community}$
 $N = \text{Total Number of individuals of all species in the community}$

3.9.6.2. Data compilation:

Based on the collected data, exclusive checklists were prepared for both endemic and REET plants of Tamil Nadu.

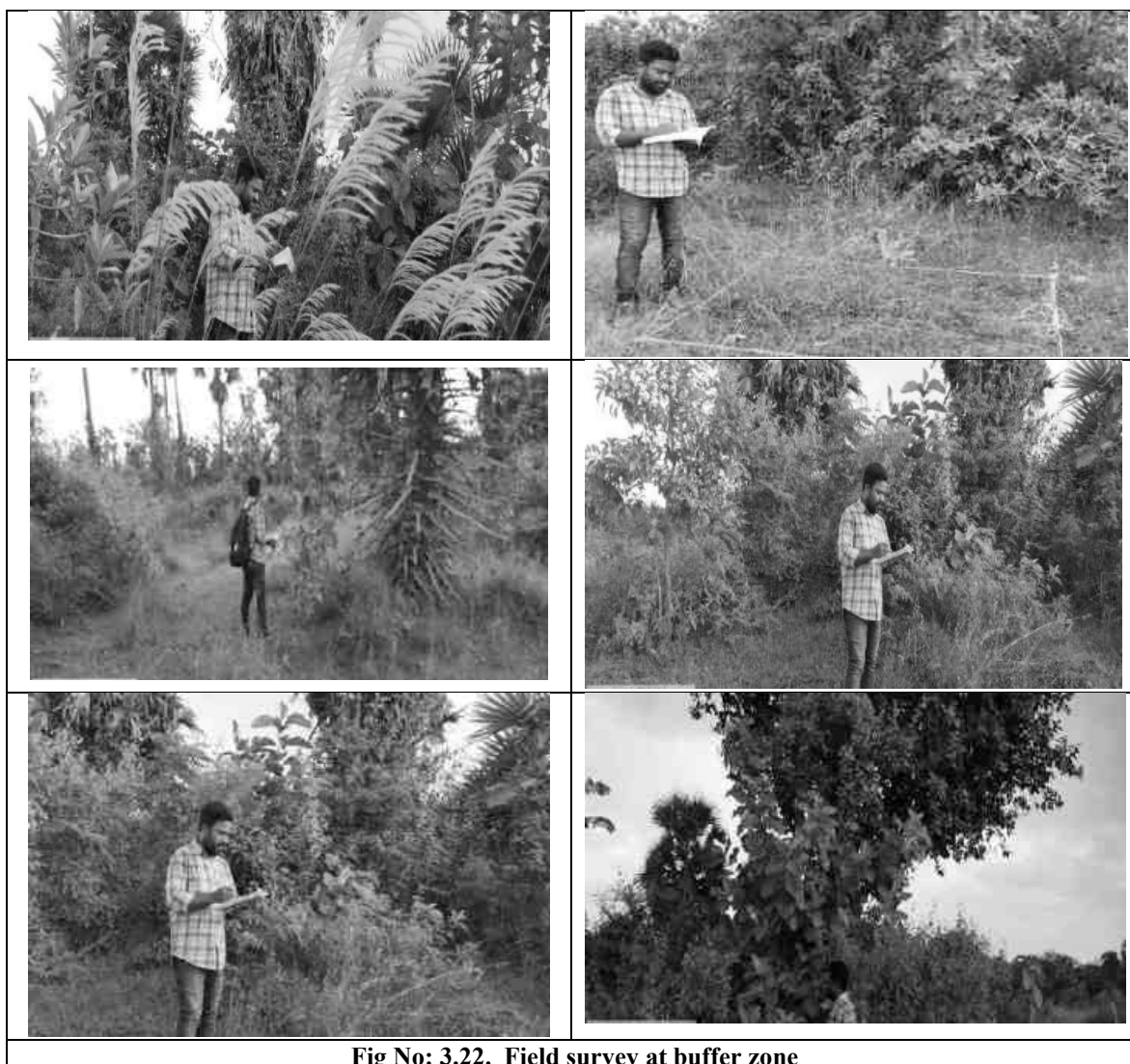


Fig No: 3.22. Field survey at buffer zone

3.10. Floral Diversity Analysis

3.10.1. Floral Diversity in core zone

Identification of plant species for the natural flora and cultivated crops was conducted through field surveys and onsite observations. The plant species identification was done based on the reference materials and also by examining the plant morphological and reproductive characteristics of the plants i.e. flowers, fruits and seeds. Unidentified and double samples were photographed and minimally collected for further investigation in the laboratory. Land use pattern in relation to agriculture crop varieties were identified through physical verification of agriculture field.

A total number of 130 species were recorded from the study area. Of the 130 species, 25 different species were observed in the core site. These floral species include 40% (10) herbs and shrubs 16% (4), trees 16% (4) Climbers 12% (3), Creepers 4% (1) and lianas 4% (1) (Fig No 3.35). The observed floral species are most commonly distributed plants and most of the herbs are annual plants herbs. herbs are dominant in the core site (Table No 3.53). The members of Lamiaceae are abundant in number (Fig No 3.36). The details of scientific names and family names of core zone flora are given in Table No 3.53.

Table No: 3.32. Occurrence of different floral habits in core and buffer zones of the study area.

Habit	Core Zone	Buffer Zone
Herbs	10	35
Grasses	2	7
Shrubs	4	20
Climbers	3	8
Creepers	1	2
Lianas	1	2
Trees	4	32
Total	25	105

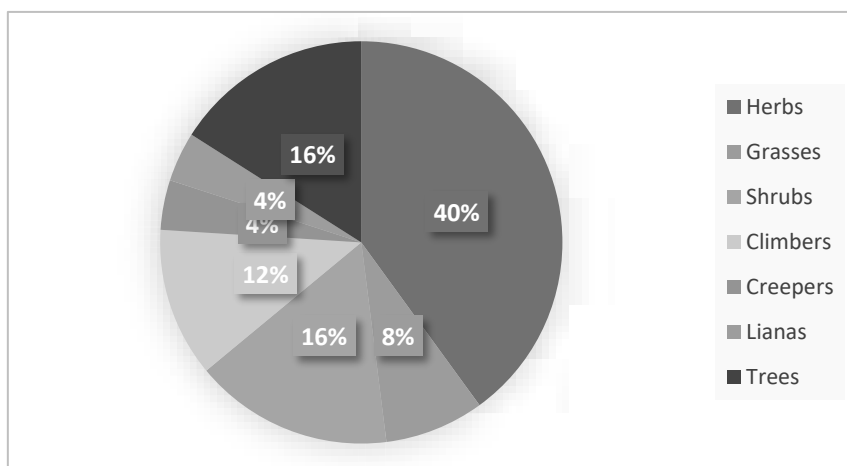


Fig No: 3.23. Habit analyses of the species recorded from core zone of the study area.

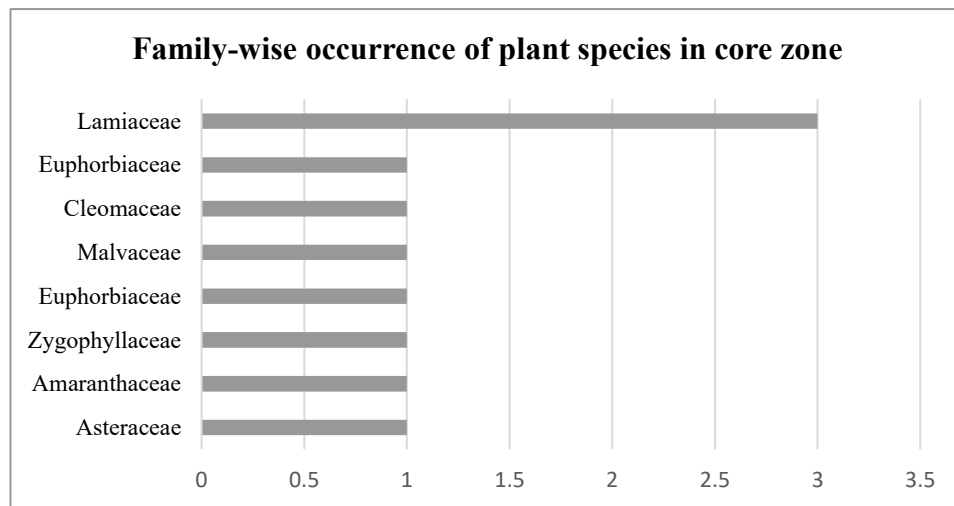


Fig No: 3.24. Family-wise occurrence of plant species in core zone



a. *Calotropis gigantea*



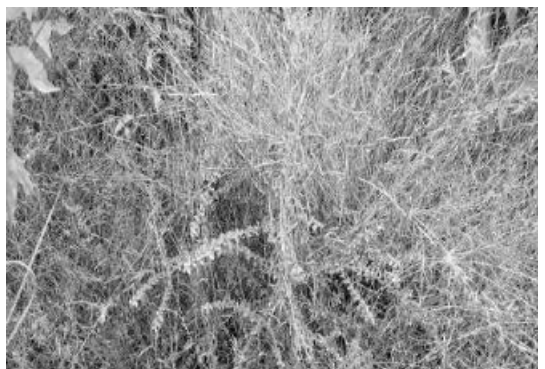
b. *Borassus flabellifer*



c. *Canthium parviflorum*



d. *Hemidesmus indicus*



Canthium coromandelicum Tridax procumbens
Fig No: 3.25. Flora species observation in the Buffer zone area

3.10.2. Tree survey around 300m radius

The trees surveys were conducted around 300m radius from the proposed project site cluster are of Pazhayaseevaram-B Village. This is the standard scientific method followed by various workers in respect of phytosociological studies (Cottom and Curtis 1956; Ralhan et al. 1982; Saxena and Sing 1982; Nayak et al. 2000; Lu et al. 2004; Nautiyal 2008). While sampling, circumference at breast Height (CBH) of tree species was measured at 1.36m from ground level, along with the name of the species, phenology (flowering, fruiting, and flushes), and uses. After surveying areas, a detailed trees inventory has been compiled. A list of all plants from the study area was prepared and their habitats were recorded. The species of trees were documented during this base line survey. The dominant plant species growing in this area were *Azadirachta indica* *Prosopis juliflora*, etc. Please refer the Table No.3.54.

Table No: 3.33. Tree survey around 300m radius from the proposed project site (Primary data)

S. No	English Name	Vernacular Name	Scientific Name	No of trees
Trees				
1.	Acacia Nilotica	Karuvelammaram	<i>Vachellianilotica</i>	11
2.	Mesquite	Mullumaram	<i>Prosopis juliflora</i>	20
3.	Neem	Vembu	<i>Azadirachta indica</i>	30
4.	White Bark Acacia	Vela maram	<i>Vachellia leucophloea</i>	18

3.11. Floral Diversity in buffer zone

The buffer zone area (observed within 1000 meter) encompassed different land use patterns. The survey in the buffer zone reveals that a total of 105 plant species were recorded from both natural and agricultural habitats. Of the recorded species, 105 species are wild and 6 are cultivated or planted species in agricultural land. The vegetation habit type analysis of buffer zone indicates that the flora composed of 33% herbs, 30% trees, 19% shrubs, 7% climbers, grasses 7%, creepers 2% and 1% lianas (Fig No 3.38 & Table No.3.56). These 120 species belong to the 37 families. The occurrence of maximum number of species are from family Fabaceae (13), followed by Euphorbiaceae (9), Poaceae (7), Solanaceae (7) and Lamiaceae (5). Other family have less than 5 species. The details of scientific name, common name, vernacular name and habit type and status of IUCN category are given in Table No 3.57. Diversity of floral families and number of species recorded from each family are given in Table No.3.55 and Fig No 3.39.

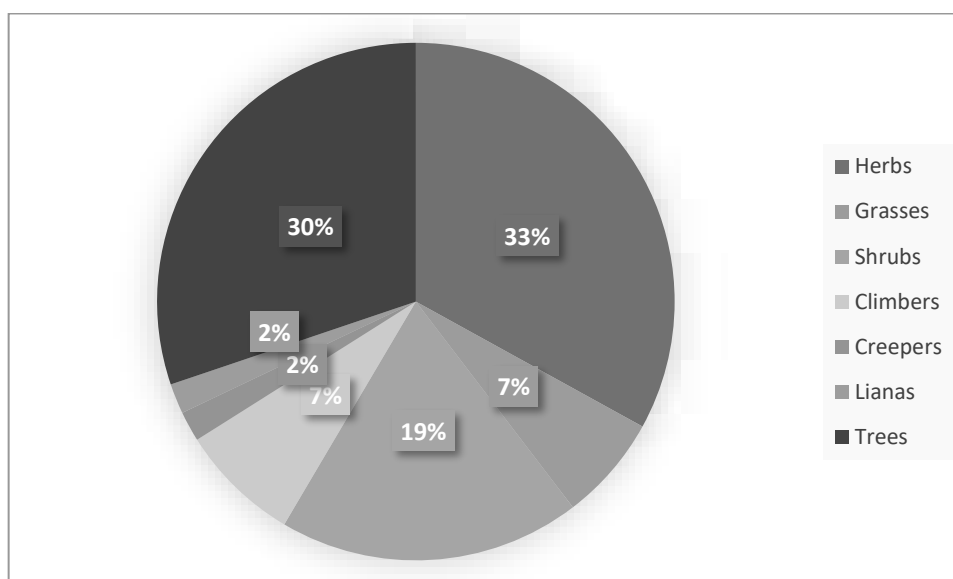
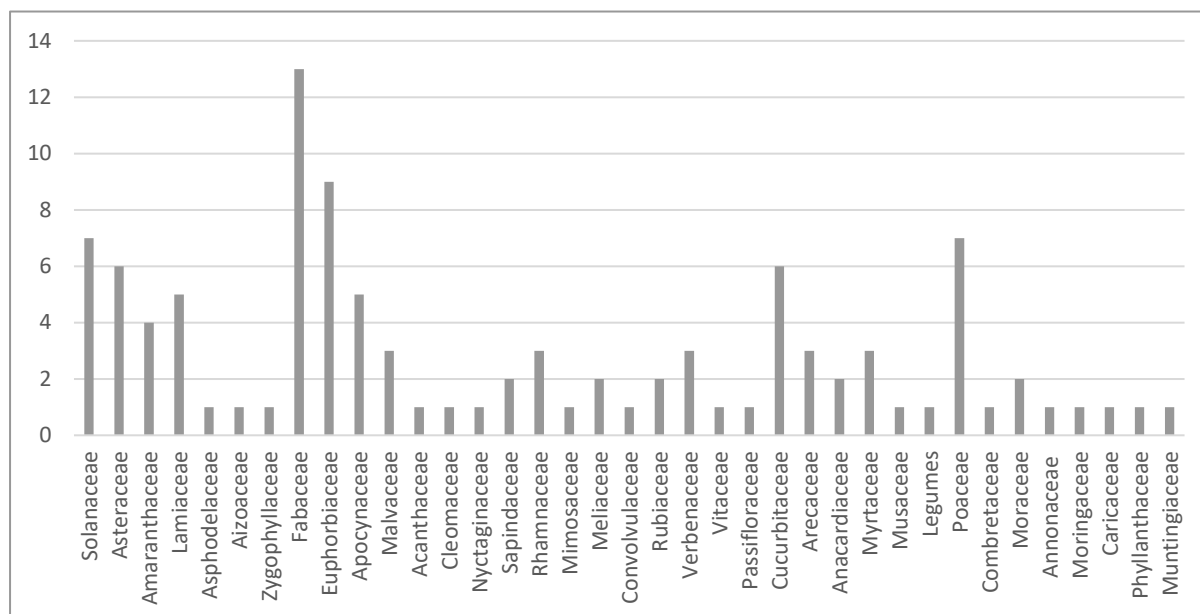


Fig No: 3.26. Habit analyses of the species recorded from buffer zone of the study area**Fig No: 3.39. Family wise occurrence of flora in buffer zone.****Table No: 3.34. Diversity of plant families and number of spices recorded in the study area**

S.No.	Family Name	Number of Species Recorded	S.No.	Family Name	Number of Species Recorded
1	Solanaceae	7	26	Anacardiaceae	2
2	Asteraceae	6	27	Myrtaceae	3
3	Amaranthaceae	4	28	Musaceae	1
4	Lamiaceae	5	29	Legumes	1
5	Asphodelaceae	1	30	Poaceae	7
6	Aizoaceae	1	31	Combretaceae	1
7	Zygophyllaceae	1	32	Moraceae	2
8	Fabaceae	13	33	Annonaceae	1
9	Euphorbiaceae	9	34	Moringaceae	1
10	Apocynaceae	5	35	Caricaceae	1
11	Malvaceae	3	36	Phyllanthaceae	1
12	Acanthaceae	1	37	Muntingiaceae	1
13	Cleomaceae	1			
14	Nyctaginaceae	1			
15	Sapindaceae	2			
16	Rhamnaceae	3			
17	Mimosaceae	1			
18	Meliaceae	2			
19	Convolvulaceae	1			
20	Rubiaceae	2			
21	Verbenaceae	3			
22	Vitaceae	1			
23	Passifloraceae	1			
24	Cucurbitaceae	6			
25	Arecaceae	3			

Table No: 3.35. Flora recorded from the study area (Core and Buffer zones) of the proposed rough stone quarry.

Herbs					
S.No	English Name	Vernacular Name	Scientific Name	Family Name	Recorded zone
1	Purple fruited pea egg plant	Thuthuvalai	<i>Solanum trilobatum</i>	Solanaceae	B
2	Coat buttons	Thatha poo	<i>Tridax procumbens</i>	Asteraceae	C+B
3	Mountain knotgrass	Siru peelai	<i>Aerva lanata</i>	Amaranthaceae	B
4	Malabar catmint	Peiviratti	<i>Anisomeles malabarica</i>	Lamiaceae	B
5	Eggplant	Kathrikkai	<i>Solanum melongena</i>	Solanaceae	B
6	Chrismas Bush	Poom pul	<i>Chromolaena odorata</i>	Asteraceae	B
7	Aloe barbadensis	Katrashai	<i>Aloe vera</i>	Asphodelaceae	B
8	Round-leaved Portulaca	Saaranai	<i>Trianthema portulacastrum</i>	Aizoaceae	B
9	Mountain knotgrass	Thengaipoo kirai	<i>Aerva lanata</i>	Amaranthaceae	B
10	Prickly chaff flower	Nayuruv	<i>Achyranthes aspera</i>	Amaranthaceae	C+B
11	Bindii	Nerunchi	<i>Tribulus terrestris</i>	Zygophyllaceae	C+B
12	Fish poison	Kolinci	<i>Tephrosia purpurea</i>	Fabaceae	B
13	Ban Tulsi	Melakai poondu	<i>Croton bonplandianus</i>	Euphorbiaceae	B
14	Indian sarsaparilla	Nannari	<i>Hemidesmus indicus</i>	Apocynaceae	B
15	Asthma-plant	Amman pacharisi	<i>Euphorbia hirta</i>	Euphorbiaceae	C+B
16	Spiny amaranth	Mullu keera	<i>Amaranthus spinosus</i>	Amaranthaceae	B
17	Chilli	Milakai	<i>Capsicum annuum</i>	Solanaceae	B
18	Ban Tulsi	Reil poondu	<i>Croton bonplandianus</i>	Euphorbiaceae	B
19	Flannel Weed	Sida mutti	<i>Sida cordifolia</i>	Malvaceae	C+B
20	Indian Copperleaf	Kuppaimeni	<i>Acalypha indica</i>	Euphorbiaceae	B
21	Marsh barbel	Neermulli	<i>Hygrophila auriculata</i>	Acanthaceae	B
22	Yellow-fruit nightshade	Kandakathirika	<i>Solanum surattense</i>	Solanales	B
23	Asian spiderflower	Naaikaduku	<i>Cleome viscosa</i>	Cleomaceae	C+B
24	Green Poinsettia	Palperukki	<i>Euphorbia heterophylla</i>	Euphorbiaceae	C+B
25	White dammar	Mookutipoondu	<i>Vicoa indica</i>	Asteraceae	B
26	False daisy	Karisalankanni	<i>Eclipta alba</i>	Asteraceae	B
27	Pignut	Nattapoochedi	<i>Hyptis suaveolens</i>	Lamiaceae	C+B
28	Field beans	Avarai	<i>Hyacinth Beans</i>	Fabaceae	B
29	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae	C+B
30	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae	C+B

31	Europeanblack nightshade	Manathakkali	<i>Solanumnigrum</i>	Solanaceae	B
32	Bright eyes	Nithiyakalyani	<i>Catharanthus roseus</i>	Apocynaceae	B
33	Carrot grass	Parttiniyam	<i>Parthenium hysterophorus</i>	Asteraceae	B
34	Red Spiderling	Mukirattai	<i>Boerhavia diffusa</i>	Nyctaginaceae	B
35	Common wireweed	Arival manai poondu	<i>Sida acuta</i>	Malvaceae	B

Shrubs					
1	Coffee senna	Peithagarai	<i>Cassia occidentalis</i>	Fabaceae	B
2	Tanner's cassia	Avaram	<i>Senna auriculata</i>	Fabaceae	B
3	Hopbush	Virali	<i>Dodonaea viscosa</i>	Sapindaceae	B
4	Castor oil plant	Amanakku	<i>Ricinus communis</i>	Euphorbiaceae	B
5	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae	C+B
6	Indian Oleander	Arali	<i>Nerium indicum</i>	Apocynaceae	B
7	Jackal jujube	Surai ilantai	<i>Ziziphus oenoplia</i>	Rhamnaceae	B
8	Triangular spruge	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae	C+B
9	Rough cocklebur	Marul-umattai	<i>Xanthium strumarium</i>	Asteraceae	B
10	Night shade plan	Sundaika	<i>Solanum torvum</i>	Solanaceae	B
11	Thorn apple	Oomathai	<i>Datura stramonium</i>	Solanaceae	C+B
12	Puriging nut	Kattamanakku	<i>Jatropha curcas</i>	Euphorbiaceae	B
13	Touch-me-not	Thottalchinungi	<i>Mimosa pudica</i>	Mimosaceae	C+B
14	Jackal jujube	Suraimullu	<i>Ziziphus oenoplia</i>	Rhamnaceae	B
15	Malabar catmint	Pei veratti	<i>Anisomeles malabarica</i>	Lamiaceae	B
16	Indian mallow	Thuthi	<i>Abutilon indicum</i>	Meliaceae	B
17	Bush Morning Glory	Neiveli Kattamani	<i>Ipomoea carnea</i>	Convolvulaceae	B
18	Carray Cheddle	Kaara	<i>Canthium parviflorum</i>	Rubiaceae	B
19	Lantana	Unni chedi	<i>Lantana camara</i>	Verbenaceae	B
20	Triangular spruge	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae	B

Climbers/ Creepers, Liana					
S.No	English Name	Vernacular Name	Scientific Name	Family Name	Recorded zone
1	Stemmed vine	Perandai	<i>Cissus quadrangularis (Cree</i>	Vitaceae	C+B
2	Love in a Mist	Poonaipiduku	<i>Passiflora vesicaria (Lia)</i>	Passifloraceae	C+B
3	Indian sarsaparilla	Nannaari	<i>Hemidesmus indicus (Cli</i>	Apocynaceae	C+B
4	Rosary Pea	Gundumani	<i>Abrus precatorius (Cli)</i>	Fabaceae	C+B
5	Ivy gourd	Kovai	<i>Coccinia grandis (Cli)</i>	Cucurbitaceae	B
6	Bitter apple	Peikkumatti	<i>Citrullus colocynthis (Cli)</i>	Cucurbitaceae	B
7	Butterfly pea	Sangu poo	<i>Clitoria ternatea (cree)</i>	Fabaceae	C+B
8	Pointed gourd	Kovakkai	<i>Trichosanthes dioica (Cli)</i>	Cucurbitaceae	B
9	Wild bitter	Pavarkai	<i>Momordica charantia (Cli)</i>	Cucurbitaceae	B
10	Balloon Vine	Mutakkaththaan	<i>Cardiospermum halicacabum (Cli)</i>	Sapindaceae	C+B
11	White pumpkin	Poosanaikkaai	<i>Cucurbitaceae (Liana)</i>	Cucurbitaceae	B
12	Cucumis maderaspatanus	Musumusukkai	<i>Mukia maderaspatana (Clim)</i>	Cucurbitaceae	B
Trees					
1	White Bark Acacia	Vela maram	<i>Vachellia leucophloea</i>	Fabaceae	C+B
2	Wild Date Palm	Icham	<i>Phoenix sylvestris</i>	Arecaceae	B
3	Indian ash tree	Othiya maram	<i>Lannea coromandelica</i>	Anacardiaceae	B
4	Indian siris	Vaaga	<i>Albizia lebbbeck (L.) Willd</i>	Fabaceae	B
5	Blue gum	Thayala maram	<i>Eucalyptus</i>	Myrtaceae	B
6	Banana tree	Vazhaimaram	<i>Musa acuminata</i>	Musaceae	B
7	Neem	Vembu	<i>Azadirachta indica</i>	Meliaceae	C+B
8	Tamarind	Puliyamaram	<i>Tamarindus indica</i>	Legumes	B
9	Mesquite	Mullu maram	<i>Prosopis juliflora</i>	Fabaceae	C+B
10	Bamboo	Moonghil	<i>Bambusa bambo</i>	Poaceae	B
11	Yellow flame tree	Perunkondrai	<i>Peltophorum pterocarpum</i>	Fabaceae	B
12	Indian almond	Padam maram	<i>Terminalia catappa</i>	Combretaceae	B
13	Asian Palmyra palm	Panai maram	<i>Borassus flabellifer</i>	Arecaceae	C+B
14	Mango	Manga	<i>Mangifera indica</i>	Anacardiaceae	B
15	Peepal	Arasanmaram	<i>Ficus religiosa</i>	Moraceae	B
16	Custard apple	Seethapazham	<i>Annona reticulata</i>	Annonaceae	B
17	Indian Jujube	Ilanthai	<i>Ziziphus jujuba</i>	Rhamnaceae	B
18	Monkey pod tree	Thungumoonchi	<i>Samanea saman</i>	Fabaceae	B
19	Teak	Thekku	<i>Tectona grandis</i>	Verbenaceae	B
20	Millettia pinnata	Pongam oiltree	<i>Pongamia pinnata</i>	Fabaceae	B

21	Coconut	Thennai maram	<i>Cocos nucifera</i>	Arecaceae	B
22	Guava	Koyya	<i>Psidium guajava</i>	Myrtaceae	B
23	Indian mulberry	Nuna maram	<i>Morinda tinctoria</i>	Rubiaceae	B
24	Portia tree	Poovarasan	<i>Thespesia populnea</i>	Malvaceae	B
25	Drumstick tree	Murunga maram	<i>Moringa oleifera</i>	Moringaceae	B
26	Papaya	Pappali maram	<i>Carica papaya L</i>	Caricaceae	B
27	Indian gooseberry	Nelli	<i>Emblica officinalis</i>	Phyllanthaceae	B
28	Madras thorn	Kudukapuli	<i>Pithecellobium dulce</i>	Fabaceae	B
29	Malayan Cherry	Ten Pazham	<i>Muntingia calabura</i>	Muntingiaceae	B
30	Jamun Fruit Plant	Naval maram	<i>Syzygium cumini</i>	Myrtaceae	B
31	Banyan tree	Alamaram	<i>Ficus benghalensis</i>	Moraceae	B
32	Chinese chaste tree	Nochi	<i>Vitex negundo</i>	Verbenaceae	B
Grasses					
1	Jungle rice	Kozhikarpul	<i>Echinochloa colona</i>	Poaceae	B
2	Swollen Windmill Grass	Kondai Pul	<i>Chloris barbata</i>	Poaceae	B
3	Nut grass	Korai	<i>Cyperus rotandus</i>	Poaceae	C+B
4	Needle Grass	Thodappam	<i>Aristida adscensionis</i>	Poaceae	B
5	Eragrostis	Pullu	<i>Eragrostis ferruginea</i>	Poaceae	C+B
6	Needle Grass	-	<i>Aristida funiculata</i>	Poaceae	B
7	Mauritian Grass	Moongil pul	<i>Aphuda mutica</i>	Amaranthaceae	B



Phoenix sylvestris



Abrus precatorius



Opuntia



Lantana camara



Azadirachta indica



Tectona grandis

Fig No: 3.27. Flora species observation in the Buffer zone area

3.11.1. The vegetation in the RF / PF areas, ecologically sensitive areas

There are no protected (PF) forests either in the mine lease area or in the buffer zone. Vadakkupattu reserve forest located about 5.0 km on NE and followed by Kaveripakkam R.F 7.6km-S and Appur R.F- 8.0km-SE Thus, no forest land is involved in any manner. Hence, no certificate from the Forest department is required. There are no impacts due to this mining activity. There are no protected or ecologically sensitive areas such as National parks or Important Bird Areas (IBAs), or Wetlands or migratory routes of fauna or water bodies or human settlements within the proposed mine lease area. There are no Biosphere reserves or wildlife sanctuaries or National parks or Important Bird Areas (IBAs), or migratory routes of fauna. Thus, the area under study (Mine lease area and the 10 Km buffer zone) is not ecologically sensitive. It is away from the proposed project site. There are neither forests nor forest dwellers nor forest-dependent communities in the mine lease area. There shall be no forest-impacted families (PF) or people (PP). Thus, the rights of Traditional Forest Dwellers will not be compromised on account of the project. There is no invasive species present in the study area.

3.11.2. UCN Red List species recorded in the in the core to buffer zone area.

Based on the IUCN Red List global assessment (Version 3.1), out of 130 species, 16 species belong to 13 families come under IUCN category. Of the 16 species, the Least Concern taxon include 9 trees, 3 climbers, and 4

shrubs. A maximum of 16 LC species belongs to the family Mimosaceae followed by Euphorbiaceae. Thorough analysis floral species indicates that there are no threatened (Vulnerable, Endangered & Critically Endangered) species recorded from the project area (both core and buffer zones). A list of the IUCN Red List analysed plant species recorded in the core and buffer zone of the proposed project site is Table No. .3.57.

<https://www.iucnredlist.org/>

<https://bsi.gov.in/uploads/documents/research-program/Threatened-plants-of%20India.pdf>

Table No: 3.36. List of IUCN Categorized Plant Species

S.No	Scientific name	Family Name	Common Name	Local name	IUCN
1	<i>Alternanthera sessilis</i>	Amaranthaceae	Joy Weed	Ponnakannikeerai	LC
2	<i>Azadirachta indica</i>	Meliaceae	Neem Tree	Veppa maram	LC
3	<i>Borassus flabellifer</i>	Arecaceae	Palmyra Palm	Panai maram	LC
4	<i>Cardiospermum halicacabum</i>	Sapindaceae	Balloon vine	Modakkathan	LC
5	<i>Euphorbia antiquorum</i>	Euphorbiaceae	Triangular spurge	Sadhurakalli	LC
6	<i>Euphorbia heterophylla</i>	Euphorbiaceae	Green Poinsettia	Palperukki	LC
7	<i>Euphorbia tricalli</i>	Euphorbiaceae	-	Kodi kalli	LC
8	<i>Lawsonia inermis</i>	Lythraceae	Henna	Maruthani	LC
9	<i>Moringa oleifera</i>	Moringaceae	Drumstick Tree	Murungai	LC
10	<i>Pergularia daemia</i>	Apocynaceae	Trellis Vine	Veli Paruthi	LC
11	<i>Syzygium cumini</i>	Myrtaceae	Indian Blackberry	Naval	LC
12	<i>Ziziphus oenopia</i>	Suraimullu	Jackal jujube	Rhamnaceae	LC
13	<i>Tribulus terrestris</i>	Zygophyllaceae	Puncture Vine	Nerunji	LC
14	<i>Vachellia leucophloea</i>	Mimosaceae	White Babool	Velvelam	LC
15	<i>Vachellia nilotica</i>	Mimosaceae	Gum Arabic Tree	Karuvelam	LC
16	<i>Ziziphus mauritiana</i>	Rhamnaceae	Indian jujube	Ilanthai	LC

3.11.3. Phytosociological analysis of floral community

For quantitative phytosociological analysis of floral community of the study area, the quadrat sampling technique was used for sampling vegetation. Sampling quadrats of the regular shape of dimensions 10 × 10 m, 5 × 5 m, and 1 × 1 m, were nested within each other and were defined as the units for sampling the area and measuring the diversity of trees, shrubs, and herbs, respectively. Phyto-sociological parameters, such as Density, Frequency, and Abundance individual species of wild Trees were determined in randomly placed quadrat of different sizes in the study area, as shown in Table No.3.56. Out of 105 species, Species Diversity index such as Shannon-Wiener Index, Evenness and Richness were calculated for 35 herbs. The results of above phyto-sociological parameters are given in Table No.3.58 and Fig No.3.41. The Shannon-Weiner Index (H) value 3.22 indicates that the herbs are rich in diversity in the study area.

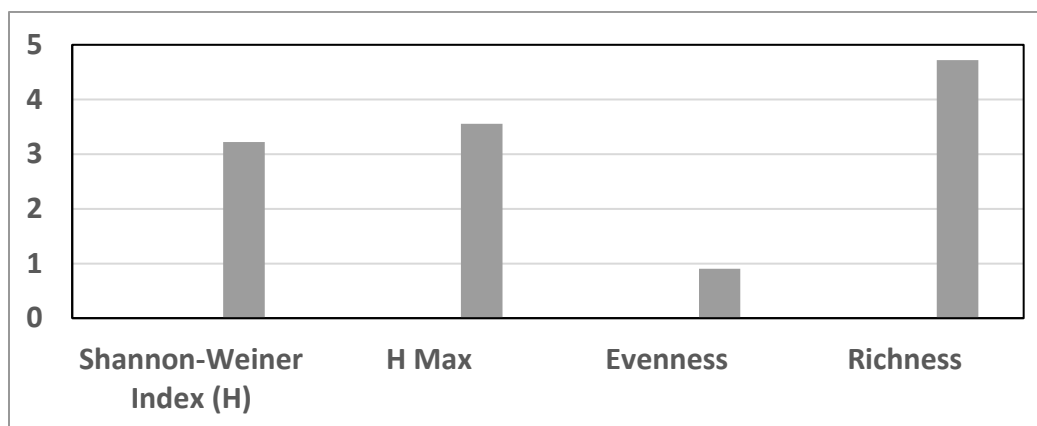
Table No: 3.37. Species diversity index

Scientific Name	Family Name	Common Name	Quadrats with	Total Quadrats	Density	Frequency	Abundance	Relative Density (RD)	Relative Frequency (RF)	Pi	lnPi	Pi x lnPi	Simpson Index $\frac{1}{\sum p_i^2}$
<i>Solanum trilobatum</i>	Solanaceae	Purple fruited pea egg plant	4	10	1.2	40	3.0	0.9	2.7	0.01	-4.72	-0.04	0.00008
<i>Tridax procumbens</i>	Asteraceae	Coat buttons	7	10	6.2	70	8.9	4.6	4.8	0.05	-3.08	-0.14	0.00213
<i>Aerva lanata</i>	Amaranthaceae	Mountain knotgrass	5	10	4.2	50	8.4	3.1	3.4	0.03	-3.46	-0.11	0.00098
<i>Anisomeles malabarica</i>	Lamiaceae	Malabar catmint	7	10	3.2	70	4.6	2.4	4.8	0.02	-3.74	-0.09	0.00057
<i>Solanum melongena</i>	Solanaceae	Eggplant	2	10	1.1	20	5.5	0.8	1.4	0.01	-4.80	-0.04	0.00007
<i>Chromolaena odorata</i>	Asteraceae	Chrismas Bush	2	10	1.2	20	6.0	0.9	1.4	0.01	-4.72	-0.04	0.00008
<i>Aloe vera</i>	Asphodelaceae	Aloe barbadensis	2	10	0.9	20	4.5	0.7	1.4	0.01	-5.01	-0.03	0.00004
<i>Trianthema portulacastrum</i>	Aizoaceae	Round-leaved Portulaca	8	10	8.4	80	10.5	6.3	5.5	0.06	-2.77	-0.17	0.00391
<i>Aerva lanata</i>	Amaranthaceae	Mountain knotgrass	4	10	1.6	40	4.0	1.2	2.7	0.01	-4.43	-0.05	0.00014
<i>Achyranthes aspera</i>	Amaranthaceae	Prickly chaff flower	10	10	5.9	100	5.9	4.4	6.8	0.04	-3.13	-0.14	0.00193
<i>Tribulus terrestris</i>	Zygophyllaceae	Bindii	8	10	4.2	80	5.3	3.1	5.5	0.03	-3.46	-0.11	0.00098
<i>Tephrosia purpurea</i>	Fabaceae	Fish poison	3	10	5.1	30	17.0	3.8	2.1	0.04	-3.27	-0.12	0.00144
<i>Croton bonplandianus</i>	Euphorbiaceae	Ban Tulsi	5	10	4.2	50	8.4	3.1	3.4	0.03	-3.46	-0.11	0.00098
<i>Hemidesmus indicus</i>	Apocynaceae	Indian sarsaparilla	4	10	1.2	40	3.0	0.9	2.7	0.01	-4.72	-0.04	0.00008
<i>Euphorbia hirta</i>	Euphorbiaceae	Asthma-plant	5	10	4.3	50	8.6	3.2	3.4	0.03	-3.44	-0.11	0.00103
<i>Amaranthus spinosus</i>	Amaranthaceae	Spiny amaranth	1	10	0.7	10	7.0	0.5	0.7	0.01	-5.26	-0.03	0.00003
<i>Capsicum annum</i>	Solanaceae	Chilli	2	10	1.1	20	5.5	0.8	1.4	0.01	-4.80	-0.04	0.00007
<i>Croton bonplandianus</i>	Euphorbiaceae	Ban Tulsi	5	10	7.4	50	14.8	5.5	3.4	0.06	-2.90	-0.16	0.00304
<i>Sida cordifolia</i>	Malvaceae	Flannel Weed	5	10	3.0	50	6.0	2.2	3.4	0.02	-3.80	-0.08	0.00050
<i>Acalypha indica</i>	Euphorbiaceae	Indian Copperleaf	2	10	2.2	20	11.0	1.6	1.4	0.02	-4.11	-0.07	0.00027
<i>Hygrophila auriculata</i>	Acanthaceae	Marsh barbel	1	10	1.1	10	11.0	0.8	0.7	0.01	-4.80	-0.04	0.00007
<i>Solanum surattense</i>	Solanales	Yellow-fruit nightshade	2	10	2.2	20	11.0	1.6	1.4	0.02	-4.11	-0.07	0.00027
<i>Cleome viscosa</i>	Cleomaceae	Asian spiderflower	4	10	4.4	40	11.0	3.3	2.7	0.03	-3.42	-0.11	0.00107
<i>Euphorbia heterophylla</i>	Euphorbiaceae	Green Poinsettia	2	10	3.2	20	16.0	2.4	1.4	0.02	-3.74	-0.09	0.00057
<i>Vicoa indica</i>	Asteraceae	White dammar	2	10	4.6	20	23.0	3.4	1.4	0.03	-3.37	-0.12	0.00117
<i>Eclipta alba</i>	Asteraceae	False daisy	3	10	3.4	30	11.3	2.5	2.1	0.03	-3.68	-0.09	0.00064
<i>Hyptis suaveolens</i>	Lamiaceae	Pignut	5	10	6.4	50	12.8	4.8	3.4	0.05	-3.04	-0.15	0.00227
<i>Hyacinth Beans</i>	Fabaceae	Field beans	2	10	1.2	20	6.0	0.9	1.4	0.01	-4.72	-0.04	0.00008
<i>Leucas aspera</i>	Lamiaceae	Common leucas	8	10	7.8	80	9.8	5.8	5.5	0.06	-2.85	-0.17	0.00337

<i>Ocimum tenuiflorum</i>	Lamiaceae	Holy basil	2	10	4.2	20	21.0	3.1	1.4	0.03	-3.46	-0.11	0.00098
<i>Solanumnigrum</i>	Solanaceae	Europeanblack nightshade	1	10	0.9	10	9.0	0.7	0.7	0.01	-5.01	-0.03	0.00004
<i>Catharanthus roseus</i>	Apocynaceae	Bright eyes	1	10	1.1	10	11.0	0.8	0.7	0.01	-4.80	-0.04	0.00007
<i>Parthenium hysterophorus</i>	Asteraceae	Carrot grass	4	10	4.2	40	10.5	3.1	2.7	0.03	-3.46	-0.11	0.00098
<i>Boerhavia diffusa</i>	Nyctaginaceae	Red Spiderling	2	10	5.1	20	25.5	3.8	1.4	0.04	-3.27	-0.12	0.00144
<i>Sida acuta</i>	Malvaceae	Common wireweed	8	10	11.6	80	14.5	8.6	5.5	0.09	-2.45	-0.21	0.00746

Table No: 3.38. Species Richness Index

Details	H	H max	Evenness	Species Richness
Herbs	3.22	3.56	0.91	4.72

**Fig No: 3.28. Species richness and evenness index.**

3.11.4. Forest details

There are no biosphere reserves, wildlife sanctuaries, National parks, important bird areas (IBAs), RAMSAR Wetland sites, or faunal migration routes within and nearby the study area. The study area, encompassing the quarry lease area and a 1 km buffer zone, is not considered ecologically sensitive. there are no reserve forests within the buffer zone Information regarding reserve forests was obtained from the Protected Area Gazette Notification Database (Tamil Nadu).

<https://dfe.gov.in/uploads/documents/ramsar-sites-pub.pdf>

3.11.5. Agriculture & Horticulture flora in the study area

Agricultural activities in the District depend on mainly North-East Monsoon and the rain fed tanks and lakes in the district. The Major Crops are Paddy, Pulses, Groundnut, Gingelly and Vegetables totalling of 109931.366 Hectares are cropped areas in the District. Agriculture is the main occupation of 47% of the population in Kancheepuram District. Paddy is the major crop cultivated in this district. Groundnuts, Sugarcane, Cereals and Millets and Pulses are the other major crops.

In Kancheepuram District, Palar and Cheyyar are the important rivers. The drainage pattern in general is sub-dendritic and radial. All the rivers are seasonal and carry substantial flows during monsoon period. River Palar, a major river course, which drains this district originates from Western Ghats in Karnataka state, and discharges in Bay of Bengal near Pudupattinam. The Cheyyar, tributary of Palar originates from the Jawadu Hills of Tiruvannamalai district. It is the north-easterly flow in Kancheepuram district and confluences with the Palar near Pazhaiyaseevaram. Other seasonal river like Korattalaier and Tandiar drain this district partly on the northern and southern part respectively.

3.11.6. Horticulture

Major horticultural crops cultivated in the district are mango, banana, Sapota, guava, watermelon, brinjal, okra, chilly, curry leaves, jasmine, tube roses and chrysanthemum.

Table No: 3.39. Agricultural activities and flora recorded from the study area

Scientific Name	Common Name	Vernacular Name
<i>Oryza sativa</i>	Rice	Nellu
<i>Arachis hypogaea</i>	Groundnut	Peanuts
<i>Zingiber officinale</i>	Ginger	Injee
<i>Vigna mungo</i>	Blackgram	Ulunthu
<i>Saccharum officinarum</i>	Sugarcane	Karumbu
<i>Musa</i>	Banana	Vazhai

3.11.7. Fauna diversity

The baseline information of the proposed project site helps predict potential impacts on wildlife and habitats in the region. Field faunal survey was conducted to gather the existing mammals, birds, reptiles, amphibians, and butterflies in core and buffer zones of the proposed project. The methodologies used included random walks, opportunistic observations (for birds and insects), visual encounter surveys (for reptiles), and tracking signs (for mammals). Additionally, during the field survey, information was collected from local residents, using images and videos as tools to know the occurrence of faunal species in the study area. Our study team engaged in discussions and consultations with locals from nearby villages, as well as with herders and farmers to get more details. To identify and analyze the data, thoroughly searched and referred the secondary literature on flora, fauna, protected areas, natural habitats, and wildlife species. Species identification was conducted in collaboration with experts from Finally, cross checked the list of identified fauna with the IUCN Red List database to determine the presence of any REET species in the study area.

3.11.8 Fauna Composition in the Core Zone and Buffer zone

The faunal species observed in the study area are given below. A total of 56 species were recorded in both the core and buffer zones of the study area. The core zone exhibited fewer species, with only a limited number of insects, mammals and reptiles, while the buffer zone showed greater species diversity. Among the 56 species recorded, the distribution pattern was as follows: 34% birds, 25% insects, 19% reptiles, 17% mammals and amphibians 5%. (Fig No 3.42). All these species were cross-checked against the IUCN Red List Database version 3.1 to identify any threatened species. Data analysis revealed that 39 species belong to IUCN categorized list as Least Concern, while 17 species were not listed. The analysis indicates that there are no REET species in the core and buffer zones of the proposed rough stone and gravel quarry.

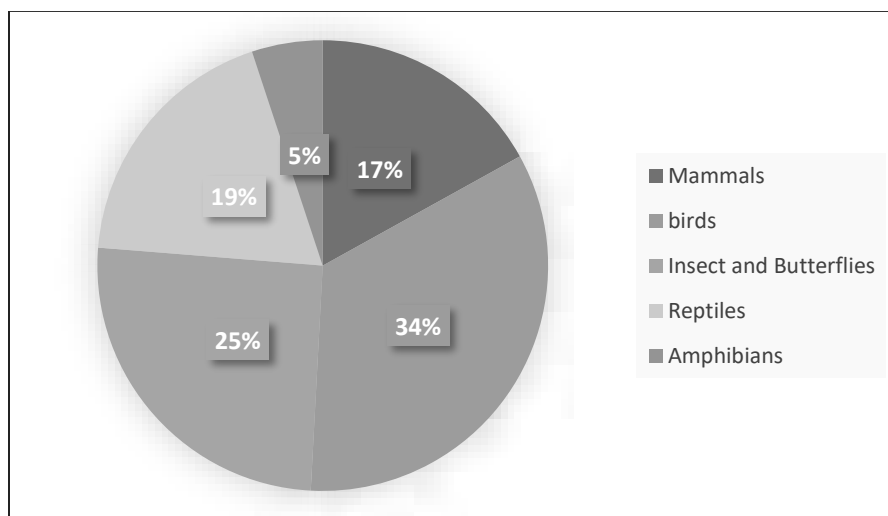


Fig No: 3.29. Occurrence of fauna in core and buffer zone

3.12.1. Mammals

The list of mammals observed including domesticated animals observed in the study areas are listed, a total 10 species were identified. Mammals traced from the site are common. There was no threatened species identified (Table No: 3.61).

Table No: 3.40. diversity of Mammals species observed in the study area.

S.No	Common Name	Scientific Name	Family Name	IUCN Status
1	House mouse	<i>Mus musculus</i>	Muridae	LC
2	Indian mole rat	<i>Bandicota bengalensis</i>	Muridae	LC
3	Greater bandicoot rat	<i>Bandicota indica</i>	Muridae	LC
4	Indian Grey Mongoose	<i>Herpestes edwardsi</i>	Herpestidae	LC
5	Goat	<i>Capra hircus</i>	Bovidae	NL
6	Indian Palm Squirrel	<i>Funambulus palmarum</i>	Sciuridae	LC
7	Cat	<i>Felis catus</i>	Felidae	NL
8	Indian hare	<i>Lepus nigricollis</i>	Leporidae	LC
9	Indian Field Mouse	<i>Mus booduga</i>	Muridae	LC
10	Cow	<i>Bos taurus</i>	Bovidae	NL

3.12.2. Aves

A total of 20 species of birds were identified by direct observations and voice-calls from the field. Also the expert opinion was sought to list the number of birds probably occurred in the area using the photographic field guide. There was no threatened species identified from the proposed site as per the IUCN status (Table No. 3.62).

Table No: 3.41. diversity of aves species observed in the study area.

S.No	Common Name	Scientific Name	Family name	IUCN Status
1	Black Drongo	<i>Dicrurus macrocercus</i>	Dicruridae	LC
2	Indian robin	<i>Copsychus fulicatus</i>	Muscicapidae	NE
3	House crow	<i>Corvus splendens</i>	Corvidae	LC
4	Pond Heron	<i>Ardeola grayii</i>	Ardeidae	LC
5	White-breasted kingfisher	<i>Halcyon smyrnensis</i>	Alcedinidae	LC
6	Rock pigeon	<i>Columba livia</i>	Columbidae	LC
7	Common myna	<i>Acridotheres tristis</i>	Sturnidae	LC
8	Rose ringed parakeet	<i>Psittacula krameri</i>	Psittaculidae	LC
9	Great Egret	<i>Ardea alba</i>	Ardeidae	NE
10	Red vented Bulbul	<i>Pycnonotus cafer</i>	passerines	LC
11	Shikra	<i>Accipiter badius</i>	Accipitridae	LC
12	Black bulbul	<i>Hypsipetes leucocephalus</i>	Pycnonotida	LC
13	Common Kingfisher	<i>Alcedo atthis</i>	Alcedinidae	LC
14	Indian Cuckoo	<i>Cuculus micropterus</i>	Cuculidae	LC
15	Small green bee eater	<i>Merops orientalis</i>	Meropidae	LC
16	House Sparrow	<i>Passer domesticus</i>	Passeridae	LC
17	Spotted dove	<i>Spilopelia chinensis</i>	Columbidae	LC
18	Little Egret	<i>Egretta garzetta</i>	Ardeidae	NE
19	Koel	<i>Eudynamis scolopacea</i>	Cuculidae	LC
20	Gray Francolin	<i>Ortygornis pondicerianus</i>	Phasianidae	LC

3.12.3. Insects

Among invertebrate, Butterflies were the most dominant category identified from the field. A total of 15 species were identified from the field and one species is in the least concerned category (Table No 3.63).

Table No: 3.42. Diversity of Insects species observed in the study area.

S.No	Common Name	Scientific Name	Family Name	IUCN Status
1	Tawny coster	<i>Acraea terpsicore</i>	Nymphalidae	NL
2	Common rose	<i>Pachliopta aristolochiae</i>	Papilionidae	LC
3	Common mormon	<i>Papilio polytes</i>	Papilionidae	LC
4	Common tiger	<i>Danaus genutia</i>	Nymphalidae	LC
5	Lime Butterfly	<i>Papilio demoleus</i>	Papilionidae	LC
6	Plain Tiger butterfly	<i>Danaus chrysippus</i>	Nymphalidae	LC
7	Indian black ant	<i>Camponotus compressus</i>	Formicidae	NL
8	Caper white	<i>Belenois aurota</i>	Pieridae	NL
9	Common Castor	<i>Ariadne merione</i>	Nymphalidae	NL
10	Termite	<i>Odontotermes assmuthi</i>	Termitidae	NL
11	Chocolate pansy	<i>Junonia iphita</i>	Nymphalidae	NL
12	Lemon pansy	<i>Junonia lemonias</i>	Nymphalidae	NL
13	Crimson tip	<i>Colotis danae</i>	Pieridae	LC
14	Small Cupid	<i>Chilades parrhasius</i>	Lycaenidae	NL
15	Common crow	<i>Euploea core</i>	Nymphalidae	NL

3.12.4. Reptiles

There were 11 different reptile species were spotted in the study area. All the species are least concern category.

Table No: 3.43. Diversity of Reptile's species observed in the study area.

S.No	Common Name	Scientific Name	Family Name	IUCN Status
1	Oriental garden lizard	<i>Calotes versicolor</i>	Agamidae	LC
2	Rat snake	<i>Ptyas mucosa</i>	Colubridae	LC
3	House lizards	<i>Hemidactylus flaviviridis</i>	Gekkonidae	LC
4	Common skink	<i>Mabuya carinatus</i>	Scincidae	LC
5	Streaked kukri snake	<i>Oligodon taeniolatus</i>	Colubridae	LC
6	Snake eyed lizard	<i>Ophisops leschenaultii</i>	Lacertidae	LC
7	White-spotted supple skink	<i>Lygosoma albopunctata</i>	Scincidae	LC
8	Green vine snake	<i>Ahaetulla nasuta</i>	Colubridae	LC
9	Green keel back	<i>Rhabdophis plumbicolor</i>	Colubridae	LC
10	Common skink	<i>Mabuya carinatus</i>	Scincidae	NL
11	South Indian rock agama	<i>Psammophilus dorsalis</i>	Agamidae	LC

*There is no Invasive alien species (IAP) in the study area.

3.13. Aquatic Ecology

Small seasonal waterbodies are located nearby the study area. There is no aquatic flora and, aquatic fauna. Aquatic weeds are found to be growing everywhere in 10 km radius area, in every water bog, pond, etc. Typha angustata can be found growing all along the drains of villages, small water-logged depressions, and agricultural fields lacking water but containing enough moisture to support its growth. And where water is present, Eichhornia crassipes has taken its roots and covers the entire water surface by its sprawl and invasion.

3.13.1. Objectives of Aquatic Studies

- ✓ Generating data through actual field collection in these locations over the study period.
- ✓ Impacts on aquatic fauna/flora

- ✓ Consulted with locals to obtain knowledge about aquatic flora and animals.

3.13.2. Macrophytes

The macrophytes observed within the study area are Tabulated in Table No 3.65.

Table No.3.44. Description of Macrophytes

S.No	Scientific name	Common Name	IUCN
1.	<i>Aponogeton natans</i>	Floating laceplant	NA
2.	<i>Cyperus exaltatus</i>	Tall Flat Sedge	LC
3.	<i>Carex cruciata</i>	Cross Grass	NA
4.	<i>Hydrilla verticillata</i>	Water thymes	LC
5.	<i>Eichornia crassipe</i>	Water hyacinth	NA
6.	<i>Marsilea quadrifolia</i>	Water clover	LC

3.13.3. Aquatic Faunal Diversity

Amphibian species like the common Indian Burrowing frog, and Indian Pond Frog, Indian Toad, Indian Bull Frog, were sighted near the water bodies located in the study area.

Table No. 3.45. Amphibians Observed/Recorded from the Study Area

S.No	Scientific Name	Common Name	IUCN
1	<i>Sphaerotheca breviceps</i>	Indian Burrowing frog	LC
2	<i>Euphlyctis hexadactylus</i>	Green pond frog	LC
3	<i>Bufo melanostictus</i>	Indian Toad	LC

3.13.4. Fishes

Fish is commonly found in all types of natural water bodies and very common source of food in Eastern South India. The local fishermen were enquired and also the secondary resources were reviewed to collect information on the fish found in the study area. Few common species are reported in the study area are given in Table No 3.68.

Table No: 3.46. Based on Actual Sighting, based on inputs from locals and Perused from Secondary Data

S.No	Common name	Scientific name	Family
1.	Dwarf panchax	<i>Aplocheilichthys parvus</i>	Aplocheilichthidae
2.	Mrigal	<i>Cirrhinus mrigala</i>	Chordata
3.	Catla	<i>Catla Catla</i>	Cyprinidae
4.	Rohu	<i>Labeo rohita</i>	Cyprinidae
5.	Catfish	<i>Siluriformes</i>	Diplomystidae

3.13. Findings/Results

The assessment was carried out during the summer season. The inspection day was quite alright with respectable weather. The details of the flora and fauna observed are given below.

Records of threatened species in the area

No threatened species were observed

Endangered Species as per Wildlife (Protection) Act

No Endangered fauna was recorded in the project area.

Endemic Species of the Project areas

No endemic species were observed in the project area.

Migratory species of the Project areas

No migratory fauna observed in project area.

Migratory corridors and Flight paths

No migratory corridors and Flight paths were observed in project area.

Breeding and spawning grounds

No breeding and spawning grounds were earmarked for the wildlife fauna in project area.

There are no critically endangered, endangered, vulnerable and endemic species were observed. As the rainfall in the area is scanty and as no toxic wastes are produced or discharged on account of mining, the proposed mining activity is not going to have any additional and adverse impacts on these RET species. There are no ecologically sensitive areas or protected areas within the 10 Km radius. Hence no specific conservation for conservation of any RET species or Wildlife is envisaged.

There are no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar sites, Tiger/Elephant Reserves /(existing as well as proposed) within 10 km of the mine lease area. There are no protected forests within the project area. Hence submission of clearance from the National Board of Wildlife does not arise.

There is no endangered, endemic and RET Species. There is no Schedule I species in study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] The proposed project is not going to have any direct or indirect adverse impact on the species mentioned above.

3.14. Interpretation& Conclusion

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 mining operation over short period of time will not have any significant impact on the surrounding flora and fauna.

Reference:

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- Reptiles : <https://www.researchgate.net/publication/354269704>
- Butterflies : <https://www.researchgate.net/publication/346393903>
- Birds : <https://avibase.bsc-eoc.org/checklist.jsp?region=INsetnkc>
- Trees : <http://www.ethnobiomed.com/content/2/1/43>

3.15 SOCIO ECONOMIC ENVIRONMENT

The major developmental activities in mining /Industrial sector are required for economic development as well as creation of employment opportunities (direct and indirect) and to meet the basic/modern needs of the society, which ultimately results in overall improvement of the quality of life through upliftment of social, economic, health, education and nutritional status in the project region, state as well as the country. In this manner all developmental projects have direct as well as indirect relationships with socioeconomic aspects, which also include public acceptability for new developmental projects. Thus, the study of socioeconomic component incorporating various facets related to prevailing social and cultural conditions and economic status of the Roughstone and Gravel quarry

project region is an important part of EIA study. The study of these parameters helps in identification, prediction and evaluation of the likely impacts on the socio economics and parameters of human interest due to the project.

3.15.1 Objectives of the Study

The objectives of the socio-economic impact assessment are as follows:

- a) To study the socio-economic status of the people living in the study area of the project.
- b) To identify the basic needs of the nearby villages within the study area.
- c) To assess the impact on socio-economic environment due to the project.
- d) To provide the employment and improved living standards.
- e) To study the socio-economic status of the people living in the study area Roughstone and Gravel quarry project region
- f) To assess the impact on socio-economic environment due to Roughstone and Gravel quarry project region
- g) To analysis of impact of socio economic and Environmental Infrastructure facilities and road accessibility.

3.15.2 Scope of Work

- To study the Socio-economic Environment of area from the secondary sources
- Data Collection and Analysis
- Identification of impacts due to the mining projects
- Mitigation Measures

3.15.3 Methodology

The methodology adopted for the socio-economic impact assessment is as follows:

- a) The details of the activities and population structure have been obtained from Census 2001 and 2011 and analyzed.
- b) Based on the above data, impacts due to plant operation on the community have been assessed and recommendations for further improvement have been made.

3.15.4 Sources of Information and Data Base

To achieve the above objectives, the information has been collected from both primary and secondary sources. Both primary data and secondary data have been analyzed by means of suitable statistical techniques for the purpose of verifying the above selected hypotheses concerned with the surrounding area.

3.15.5 Primary Survey

The primary data collection includes the collection of data through a structured interview schedule by direct observation method. The questionnaire survey includes both open and closed methods. The sample size is limited respondents, who were selected on the basis of simple random sampling from Sirumailour Village, Uthiramerur Taluk, Kancheepuram District, Tamil Nadu State, in the field survey has been divided into three major segments namely Primary Zone (0 - 3 km), Secondary Zone (3 - 7 km) and tertiary Zone (7 - 10 km).

The questionnaires were designed to suit the subjects considering their rural background enabling to furnish correct information and data as far as possible. Data were collected at village level and household level by questionnaires and focused group discussions.

The study area for the field survey has been divided into three major segments namely Primary Zone (0 - 3 km), Secondary Zone (3 - 7 km) and Outer Zone (7 - 10 km).

3.15.6 Collection of Data from Secondary Sources

Data from secondary sources were collected on following aspects:

- Demographic profile of the area
- Economic profile of the area

Table 3.47 Type of Information and Sources

Information	Source
-------------	--------

Demography	District Census Handbook, Govt. of India
Economic profile of the area	Census of India, Tamil Nadu State

b) Data Presentation and Analysis

The data collected were presented in a suitable, concise form i.e., tabular or diagrammatic or graphic form for further analysis. These tabulated data were interpreted and analyzed with the help of various qualitative techniques and ideographic approaches.

3.15.7 Background Information of the Area

Tamil Nadu is the 11th largest states in India in terms of area. The state is the seventh most populous state in the country and its main language Tamil has origins that date back to 500 BC. Chennai is the capital of Tamil Nadu and lies on the eastern coast line of India. Tamil Nadu is famous for its wonderful temples and monuments that have been built 1000s of years ago and has places that have been marked as heritage sites by the United Nations. In a 180-degree paradigm shift, this state with a rich historical importance is also one of the fastest developing centre for technology and trade.

The State can be divided broadly into two natural divisions (a) the Coastal plains of South India and (b) the hilly western area. Parallel to the coast and gradually rising from it is the broad strip of plain country. It can further be subdivided into coromandal plains comprising the districts of Kancheepuram, Cuddalore and Vellore. The alluvial plains of the Cauvery Delta extending over Thanjavur and part of Tiruchirapally districts and dry southern plains in Madurai, Dindigul, Ramanathapuram, Sivaganga, Virudhnagar, Tirunelveli and Tuticorin districts. It extends a little beyond Western Ghats in Kanyakumari District. The Cauvery Delta presents some extremely distinctive physical and human features, its power being a main factor in the remarkable growth, the towns of Tamilnadu have witnessed.

3.15.8 Geography of the Area

Tamil Nadu is one of the 28 states of India, located in the southernmost part of the country. It extends from 8°4'N to 13°35'N latitudes and from 76°18'E to 80°20'E longitudes. Its extremities are

- in eastern - Point Calimere
- in western - hills of Anaimalai
- in northern - Pulicat lake
- in southern - Cape Comorin

It covers an area of 1,30,058 sq.km and 11th largest state in India. It covers 4% of the area of our country. Tamil Nadu is bounded by the Bay of Bengal in the east, Kerala in the west, Andhra Pradesh in the north, Tamil Nadu in the northwest and Indian Ocean in the south. Gulf of Mannar and Palk Strait separate Tamil Nadu from the Island of Sri Lanka, which lies to the southeast of India.

Already we have learnt that the state of Tamil Nadu had only 13 districts at the time of its formation. After that, the state was reorganised several times for the administrative convenience. At present there are 37 districts in Tamil Nadu, including the newly created districts such as Kallakurichi, Tenkasi, Chengalpet, Ranipet and Tirupathur.

3.15.9 Population Growth Rate

In 1991, there were only 21 districts in the State of Tamil Nadu. In 2001, eight new districts were created by reorganising the territorial jurisdiction. The seven districts are – Kancheepuram, Namakkal, Perambalur, Viluppuram, Thiruvavur, Nagapattinam, and Theni. The population and its growth trend are important economic factors in a developing economy.

Year	Tamil Nadu	India
1941	11.91	14.22
1951	14.66	13.31

1961	11.85	21.51
1971	22.30	24.80
1981	17.50	24.66
1991	15.39	23.86
2001	11.19	21.34
2011	15.61	5.96
2021	5.96	1.0

3.15.10 Kancheepuram District

Kancheepuram district is situated on the northern East Coast of Tamil Nadu and is adjacent by Bay of Bengal and Chennai city and is bounded in the west by Vellore and Thiruvannamalai district, in the north by Thiruvallur district and Chennai district, in the south by Villuppuram district in the east by Bay of Bengal. It lies between 11° 00' to 12° 00' North latitudes and 77° 28' to 78° 50' East longitudes. The district has a total geographical area of 1704.79 Sq. Kms and coastline of 87.2 Kms. Kancheepuram, the temple town is the district headquarters. For administrative reasons, the district has been divided into 2 revenue divisions comprising of 5 taluks with 520 revenue villages. For development reasons, it is divided into 5 development blocks with 274 Village Panchayats.

Source: <https://kancheepuram.nic.in/about-district/>

3.15.10.1 Study area- Pazhayaseevaram B Village, Walajabad Taluk

Pazhayaseevaram is a village located in Walajabad Taluk of Kancheepuram district in Tamil Nadu. Around 185 families reside in Pazhayaseevaram village. Walajabad village is administered by Sarpanch (Head of village) who is elected every five years.

As per the Census India 2011, Pazhayaseevaram B village has population of 5634 of which 2792 are males and 2832 are females. The population of children between age 0-6 is 681 which is 12.08% of total population. The sex-ratio of Pazhayaseevaram village is around 932 compared to 996 which is average of Tamil Nadu state.

The literacy rate of Pazhayaseevaram village is 71.94% out of which 81.60% males are literate and 62.35% females are literate.

There are 43.34% Scheduled Caste (SC) and 0.58% Scheduled Tribe (ST) of total population in Pazhayaseevaram B village.

Table. 3.48 Pazhayaseevaram Village Population Facts

Number of Households	1,411
Population	5,634
Male Population	2,792 (50.44%)
Female Population	2,842 (49.55%)
Children Population	681
Literacy	71.94%
Male Literacy	81.60%
Female Literacy	62.35%
Scheduled Tribes (ST) %	33(0.58%)
Scheduled Caste (SC) %	2442(43.34%)

Source: <https://www.censusindia2011.com/tamil-nadu/kancheepuram/uthiramerur/sirumailur-population.html>

1.7.11 Working Population- Pazhayaseevram B Village, Walajabad Taluk

In Pazhayaseevram village out of total population, 2158 were engaged in work activities. 81.2% of workers describe their work as Main Work (Employment or Earning more than 6 Months) while 18.8% were involved in Marginal activity providing livelihood for less than 6 months. Of 2158 workers engaged in Main Work, 141 were cultivators (owner or co-owner) while 273 were Agricultural labourers.

Table. 3.49 Pazhayaseevram B Village Working Population Facts

Particulars	Total	Male	Female
Main Workers	1753	1360	393
Cultivators	141	113	28
Agriculture Labourer	273	158	115
Household Industries	21	13	8
Other Workers	1318	1076	242
Marginal Workers	405	227	178
Non Working	3476	1205	2271

<https://www.censusindia.co.in/villages/Pazhayaseevram-population-kancheepuram-tamil-nadu-629771>

3.15.13 Recommendation and Suggestions

The village development plans are made in consultation with the community through Gram Sabha; these appear to address the needs of the community. However, it may be noted that at the implementation stage these plans often are fraught with problem of inadequate funds, lack of proper planning, corruption, vested interests and political agendas. Hence while ascertaining the scope for convergence with the government activities, care must be taken to ascertain realistic possibilities for implementation.

- **Women empowerment**– Home based income generation activities, vocational training programs and common education centre for increasing the literacy rate.
- **Education** – Free uniform, construction of common rooms and library, computer education and physical education, additional schools for girls, furniture and equipment in schools, up-gradation of existing school infrastructure.
- **Agriculture/livestock** – Infrastructure such as agricultural practices, electricity connections, assistance with buying improved tools and equipment, capacity building, supply and/or knowledge of better variety of seeds, pasture land development and trainings on animal husbandry & facility of veterinary doctor.
- **Health** – Improvements in sanitary conditions of villages, assistance with construction of latrines, improvement in drainage system, health camps and awareness campaigns for diseases like Covid-19, malaria, typhoid, tuberculosis, yellow fever and pneumonia. Repairing of PHCs and Anganwadi centers.
- **People with disability** – Establishment of center for special education, sensitization of the community towards disabled and awareness on Government schemes.
- While **Developing an Action Plan**, it is very important to identify the population who falls under the marginalized and vulnerable groups. So that special attention can be given to these groups with special provisions while making action plans.
- **Connectivity** –Transport connectivity to easiness accessibility to the region.

3.15.14 Conclusion

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.

To evaluate the impacts of proposed quarry project on the surrounding area, it is vital to assess the baseline status of the environmental quality in the locality of the site. Hence it can be concluded that the present environment status of the study area will not be affected by the project as Sirumailour rough stone and gravel cluster Quarries, will adopt adequate control measures to protect the surrounding environment and will contribute in development of the study areas.

The proposed project 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.

3.7.14 Structure Map upto 300m radius

Fig 3.30 Structure Map 300m



Table No 3.50 Structures details in the study area around 300m Radius

50 -300m radius
Number of Structures – Nil

CHAPTER – 4: ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.0 General

The environmental impact can be categorized as either primary or secondary, primary impacts which are attributed directly by the project; secondary impacts are those which are indirectly induced. The open cast mining operations involve development of benches, Approach Road, Haul Road, Excavation and handling of material. If adequate control measures are not taken to prevent/mitigate the adverse environmental impacts/lead to damage of the eco-system.

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 for sustainable resource extraction. Based on the baseline environmental status at the existing mine site, the environmental factors that are likely to be affected (Impacts) are identified, quantified and assessed. The various anticipated impacts will be on

- Land environment
- Water Environment
- Air Environment
- Noise Environment
- Socio economic environment
- Solid waste
- Soil environment

In general, the main findings regarding the potential impacts of climate change are Land Use Type, Energy Use, Water use & Dust emission and Biodiversity & rehabilitation.

Whereas, this mining activity is restricted to a small-scale mining and the proposal falls in “B1” Category, the surrounding environment is already subjected to mining activities and based on the past weather data its inferred that there is no much of change in the climate data of the region and the district profile has no records or past history of climate change leading to Droughts and floods.

- The mine pit shall act as a rain water harvesting structure and formation of garland drains along the mine lease boundary to divert the surface runoff and collecting the runoff water for greenbelt development and dust suppression activities shall prove beneficial.
- The greenbelt development plan, all along the mine lease boundary, along with the budget allocation for the proposed mitigation measures shall prove beneficial to surrounding environment.
- Therefore, the implementation of proposed mitigation measures for winning of mineral may not have much of impact on the surrounding Climate Change

4.1 Land Environment

4.1.2 Anticipated Impact from all Proposed Projects

- 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 cause the siltation of water course.
- Impact due to heritage site, Archaeological sites.

4.1.2.1 Common Mitigation Measures for Proposed Projects

- 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 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
- There are no Archaeological sites, heritage site in the vicinity of the project area, the topography will be changed due to excavation of rough stone and Gravel.

4.2 Soil Environment

4.2.1 Impact on Soil Environment

The top layer of the project site in the form of Gravel formation, the Gravel will be directly loaded into tippers for the filling and levelling of low-lying areas. There is no disposal of Gravel. The excavated rough stone will be directly loaded into dumpers to the needy customers.

There will be no disposal of waste water from the quarry operation, No discharge of toxic effluent from the proposed projects. The dust emission at working face and haul roads will be controlled by water sprinkling and plantation.

Erosion and Sedimentation (Removal of protective vegetation cover; Exposure of underlying soil horizons that may be less pervious, or more erodible than the surface layers; Reduced capacity of soils to absorb rainfall; Increased energy in storm-water runoff due to concentration and velocity; and Exposure of subsurface materials which are unsuitable for vegetation establishment).

4.2.2 Common Mitigation Measures

- Run-off diversion – Garland drains will be constructed all around the project boundary to prevent surface flows from entering the quarry works areas. And will be discharged into vegetated natural drainage lines, or as distributed flow across an area stabilised against erosion.
- Sedimentation ponds - Run-off from working areas will be routed towards sedimentation ponds. These trap sediments and reduce suspended sediment loads before runoff is discharged from the quarry site. Sedimentation ponds should be designed based on runoff, retention times, and soil characteristics. There may be a need to provide a series of sedimentation ponds to achieve the desired outcome.
- Retain vegetation – Retain existing or re-plant the vegetation at the site wherever possible.
- Monitoring and maintenance – Weekly monitoring and daily maintenance of erosion control systems so that they perform as specified specially during rainy season.

4.2.3 Waste Dump Management

There are no wastages anticipated in this rough stone and gravel quarrying operation. The entire quarried out materials will be utilized (100%). The overburden in the form of gravel formation the gravel will be also sold to needy customers for the filling and levelling of low-lying areas.

4.3 Water Environment

4.3.1 Anticipated Impact on Surface and ground water

The impact due to quarrying on the water quality is expected to be insignificant because of no use of chemicals or hazardous substances during quarrying process. The quarrying activity will not intersect ground water table as the maximum depth of the quarry is 43m and water table is found at 70m in summer season and 65m in rainy season.

The quarrying operation will be carried out well above the water table. There is no intersection of surface water bodies (Streams, Canal, Odai etc.) in the project area. During rainy season rain water will be collected in the quarry pit and later used for greenbelt development and for the water sprinkling in the haul roads. There is no proposal for discharging of quarry pit water outside the project area.

TABLE 4.1: WATER REQUIREMENTS

*Purpose	Quantity	Source
Dust Suppression	0.8KLD	From Existing bore wells from nearby area
Green Belt development	0.7KLD	From Existing bore wells from nearby area
Domestic purpose	0.6KLD	From existing, bore wells and drinking water will be sourced from Approved water vendors.
Total	2.1 KLD	

Source: Approved Mining Plan Pre-Feasibility Report

Total water requirement in the proposed project is about 2.1 KLD, the water for dust suppression and greenbelt development will be sourced from Existing bore wells from nearby area collected during rainy seasons, the water for domestic purpose and drinking will be sourced from the approved water vendors.

4.3.2 Common Mitigation measures:

- Garland drain, settling tank will be constructed along the mining lease area. The Garland drain will be connected to settling tank and sediments will be trapped in the settling traps and only clear 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 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 system.
- 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 (every 6 months once) 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 (every 6 months once) and analysing the quality of water in open well, bore wells and surface water.

Possibilities of water contamination and impact on an aquatic ecosystem health

- Anticipated impact from this proposed mining activity is surface runoff from cleared surfaces, or discharges from the quarry pit or floor, is likely to have elevated levels of sediment (both suspended and dissolved). The quality of the water discharged from the site can have impacts on downstream ecological communities and water users.
- Therefore, Run-off diversion is proposed – Garland drains will be constructed all around the project boundary to prevent surface flows from entering the quarry works areas. And will be discharged into

vegetated natural drainage lines, or as distributed flow across an area stabilised against erosion with only clear water after the garland drains are enrooted through settlement traps.

- And, the depth of the mining is maximum 43m bgl and the ground water level in the surrounding areas is about 58-63 m bgl and there are no possibilities of encountering any ground water aquifers system and hence no ground water table intersection is anticipated.
- After the completion of quarry operation, the quarried out open pit mine may have utilized for pici-culture or temporary reservoir pit for use of water for domestic purpose during dry seasons.
- Therefore, its inferred that the implementation of proposed mitigation measures for winning of mineral may not have much of impact on the possibilities of water contamination and impact on an aquatic ecosystem health.

4.4 Air Environment

The air borne particulate matter is the main air pollutant in this opencast mining. The mining operation will be carried out by jackhammer drilling (35mm dia) and Hydraulic Excavators will be utilized for excavation of Rough Stone waste.

4.4.1. 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.

4.4.1.1. Modelling of Incremental Concentration from all Proposed Projects

Wind erosion of the exposed areas and the air borne particulate matter generated by quarrying operation and transportation are mainly PM₁₀ & PM_{2.5} and emissions of Sulphur dioxide (SO₂) & Oxides of Nitrogen (NO_x) due to excavation/loading equipment and vehicles plying on haul roads are the cause of air pollution in the project area.

Similarly, loading - unloading and transportation of Rough Stone, wind erosion of the exposed area and movement of light vehicles causes of pollution. This leads to an impact on the ambient air environment around the project area.

Anticipated incremental concentration due to this quarrying activity and net increase in emissions due to quarrying activities within 500 meters around the project area is predicted by Open Pit Source modelling using AERMOD Software.

The impact on Air Environment is due to the mining and allied activities during Land Development phase, Mining process and Transportation. The emissions of Sulphur dioxide (SO₂), Oxides of Nitrogen (NO_x) due to excavation/loading equipment and vehicles plying on haul roads are marginal. Loading - unloading and transportation of Rough Stone, wind erosion of the exposed area and movement of light vehicles will be the main polluting source in the mining activities releasing Particulate Matter (PM₁₀) affecting Ambient Air of the area. Prediction of impacts on air environment has been carried out taking into consideration cumulative production three proposed quarries. Air environment and net increase in emissions by Open pit source modelling in AERMOD Software.

4.4.1.2 Emission Estimation

An emissions factor is a representative value that attempts to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant.

The general equation for emissions estimation is:

$$E = A \times EF \times (1-ER/100)$$

Where:

E = emissions;

A = activity rate;

EF = emission factor, and

ER = overall emission reduction efficiency, %

The proposed mining activity includes various activities like ground preparation, excavation, handling and transport of ore. These activities have been analysed systematically basing on USEPA-Emission Estimation Technique Manual, for Mining AP-42, to arrive at possible emissions to the atmosphere and estimated emissions are given in Table 4-2.

TABLE 4.2: ESTIMATED EMISSION RATE FOR PROPOSED PROJECT

EMISSION ESTIMATION FOR QUARRY				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.089759905	g/s
	Blasting	Point Source	0.001409374	g/s
	Mineral Loading	Point Source	0.043534371	g/s
	Haul Road	Line Source	0.002494948	g/s/m
	Overall Mine	Area Source	0.066864792	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.00089494	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000070183	g/s

4.4.2 Frame work of Computation & Model details

The prediction included the impact of Excavation, Drilling, Blasting, loading and movement of vehicles during transportation and meteorological parameters such as wind speed, wind direction, temperature, rainfall, humidity and Cloud cover.

Impact was predicted over the distance of 10 km around the source to assess the impact at each receptor separately at the various locations and maximum incremental GLC value at the project site. Maximum impact of PM₁₀ was observed close to the source due to low to moderate wind speeds. Incremental value of PM₁₀ was superimposed on the base line data monitored at the proposed site to predict total GLC of PM₁₀ due to combined impacts.

Air Pollution Dispersion Modelling.

Baseline Air Quality –

Baseline air quality has been measured at 1 location in the cluster and 7 locations within the buffer zone of the study area. The 24 - hourly average samples of particulate matters (PM₁₀ and PM_{2.5}), SO₂ and NO_x were measured following the National Ambient Air Quality Standards (NAAQS), 2009. Monitoring data of 8 sampling stations are given below –

Meteorological Data –

Meteorology is the key to understand the air quality. The essential relationship between meteorological condition and atmospheric dispersion involves the wind in the broadest sense. Wind fluctuations over a very wide range of time, accomplish dispersion and strongly influence other processes associated with them.

A temporary meteorological station was installed at project site and monitored continually for study period without break. The station was installed at a height of 4 m above the ground level in such a way that there are no obstructions facilitating flow of wind, wind speed, wind direction, humidity and temperature are recorded on hourly basis. A weather data was collected from IMD, Kancheepuram agro for the month of October 2024- December 2024 to correlate with site data and found not much of change in the parameters.

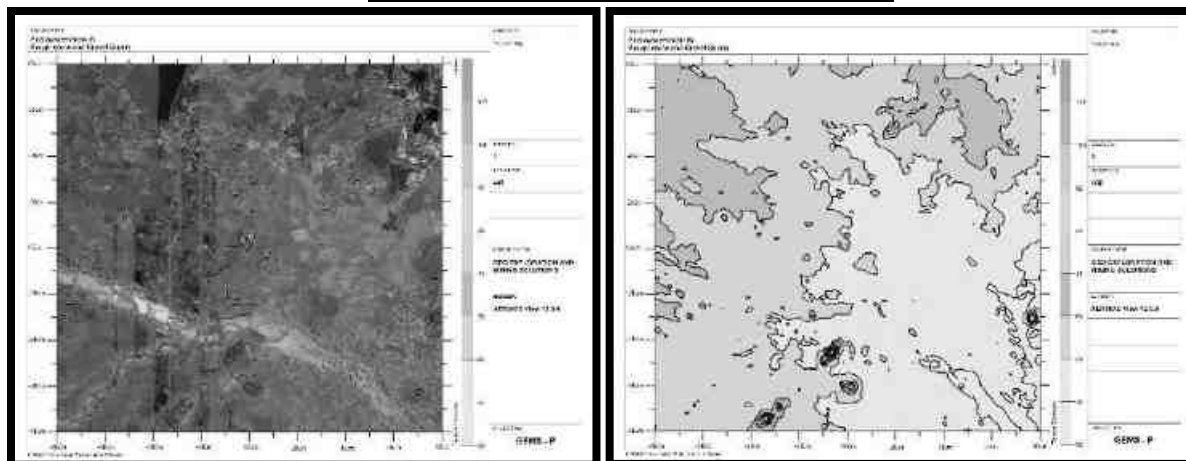
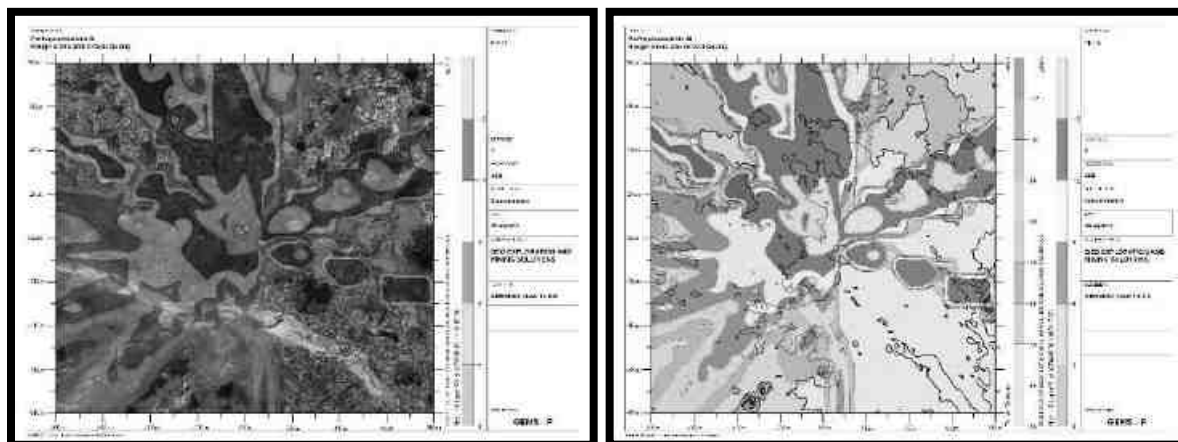
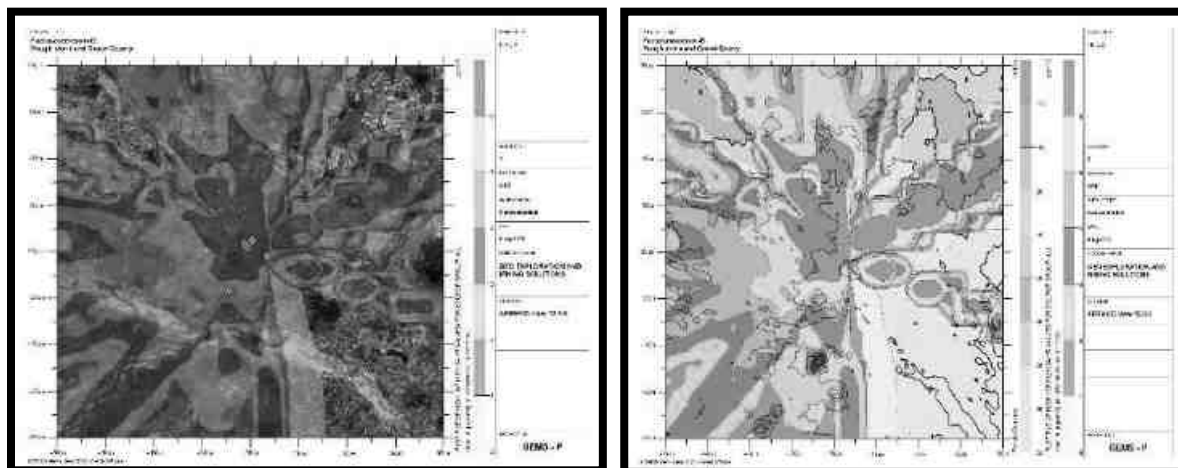
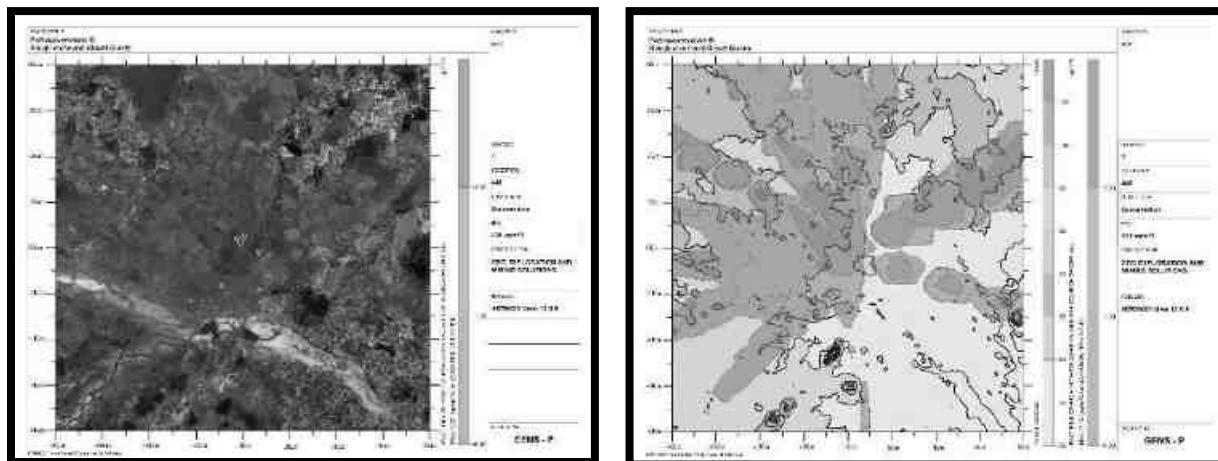
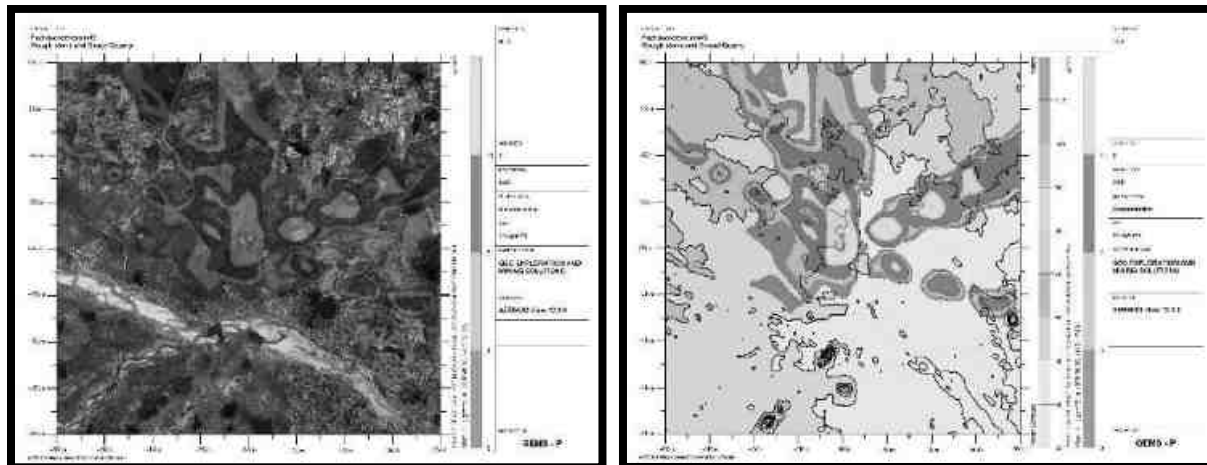
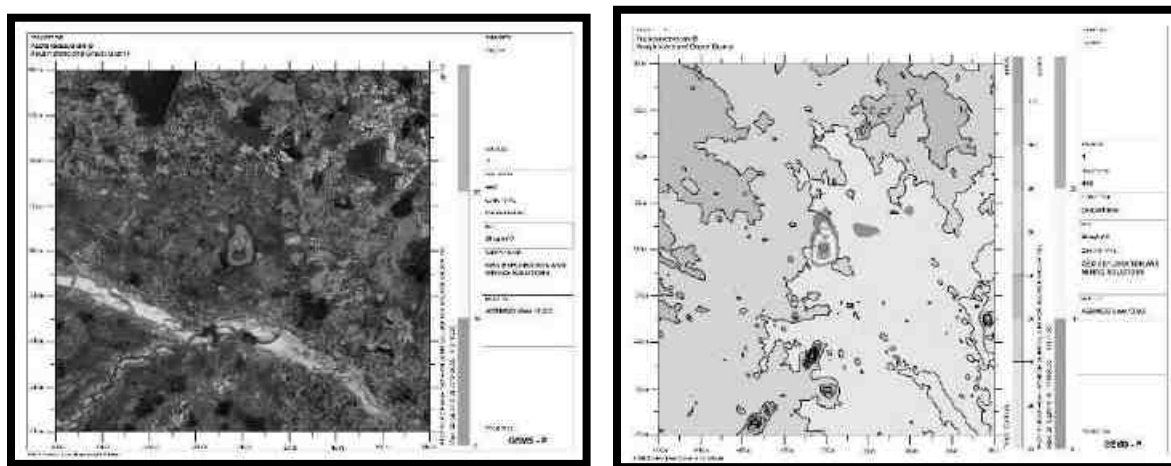
FIGURE 4.1: AERMOD TERRAIN MAP**FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF PM₁₀****FIGURE 4.3: PREDICTED INCREMENTAL CONCENTRATION OF PM_{2.5}**

FIGURE 4.4: PREDICTED INCREMENTAL CONCENTRATION OF SO₂**FIGURE 4.5: PREDICTED INCREMENTAL CONCENTRATION OF NO_x****FIGURE 4.6: PREDICTED INCREMENTAL CONCENTRATION OF FUGITIVE DUST**

4.3.2.1 Model Results

The post project Resultant Concentrations of PM₁₀, PM_{2.5}, SO₂& NO_x (GLC) is given in Table below:

TABLE 4.3: INCREMENTAL & RESULTANT GLC OF PM₁₀

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM ₁₀ (µg/m ³)	Incremental value of PM ₁₀ due to mining (µg/m ³)	Total PM ₁₀ (µg/m ³) (5+6)
AAQ1	12°48'3.20"N 79°52'56.54"E	86	154	42.2	15.91	58.11
AAQ2	12°47'54.64"N 79°52'49.81"E	-121	-116	44.2	15.52	59.72
AAQ3	12°47'58.95"N 79°52'45.84"E	-243	17	45.5	15.13	60.63
AAQ4	12°47'41.05"N 79°53'16.93"E	699	-532	44.1	0	44.1
AAQ5	12°46'36.33"N 79°52'11.16"E	-885	-2008	43.9	5.89	49.79
AAQ6	12°50'33.09"N 79°50'42.13"E	-2974	5064	44.0	14.15	58.15
AAQ7	12°50'0.90"N 79°55'3.72"E	4163	3474	44.6	0	44.6

TABLE 4.4: INCREMENTAL & RESULTANT GLC OF PM_{2.5}

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM _{2.5} (µg/m ³)	Incremental value of PM _{2.5} due to mining (µg/m ³)	Total PM _{2.5} (µg/m ³) (5+6)
AAQ1	12°48'3.20"N 79°52'56.54"E	86	154	20.8	8.93	29.73
AAQ2	12°47'54.64"N 79°52'49.81"E	-121	-116	20.9	8.45	29.35
AAQ3	12°47'58.95"N 79°52'45.84"E	-243	17	19.2	8.22	27.42
AAQ4	12°47'41.05"N 79°53'16.93"E	699	-532	20.3	1.00	21.3
AAQ5	12°46'36.33"N 79°52'11.16"E	-885	-2008	20.0	5.19	25.19
AAQ6	12°50'33.09"N 79°50'42.13"E	-2974	5064	20.3	7.79	28.09
AAQ7	12°50'0.90"N 79°55'3.72"E	4163	3474	19.4	3.35	22.75

TABLE 4.5: INCREMENTAL & RESULTANT GLC OF SO₂

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline SO ₂ (µg/m ³)	Incremental value of SO ₂ due to mining (µg/m ³)	Total SO ₂ (µg/m ³) (5+6)
AAQ1	12°48'3.20"N 79°52'56.54"E	86	154	4.9	2.29	7.19
AAQ2	12°47'54.64"N 79°52'49.81"E	-121	-116	5.2	2.25	7.45
AAQ3	12°47'58.95"N 79°52'45.84"E	-243	17	5.3	2.20	7.5
AAQ4	12°47'41.05"N 79°53'16.93"E	699	-532	5.9	0	5.9
AAQ5	12°46'36.33"N 79°52'11.16"E	-885	-2008	5.8	0.73	6.53
AAQ6	12°50'33.09"N 79°50'42.13"E	-2974	5064	6.0	2.00	8.0
AAQ7	12°50'0.90"N 79°55'3.72"E	4163	3474	7.0	0	7.0

TABLE 4.6: INCREMENTAL & RESULTANT GLC OF NO_x

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline NO _x (µg/m ³)	Incremental value of NO _x due to mining (µg/m ³)	Total NO _x (µg/m ³) (5+6)
AAQ1	12°48'3.20"N 79°52'56.54"E	86	154	20.6	11.80	32.4
AAQ2	12°47'54.64"N 79°52'49.81"E	-121	-116	21.7	11.59	33.29
AAQ3	12°47'58.95"N 79°52'45.84"E	-243	17	21.0	11.09	32.09
AAQ4	12°47'41.05"N 79°53'16.93"E	699	-532	21.5	0	21.5
AAQ5	12°46'36.33"N 79°52'11.16"E	-885	-2008	20.3	0	20.3

AAQ6	12°50'33.09"N 79°50'42.13"E	-2974	5064	23.4	10.00	33.4
AAQ7	12°50'0.90"N 79°55'3.72"E	4163	3474	21.4	0	21.4

TABLE 4.7: INCREMENTAL & RESULTANT GLC OF FUGITIVE DUST

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline Fugitive ($\mu\text{g}/\text{m}^3$)	Incremental value of Fugitive due to mining ($\mu\text{g}/\text{m}^3$)	Total Fugitive ($\mu\text{g}/\text{m}^3$) (5+6)
AAQ1	12°48'3.20"N 79°52'56.54"E	86	154	67.87	28.83	96.7
AAQ2	12°47'54.64"N 79°52'49.81"E	-121	-116	66.24	28.60	94.84
AAQ3	12°47'58.95"N 79°52'45.84"E	-243	17	66.24	28.22	94.46
AAQ4	12°47'41.05"N 79°53'16.93"E	699	-532	65.88	0	65.88
AAQ5	12°46'36.33"N 79°52'11.16"E	-885	-2008	68.01	0	68.01
AAQ6	12°50'33.09"N 79°50'42.13"E	-2974	5064	65.97	0	65.97
AAQ7	12°50'0.90"N 79°55'3.72"E	4163	3474	66.87	0	66.87

From the resultant of cumulative concentration i.e., Background + Incremental Concentration of pollutant in all the receptor locations without effective mitigation measures are still within the prescribed NAAQ limits of 100, 80 & 80 $\mu\text{g}/\text{m}^3$ for PM₁₀, SO₂ & NO_x respectively. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be further being controlled.

4.4.4. Common Mitigation

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
- 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 checkups, 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

Climatic Changes:

- In general, the main findings regarding the potential impacts of climate change are Land Use Type, Energy Use, Water use & Dust emission and Biodiversity & rehabilitation.
- Whereas, this proposed mining activity is restricted to a small scale mining the proposals falls in a cluster situation where the surrounding environment is already subjected to mining activities and based on the past weather data its inferred that there is no much of change in the climate data of the region and the district profile has no records or past history of climate change leading to Droughts and floods.
- The project area's proposed with land use type of patta land for mining with 5 m height bench with 5 m width bench and Pollution Under Control Certified Machineries is proposed for wining of mineral by opencast mechanized mining method and water consumption are proposed with water tankers from nearby areas and the mine pit itself shall act as a rain water harvesting structure and formation of garland drains along the mine lease boundary to divert the surface runoff and collecting the runoff water for greenbelt development and dust suppression activities shall prove beneficial.
- The greenbelt development plan, all along the mine lease boundary @ 4,700 Nos of trees, along with the budget allocation for the proposed mitigation measures shall prove beneficial to surrounding environment.
- Therefore, the implementation of proposed mitigation measures for winning of mineral may not have much of impact on the surrounding Climate Change leading Droughts and Floods etc.,

4.5 Noise Environment (Impact & Mitigation Measures)

Noise pollution is mainly due to operation like drilling & blasting and plying of trucks & HEMM. These activities will not cause any problem to the inhabitants of this area because there is no human settlement in close proximity to the project area. Noise modelling has been carried out considering blasting and compressor operation (Drilling) and transportation activities.

Predictions have been carried out to compute the noise level at various distances around the working pit due to these major noise-generating sources. Noise modelling has been carried out to assess the impact on surrounding ambient noise levels. Basic phenomenon of the model is the geometric attenuation of sound. Noise at a point generates spherical waves, which are propagated outwards from the source through the air at a speed of 1,100 ft/sec, with the first wave making an ever-increasing sphere with time. As the wave spreads the intensity of noise diminishes as the fixed amount of energy is spread over an increasing surface area of the sphere. The assumption of the model is based on point source relationship i.e., for every doubling of the distance the noise levels are decreased by 6 dB (A).

For hemispherical sound wave propagation through homogeneous loss free medium, one can estimate noise levels at various locations at different sources using model based on first principle.

$$Lp_2 = Lp_1 - 20 \log (r_2/r_1) - Ae_{1,2}$$

Where:

Lp_1 & Lp_2 are sound levels at points located at distances r_1 & r_2 from the source.

$Ae_{1,2}$ is the excess attenuation due to environmental conditions. Combined effect of all sources can be determined at various locations by logarithmic addition.

$$Lp_{total} = 10 \log \{10^{(Lp_1/10)} + 10^{(Lp_2/10)} + 10^{(Lp_3/10)} + \dots\}$$

4.5.1 Anticipated Impact

Attenuation due to Green Belt has been taken to be 4.9 dB (A). The inputs required for the model are:

- Source data

- Receptor data
- Attenuation factor

Source data has been computed taking into account of all the machinery and activities used in the mining process. Same has been listed in Table 4-8.

TABLE 4.8: ACTIVITY AND NOISE LEVEL PRODUCED BY MACHINERY

Sl.No.	Machinery / Activity	Impact on Environment?	Noise Produced in dB(A) at 50 ft from source*
1	Blasting	Yes	94
2	Jack Hammer	Yes	88
3	Compressor	No	81
4	Excavator	No	85
5	Tipper	No	84
Total Noise Produced			95.8

*50 feet from source = 15.24 meters

Source: U.S. Department of Transportation (Federal Highway Administration) – Construction Noise Handbook

The total noise to be produced by mining activity is calculated to be 95.8 dB (A). Generally, most mining operations produce noise between 100-109 dB (A). We have considered equipment and operation noise levels (max) to be approx. 109 dB (A) for noise prediction modelling.

TABLE 4.9: PREDICTED NOISE INCREMENTAL VALUES

Location ID	N1	N2	N3	N4	N5	N6	N7
Maximum Monitored Value (Day) dB(A)	58.1	52.4	54.8	54.7	54.5	56.9	66.8
Incremental Value dB(A)	47.30	46.48	28.74	34.99	27.64	25.29	31.80
Total Predicted Noise level dB(A)	46.30	50.68	45.98	47.08	48.54	46.24	47.71
NAAQ Standards	Industrial		Day Time- 75 dB (A)		Night Time- 70 dB (A)		
	Residential		Day Time- 55 dB (A)		Night Time- 45 dB (A)		

4.5.2 Common Mitigation Measures

The following noise mitigation measures are proposed for control of Noise.

- Time intervals for each quarry during blasting.
- Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas.
- Limiting time exposure of workers to excessive noise.
- Proper and regular maintenance of vehicles, machinery and other equipment's.
- The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipment's.
- Speed of trucks entering or leaving the quarry will be limited to moderate speed to prevent undue noise from empty vehicles.
- Noise levels will be controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent blow out of holes (occasionally).
- Providing proper noise proof enclosure for the workers separated from the noise source and noise prone equipment.
- Provision of Quiet areas, where employees can get relief from workplace noise.
- The development of green belts around the periphery of the quarry site to attenuate noise.
- Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects.

4.5.3 Ground Vibrations

Ground vibrations due to the proposed mining activities are anticipated due to operation of Mining Machines like Excavators, drilling and blasting, transportation vehicles, etc., However, the major source of ground vibration from the quarry is blasting. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease area. The kuchha houses are more prone to cracks and damage due to the vibrations

induced by blasting whereas RCC framed structures can withstand more ground vibrations. Apart from this, the ground vibrations may develop a fear factor in the nearby settlements.

Another impact due to blasting activities is fly rocks. These may fall on the houses or agricultural fields nearby the mining lease area and may cause injury to persons or damage to the structures. Nearest habitation from the project area is located 1km Southeast in Karacheri village. The ground vibrations due to the blasting in proposed mine are calculated using the empirical equation.

The empirical equation for assessment of peak particle velocity (PPV) is:

$$V = K [R/Q^{0.5}]^{-B}$$

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

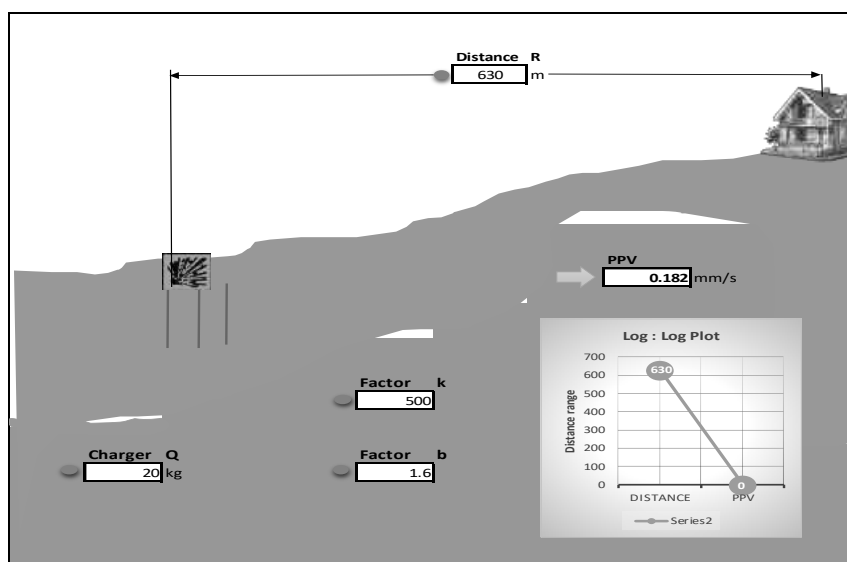
Q = maximum instantaneous charge (kg)

B = constant related to the rock and site (usually 1.6)

R = distance from charge (m)

TABLE 4.10: PREDICTED PPV VALUES DUE TO BLASTING

Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
20	630m- S	0.182



From the above graph, the Maximum charge per blast of 20 Kg is well below the Peak Particle Velocity of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No.7 dated 29/8/1997. It is proposed to carry out blasting not exceeding 2kg of Explosives per one blasting round. However, as per statutory requirement control measures will be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

4.5.3.1 Common Mitigation Measures for Respective Individual Proposed Projects

- The blasting operations in the cluster quarries are carried out without deep hole drilling and blasting using delay detonators, which reduces the ground vibrations;
- Proper quantity of explosive, suitable stemming materials and appropriate delay system will be adopted to avoid overcharging and for safe blasting;
- Adequate safe distance from blasting will be maintained as per DGMS guidelines;
- Blasting shelter will be provided as per DGMS guidelines;
- Blasting operations will be carried out only during day time;
- The charge per delay will be minimized and preferably a greater number of delays will be used per blasts;
- During blasting, other activities in the immediate vicinity will be temporarily stopped;

- Drilling parameters like depth, diameter and spacing will be properly designed to give proper blast;
- A fully trained explosives blast man (Mining Mate, Mines Foreman, 2nd Class Mines Manager/ 1st Class Mines Manager) will be appointed.
- A set of shot firing rules will be drawn up and blasting shall commence outlining the detailed operating procedures that will be followed to ensure that shot firing operations on site take place without endangering the workforce or public.
- Sufficient angular stemming material will be used to confine the explosive force and minimise environmental disturbance caused by venting / misfire.
- The detonators will be connected in a predetermined sequence to ensure that only one charge is detonated at any one time and a NONEL or similar type initiation system will be used.
- The detonation delay sequence shall be designed so as to ensure that firing of the holes is in the direction of free faces so as to minimise vibration effects.
- Appropriate blasting techniques shall be adopted such that the predicted peak particle velocity shall not exceed 8 Hz.
- Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices

4.6 Impact on Biological Environment

Environmental impact studies are required for systematic identification, qualification, and interpretation of the anticipated changes. The main environmental problems associated with mining activities are deforestation, land degradation (change in topography, soil erosion), visual intrusion, disturbance to the hydrological system, and water, air, and noise pollution which ultimately impact the floral and faunal status of the project area. However, the occurrence and magnitude of these impacts entirely depend on project location, mode of operation, and adoption of the latest technologies.

4.6.1. Impact Identification and Evaluation

In general, impact prediction methods argue that the foremost step in impact appraisal must consider and identify project actions that are likely to bring significant changes in the project environment. The present study determined to predict the likely impacts of the Proposed Rough and Gravel quarry Mining Project in the surrounding environment with a specific focus on biological attributes covering habitats/ecosystems and associated biodiversity. Likely impacts identified were categorized into different levels like, direct or primary and indirect or secondary impacts based on the influence of sources of impacts.

There is no National Park or Wildlife Sanctuary in the study area. In addition, No Biosphere Reserves, Wildlife corridors, or, Tiger / Elephant reserves within 10 km of the project area. No Schedule- I species were found in the buffer zone of the proposed project area during the biodiversity assessment.

4.6.2. Impact on Flora

The proposed mine lease exhibits plain topography and it is Patta land which is not fit for cultivation. It is mostly devoid of any considerable vegetation. The proposed mine lease area (core zone) not encompasses any designated forest land within it. The vegetation is very sparse and scanty. So, there will be no impact on flora from the mining operation. There will not be much contamination of soil or any other materials from the mining operation. No threatened plant species were reported in the core and buffer study area during the field survey.

4.6.2.1. Anticipated Impact on agricultural land associated with flora

1. There are no impacts on the nearby agricultural land due to this mining activity.
2. None of the plants will be cut during the operational phase of the mine.
3. There shall be negligible air emissions or effluents from the project site. During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly.

Most of the land in the buffer area is undulating terrain with croplands, grass patches, and small shrubs. Hence, there will be no effect on the flora of the region.

4.7 Mitigation Measures

4.7.1. General Guidelines for Green Belt Development

In selecting plant species for green belt and plantation purposes in and around the proposed mine lease area native species, fruit-bearing trees, medicinal plants, and dense canopy trees should be selected. These species should be tolerant to pollution levels as per Bio- Geography zones of India.

After the operation of mining production capacity, green belt, and plantation species should be in accordance with the Terms and Conditions of the Environmental Clearance Green belt is created not only for the purpose of protecting sensitive areas or maintaining the ecological balance but because they also act as efficient biological filters or sinks for particulate and gaseous emissions, generated by vehicular movements and various industrial and mining activities.

a. Characteristic features of plants to be used for Absorption of pollutant gases

- Plant species should be perennial and evergreen with thick canopy cover.
- The crown of the tree (mass of foliage/leaves and branches growing outward from the trunk of the tree) should be either Oblong, Round or Spreading for effective absorption of pollutant gases.
- Plant should have foliage of longer duration.
- The foliage should be freely exposed through adequate height of the crown, Openness of foliage/leaves in the canopy, big leaves (long and broad laminar surfaces).

The project site should have land to develop a greenbelt in and around the limits of the mine, along roads, and another vacant area. The main objective of the green belt is to provide a barrier between the source of pollution and the surrounding areas. Although the project will not lead to any tree cutting, it is proposed to improve the greenery of the locality through plantation services. To avoid dust emissions, the mined materials will be covered with tarpaulin during transportation.

Table No. 4.11. List of plant species proposed for Greenbelt development

S. No	Scientific name	Tamil Name
1	<i>Aegle marmelos</i>	Vilva maram
2	<i>Albizia lebbeck</i>	Vaagai maram
3	<i>Cassia fistula</i>	Konrai tree
4	<i>Lannea coromandelica</i>	Othiyam
5	<i>Limonia acidissima</i>	Vila maram
6	<i>Syzygium cumini</i>	Naval maram
7	<i>Toona ciliata</i>	Santhana Vembu
8	<i>Ficus hispida</i>	Aththi maram
9	<i>Borassus flabellifer</i>	Panai-maram

Table No. 4.12. Species suitable for abatement of noise and dust pollution

S. No	Botanical name	Common name
1	<i>Azadirachta indica</i>	Vembhu maram
2	<i>Ficus religiosa</i>	Arasan maram
3	<i>Ficus hispida</i>	Aththi maram
4	<i>Bombax ceiba</i>	Mul Elavu
5	<i>Syzygium cumini</i>	Naval maram
6	<i>Tamarindus indica</i>	Puliyamaram
7	<i>Mangifera indica</i>	Manga maram
8	<i>Harwickia binata</i>	Anjan maram
9	<i>Delonix regia</i>	Neruppu Kondrai

10	<i>Cassia Fistula</i>	Sara Kondrai
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The above-suggested list covers species with thick canopy cover, perennial green nature, native origin, and a large leaf area index. The proposed species will help in forming an effective barrier between the mine site area and the surroundings.

4.7.2. Anticipated Impact on Fauna

- Since the terrestrial fauna in the study area is distributed away from the mine site, the impacts of the project are likely to be much low on the terrestrial fauna of the region. The proposed mining lease area is devoid of any significant vegetation; it is not suitable for permanent habitat for any specific wildlife.
- Habitat degradation and disturbance to faunal group due to ground vibration and increase in noise level will be minimize or resolved by modern technologies. So, from above facts it is revealed that there will be no impact on fauna. No threatened fauna species reported in the core and buffer study area.

4.7.3 Measures for protection and conservation of wildlife species

- Topsoil has a large number of seeds of native plant species in the mining area.
- Checks and controls the movement of vehicles in and out of the mine.
- Undertaking mitigative measures for a conducive environment to the flora and fauna in consultation with Forest Department.
- Plantation around the mine area will help in creating habitats for small faunal species and create a better environment for various fauna. Creating and developing awareness for nature and wildlife in the adjoining villages.

4.8. Impact on Aquatic Biodiversity

Mining activities will not disturb the aquatic ecology as there is no effluent discharge proposed from the Rough Stone and Gravel quarry. There is no natural perennial surface water body within the mine lease area, like wetlands, rivers streams, lakes, and farmer sites. There is no impact on fish habitats and the food WEB/ food chain in the water body and Reservoir. Aquatic biodiversity is observed in the study area. The project is not likely to affect the aquatic ecology.

Table No: 4.13. General Impacts vs. Mitigation Matrix

Particulars	Issues	Reason/Status in relation to the mine site	Reference/Method	Suggestions
Species	Rare/ Endangered/ Threatened species	Not reported	Field observation, interviews of local people	Nil
	Endemic Species	No endemic species of any flora, fauna or wildlife are present in the study area.	Field survey, Literature review	Nil
	Protected Areas	No National Park, Wildlife Sanctuary, Tiger reserve, and Biosphere Reserve falls in the 10-km radius study area	ENVIS, Government of Tamil Nadu protected area website, Google Earth, Project Maps, etc.	Nil
	Important Bird Areas	No Important Bird Areas are falling in the 10-km radius area for Migratory Bird Habitat	ENVIS Centre on Wildlife & Protected Areas, Important Bird Area in India, IBA Book (Birdlife International)	Nil

Important Natural Habitats	Ramsar site	No Ramsar sites present in the surrounding area region	Ramsar Web site	Nil
	Wetlands of National Importance	Nil	ENVIS Centre on Wildlife & Protected Areas, Wetlands directory of Government of India	Nil
	Wetlands of International Importance	Nil	Nil	Nil
	Wildlife Corridors	No Wildlife Corridor is falling in 10 km radius project study area	Protected Areas, Consultation with local naturalists & authenticated location map.	Nil
	Eco-sensitive zone identified by the government	No Eco-sensitive zone is falling 10 km radius project study area	ENVIS, Consultation with local naturalists & authenticated location map	Nil
	Forest Areas	No Reserve Forest is falling in 10 km radius project study area	ENVIS, Government of Tamil Nadu protected area website, Google Earth, Project Maps, etc.	NIL, Applicant will create the green belt plantation on the periphery of mine sites.
	Water bodies	Nil	Project Map and local maps, Google Earth	Ensure minimum destruction during in operation phase.
	Breeding/nesting areas	No breeding/Nesting's site are falling in the study area	Literature Survey Project Map and local maps, Google Earth	NIL

TABLE 4.14: GREENBELT DEVELOPMENT PLAN

No. of tress proposed to be planted	Area to be covered in m ²	Name of the species
1820	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development.	Neem, Pungam, Maa, Senkondrai , Mookusali, Mantharai etc.,

After complete extraction of mineral, the excavated pits will be allowed to collect rainwater and seepage water to serve as a reservoir to charge the nearby wells. Fish culture will also be attempted. A bund will be constructed around the pits. In order to minimize the impact of mining on the vegetation outside the mine lease area, it is recommended that adequate protection measures must be implemented. As mining involves movement of vehicles and increased anthropogenic activities, some of the areas can be fenced by involving local people and educating them about increased benefits of such activities.

4.8.1 Anticipated Impact on Fauna

- There is no Wildlife Sanctuary and Biosphere Reserve within 10 km radius of the project site.
- No rare, endemic & endangered species are reported in the buffer zone. However, during the course of mining, the management will practice scientific method of mining with proper Environmental Management Plan

including pollution control measures especially for air and noise, to avoid any adverse impact on the surrounding wildlife.

- Fencing around all the proposed mine lease areas will be constructed to restrict the entry of stray animals
- Green belt development will be carried out which will help in minimizing adverse impact on the flora found in the area.

4.8.2 Measures for protection and conservation of wildlife species

- Undertaking mitigative measures for conducive environment to the flora and fauna in consultation with Forest Department.
- Dust suppression system will be installed within mine and periphery of mine for all proposed projects
- Plantation around mine area will help in creating habitats for small faunal species and to create better environment for various fauna. Creating and developing awareness for nature and wildlife in the adjoining villages.

4.8.3. Mitigation Measures

- All the preventive measures will be taken for growth & development of fauna.
- Creating and development awareness for nature and wildlife in the adjoin villages.
- The workers shall be trained to not harm any wildlife, should it come near the project site. No work shall be carried out after 6.00 pm.

4.9. Impact on Aquatic Biodiversity

Mining activities will not disturb the existing aquatic ecology as there is no effluent discharge proposed from the rough stone and gravel quarry. There is no natural perennial surface water body within the mine lease area. Hence, aquatic biodiversity is not observed in the mine lease area.

4.9.1. Impact Assessment on Biological Environment

A detail of impact and assessments was mentioned in Table No 4.15.

TABLE 4.15: ECOLOGICAL IMPACT ASSESSMENTS

Sl.No	Attributes	Assessment
1	Proximity to national park/wildlife sanctuary/reserve forest /mangroves/ coastline/estuary/sea	Vedanthangal Bird sanctuary-7km-N Karikili Bird Sanctuary-13km-N.
2	Proposed mining project impact surface water quality that also provide water to wildlife	'NO' 'scheduled or threatened wildlife animal sighted regularly core in core area.
3	Located near an area populated by rare or endangered species	NO endangered, critically endangered, vulnerable species sighted in core mining lease area.
4	Proposed project restricts access to waterholes for wildlife	'NO'
5	Project likely to affect migration routes	'NO' 'migration route observed during monitoring period.
6	Proposed mining project increase siltation that would affect nearby biodiversity area.	Surface runoff management such as garland drains is proposed to be constructed, so there will be no siltation nearby mining area.
7	Risk of fall/slip or cause death to wild animals due to project activities	'NO'
8	Activities of the project affects the breeding/nesting sites of birds and animals	No breeding and nesting site was identified in mining lease site. The fauna sighted mostly migrated from buffer area.
9	Mining project effect the forest-based livelihood/ any specific forest product on which local livelihood depended	'NO'
10	The project release effluents into a water body that also supplies water to a wildlife	No water body near to core zone so chances of water become polluted is low.
11	The project likely to affect wetlands, Fish breeding grounds, marine ecology	'NO'. Wetland was not present in near core Mining lease area. No breeding and nesting ground present in core mining area.

12	Project likely to affect flora of an area, which have medicinal value	'NO'
13	Forestland is to be diverted, has carbon high sequestration	'NO' There was no forest land diverted.

TABLE 4.16: ANTICIPATED IMPACT OF ECOLOGY AND BIODIVERSITY

Sl. No	Aspect Description	Likely Impacts on Ecology and Biodiversity (EB)	Impact Consequence - Probability Description / Justification	Significance	Mitigation Measures
Pre-Mining Phase					
1	Uprooting of vegetation of lease area	Site specific loss of common floral diversity (Direct impact)	Site possesses common floral (not trees) species. Clearance of these species will not result in loss of flora	Less severe	No immediate action required. However, Greenbelt /plantation will be developed in project site and in periphery of the project boundary, which will improve flora and fauna diversity of the project area.
		Site specific loss of associated faunal diversity (Partial impact)	Site supports only common species, which use wide variety of habitats of the buffer zone reserve forest area. So, there is no threat of faunal diversity.		
		-Loss of Habitat (Direct impact)	Site does not form Unique / critical habitat structure for unique flora or fauna.		
Mining phase					
2	Excavation of mineral using machine and labours, Transportation activities will generate noise.	Site-specific disturbance to normal faunal movements at the site due to noise. (Partial impact)	Site does not form unique / critical habitat structure for unique flora or fauna.	Less severe	Mining activity should not be operated after 5PM. Excavation of dump and transportation work should stop before 7PM.
3	Vehicular Movement for transportation of materials will result in generation of dust (SPM) due to haul roads and emission of SO2,NO2,CO etc.	Impact on surrounding agriculture and associated fauna due to deposition of dust and Emission of CO. (Indirect impact)	Impact is less as the agricultural land far from core area.	Less severe	All vehicles will be certified for appropriate Emission levels. More plantation has been suggested Upgrade the vehicles with alternative fuel such as biodiesel, methanol and biofuel around the mining area.

4.10 Socio Economic Impact

4.10.1 Construction Phase

Anticipated Impacts:

- ♣ No. of people will get employment during the construction stage resulting in the ancillary development and growth. Nearby Local people will be given preference for employment on the basis of their skill and experience.
- ♣ Further due to proposed project, influx of working community will also generate an indirect employment through development of nearby market/ shops, trade centers, activities, transportation etc.
- ♣ Population influx during the construction phase can introduce various water and vector borne diseases which can lead to various unhygienic health problems in the area by disturbing the existing sanitation infrastructure.
- ♣ Rapid diverse population influx at the project site can create unusual behavioural activity such as worker-community conflicts, increase violence such as theft/stabbing, and increased consumption of drugs/alcohol within the area.

♣ Impacts on the health of nearby villagers can be envisaged due to the transportation activities leading to short term exposure of fugitive dust, resulting in various acute diseases such as increased eye irritation, nausea, headache etc.

Mitigation measures:

♣ Deploying of mobile toilets or the construction of temporary toilets will be done near to the construction site with the adequate water supply.

♣ Awareness programme will be conducted before the monsoon season regarding the spread of water borne/ vector diseases.

♣ Mosquito repellents will be provided in the nearby villages and at construction site to avoid the spread of diseases.

♣ To overcome behavioral impact, proper site in charge with timely supervision will be done. In advance, facilities with equipped medical and safety services will be provided to take a control over the incident/violence if any caused.

♣ To overcome behavioral impact, supervision will be done by site in charge. In advance, emergency cell will be formed with fully equipped communication system, medical and safety services to take control over the incident/violence caused.

4.10.2 Operation Phase:

Anticipated Impacts:

♣ Long term exposure to the pollutants such as PM, SO₂ and NO₂ Cement dust have a potential to create health impacts such as risk of cardiovascular and respiratory disease, eye irritation, bronchitis, lung damage, increased heart ailments, etc.

♣ Other impacts, associated with the applied for rough stone and gravel quarry project will create a positive impact as it will result in the overall development of the area in respect to the infrastructure development, educational growth, health facilities etc., as a part of the CSR activity.

Mitigation Measures:

♣ In order to mitigate the long-term health impacts, efficient Air Pollution Control Equipment (APCE) like Bag House / Bag Filter / ESP will be installed at all major stacks to keep the emissions within the permissible limits. To reduce the gaseous emission, Pyro-process itself acts as a long SO₂ scrubber and De - NO_x system will be installed for fuel burning along with calciner for low NO_x formation. To reduce fugitive emission from vehicles and machineries will be regularly monitored and maintained.

♣ For emergency, proposed to develop an occupational health center for its employees and nearby villagers.

4.10.3 Impact Evaluation:

Table 4.17 Impact Evaluation Impact evaluation.

Impact Evaluation Element	Impact on socio economics due to the applied for rough stone and Gravel quarry over an extent of 3.63.5ha of Patta lands in S.F.Nos.76/15A,15B,15C3,16A,77/5,6,7,9&10 of Pazhayaseevaram-B Village, Walajabad Taluk Kancheepuram District, Tamil Nadu State.			
Potential Effect/ Concern	Proposed project will provide direct & indirect employment opportunities to the local residents, which will help to increase their earning and better living standard as well as further up-liftment of socio-economic status of the area.			
Characteristics of Impacts				
Nature	Positive		Negative	Netural
	✓			
Type	Direct	Indirect	Cumulative	
			✓	
Extent	Project area	Local	Zonal	Regional

	✓			
Duration	Short time		Long term	
			✓	
Intensity	Low		Medium	High
			✓	
Frequency	Remote (R)	Occasional (O)	Periodic (P)	Continuous (C)
			✓	
Significance of Impact				
Significance	Insignificant	Minor	Moderate	Major
			✓	

4.10.4 Common Mitigation Measures for Respective Individual Proposed Projects

- Good maintenance practices will be adopted for all 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.
- 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, duties, etc., from this project directly and indirectly.
- From above details, the quarry operations will have highly beneficial positive impact in the area
- No villages in the proposed mineral transportation route
- Mineral loaded Vehicles will not allow during school hours (Morning 8AM to 10AM & Evening 4.30PM to 5.30PM)

4.11 Occupational Health and Safety

Occupational health and safety hazards occur during the operational phase of mining and primarily include the following:

- Respiratory hazards
- Noise
- Physical hazards
- Explosive storage and handling

4.11.1 Respiratory Hazards

Long-term exposure to silica dust may cause silicosis the following measures are proposed:

- Cabins of excavators and tippers will be enclosed with AC and sound proof
- Use of personal dust masks will be made compulsory

4.11.2 Noise

Workers are likely to get exposed to excessive noise levels during mining activities. The following measures are proposed for implementation

- No employee will be exposed to a noise level greater than 85 dB(A) for a duration of more than 8 hours per day without hearing protection
- The use of hearing protection will be enforced actively when the equivalent sound level over 8 hours reaches 85 dB(A), the peak sound levels reach 140 dB(C), or the average maximum sound level reaches 110 dB(A)

- Ear muffs provided will be capable of reducing sound levels at the ear to at least 85 dB(A)
- Periodic medical hearing checks will be performed on workers exposed to high noise levels.

4.11.3 Physical Hazards

The following measures are proposed for control of physical hazards

- Specific personnel training on work-site safety management will be taken up;
- Work site assessment will be done by rock scaling of each surface exposed to workers to prevent accidental rock falling and / or landslide, especially after blasting activities;
- Natural barriers, temporary railing, or specific danger signals will be provided along rock benches or other pit areas where work is performed at heights more than 2m from ground level;
- Maintenance of yards, roads and footpaths, providing sufficient water drainage and preventing slippery surfaces with an all-weather surface, such as coarse gravel will be taken up

4.11.4 Occupational Health Survey

All the persons will undergo pre-employment and periodic medical examination. Employees will be monitored for occupational diseases by conducting the following tests

- General physical tests
- Audiometric tests
- Full chest, X-ray, Lung function tests, Spirometric tests
- Periodic medical examination – yearly
- Lung function test – yearly, those who are exposed to dust
- Eye test

Essential medicines will be provided at the site. The medicines and other test facilities will be provided at free of cost. The first aid box will be made available at the mine for immediate treatment.

First aid training will be imparted to the selected employees regularly. The lists of first aid trained members shall be displayed at strategic places.

4.12 Mine Waste Management

No waste is anticipated from any of the proposed quarries.

4.13 Mine Closure

Mine closure plan is the most important environmental requirement in mining projects. The mine closure plan should cover technical, environmental, social, legal and financial aspects dealing with progressive and post closure activities. The closure operation is a continuous series of activities starting from the decommissioning of the project. Therefore, progressive mine closure plan should be specifically dealt with in the mining plan and is to be reviewed along with mining plan. As progressive mine closure is a continuous series of activities, it is obvious that the proposals of scientific mining have included most of the activities to be included in the closure plan. While formulating the closure objectives for the site, it is important to consider the existing or the pre-mining land use of the site; and how the operation will affect this activity.

The primary aim is to ensure that the following broad objectives along with the abandonment of the mine can be successfully achieved:

- To create a productive and sustainable after-use for the site, acceptable to mine owners and the public
- To protect public health and safety of the surrounding habitation
- To minimize environmental damage
- To conserve valuable attributes and aesthetics
- To overcome adverse socio-economic impacts.

4.13.1 Mine Closure Criteria

The criteria involved in mine closure are discussed below:

4.13.1.1 Physical Stability

All anthropogenic structures, which include mine workings, buildings, rest shelters etc., remaining after mine decommissioning should be physically stable. They should present no hazard to public health and safety as a result of failure or physical deterioration and they should continue to perform the functions for which they were designed. The

design periods and factors of safety proposed should take full account of extreme events such as floods, hurricane, winds or earthquakes, etc. and other natural perpetual forces like erosion, etc.,

4.13.1.2 Chemical Stability

The solid wastes on the mine site should be chemically stable. This means that the consequences of chemical changes or conditions leading to leaching of metals, salts or organic compounds should not endanger public health and safety nor result in the deterioration of environmental attributes. If the pollutant discharges likely to cause adverse impacts is predicted in advance, appropriate mitigation measures like settling of suspended solids or passive treatment to improve water quality as well as quantity, etc., could be planned. Monitoring should demonstrate that there is no adverse effect of pollutant concentrations exceeding the statutory limits for the water, soil and air qualities in the area around the closed mine.

4.13.1.3 Biological Stability

The stability of the surrounding environment is primarily dependent upon the physical and chemical characteristics of the site, whereas the biological stability of the mine site itself is closely related to rehabilitation and final land use. Nevertheless, biological stability can significantly influence physical or chemical stability by stabilizing soil cover, prevention of erosion/wash off, leaching, etc.,

A vegetation cover over the disturbed site is usually one of the main objectives of the rehabilitation programme, as vegetation cover is the best long-term method of stabilizing the site. When the major earthwork components of the rehabilitation programme have been completed, the process of establishing a stable vegetation community begins. For re-vegetation, management of soil nutrient levels is an important consideration. Additions of nutrients are useful under three situations.

- Where the nutrient level of spread topsoil is lower than material in-situ e.g., for development of social forestry
- Where it is intended to grow plants with a higher nutrient requirement than those occurring naturally e.g., planning for agriculture
- Where it is desirable to get a quick growth response from the native flora during those times when moisture is not a limiting factor e.g., development of green barriers

The Mine closure plan should be as per the approved mining plan. The mine closure is a part of approved mine plan and activities of closure shall be carried out as per the process described in mine closure plan.

5. ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

5.0 INTRODUCTION

Consideration of alternatives to a project proposal is a requirement of EIA process. During the scoping process, alternatives to a proposal can be considered or refined, either directly or by reference to the key issues identified. A comparison of alternatives helps to determine the best method of achieving the project objectives with minimum environmental impacts or indicates the most environmentally friendly and cost-effective options.

5.1 SUMMARY OF ADVERSE IMPACTS OF EACH ALTERNATIVE

The surrounding areas already undergone quarrying operation, there are 4-5 Crushers within the radius of 1km. Most of the quarries in the regions are abandoned and lease expired quarries. Hence this quarry will feed the Rough stone material to the crushing units.

The Rough Stone and Gravel Quarry Project for excavation of Rough Stone, which is site specific. The proposed mining lease areas have following advantages: -

- The mineral deposit occurs in a non-forest area.
- There is no habitation within the project area; hence no R & R issues exist.
- There is no river, stream, nallah and water bodies in the applied mine lease areas.
- Availability of skilled, semi-skilled and unskilled workers in this region.
- All the basic amenities such as medical, firefighting, education, transportation, communication and infrastructural facilities are well connected and accessible.
- The mining operations will not intersect the ground water level. Hence, no impact on ground water environment.
- Study area falls in seismic zone – III, there is no major history of landslides, earthquake, subsidence etc., recorded in the past history.

5.2 ANALYSIS OF ALTERNATIVE SITE

No alternatives are suggested as all the mine sites are mineral specific

5.3 MITIGATION MEASURES PROPOSED FOR EACH ALTERNATIVE

The existing quarries in the area operated by Opencast Mechanised Mining operation with drilling and blasting method will be used to extract Rough Stone in the area. All the applied mining lease areas have following advantages –

- As the mineral deposition is homogeneous and batholith formation, therefore opencast method of working is preferred over underground method
- The material will be loaded with the help of excavators into dumpers / trippers and transported to the needy customers.
- Blasting and availability of drills along with controlled blasting technology gives desired fragmentation so that the mineral is handled safely and used without secondary blasting.
- Semi-skilled labours fit for quarrying operations are easily available around the nearby villages.

5.4 SELECTION OF ALTERNATIVE

Open cast mechanized method has been selected for these projects. This technology is having least gestation period, economically viable, safest and less labour intensive. The method has inbuilt flexibility for increasing or decreasing the production as per market condition.

6. ENVIRONMENTAL MONITORING PROGRAMME

6.0 GENERAL

The main objective of environmental monitoring is to ensure that the obtained results in respect of environmental attributes and prevailing conditions during operation stage are in conformity with the prediction during the planning stage. In case of substantial deviation from the earlier prediction of results, this forms as base data to identify the cause and suggest remedial measures. Environmental monitoring is mandatory to meet compliance of statutory provisions under the Environment (Protection) Act, 1986, relevant conditions regarding monitoring covered under EC orders issued by the SEIAA as well as the conditions set forth under the order issued by Tamil Nadu Pollution Control Board while granting CTO.

6.1 METHODOLOGY OF MONITORING MECHANISM

Implementation of EMP and periodic monitoring will be carried out by the project proponent. A comprehensive monitoring mechanism has been devised for monitoring of impacts due to this project; Environmental protection measures like dust suppression, control of noise and blast vibrations, maintenance of machinery and vehicles, housekeeping in the mine premises, plantation, implementation of Environmental Management Plan and environmental clearance conditions will be monitored by Mine Management. On the other hand, implementation of area level protection measures like green belt development, environmental quality monitoring etc., are taken up by a senior executive who reports to their Mine Management.

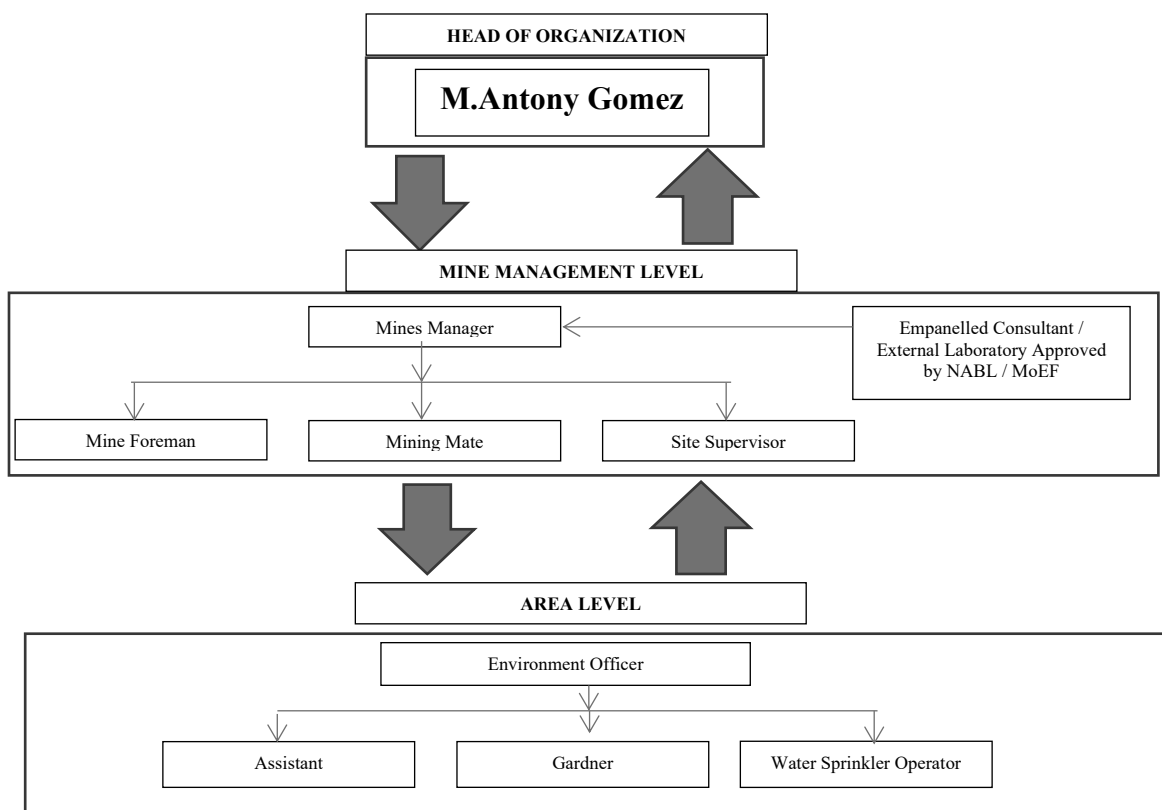
An Environment monitoring cell (EMC) will be constituted to monitor the implementation of EMP and other environmental protection measures in all the proposed quarries.

The responsibilities of this cell will be:

- Implementation of pollution control measures
- Monitoring programme implementation
- Post-plantation care
- To check the efficiency of pollution control measures taken
- Any other activity as may be related to environment
- Seeking expert's advice when needed.

The environmental monitoring cell will co-ordinate all monitoring programs at site and data thus generated will be regularly furnished to the State regulatory agencies as compliance status reports. The sampling and analysis report of the monitored environmental attributes will be submitted to the Tamil Nadu Pollution Control Board (TNPCB) at a frequency of half-yearly and yearly by each proposed project proponent. The half-yearly reports are submitted to Ministry of Environment and Forest, Regional Office and SEIAA as well.

The sampling and analysis of the environmental attributes will be as per the guidelines of Central Pollution Control Board (CPCB)/Ministry of Environment, Forest and Climate Change (MoEF & CC).

FIGURE 6.1: PROPOSED ENVIRONMENTAL MONITORING CELL

6.2 IMPLEMENTATION SCHEDULE OF MITIGATION MEASURES

The mitigation measures proposed in Chapter-4 will be implemented so as to reduce the impact on the environment due to the operations of the proposed project. Implementation schedule of mitigation measures is given in Table 6.1.

TABLE 6.1 IMPLEMENTATION SCHEDULE

SI No.	Recommendations	Time Period	Schedule
1	Land Environment Control Measures	Before commissioning of the project	Immediately after the commencement of project
2	Soil Quality Control Measures	Before commissioning of the project	Immediately after the commencement of project
3	Water Pollution Control Measures	Before commissioning of the project and along with mining operation	Immediately and as project progress
4	Air Pollution Control Measures	Before commissioning of the project and along with mining operation	Immediately and as project progress
5	Noise Pollution Control Measures	Before commissioning of the project and along with mining operation	Immediately and as project progress
6	Ecological Environment	Phase wise implementation every year along with mine operations	Immediately and as project progress

6.3 MONITORING SCHEDULE AND FREQUENCY

The environmental monitoring will be conducted in the mine operations as follows:

- Air quality;
- Water and wastewater quality;
- Noise levels;
- Soil Quality; and
- Greenbelt Development

The details of monitoring are detailed in Table 6.2

TABLE 6.2: PROPOSED MONITORING SCHEDULE POST EC

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

Source: Guidance of manual for mining of minerals, February 2010

6.4 BUDGETARY PROVISION FOR EMP

The cost in respect of monitoring of environmental attributes, parameter to be monitored, sampling/monitoring locations with frequency and cost provision against each proposal is shown in Table 6.3. Monitoring work will be outsourced to external laboratory approved by NABL / MoEF.

The proposed capital cost for Environmental Monitoring Programme is Rs 76,000/- and the recurring cost is Rs 3,80,000/- per annum for Proposed Project.

TABLE 6.3 ENVIRONMENT MONITORING PROGRAM BUDGET

Sl.No.	Parameter	EMP Cost
1	Air Quality	Rs. 7,60,000/-
2	Meteorology	
3	Water Quality	
4	Hydrology	

5	Soil Quality	
6	Noise Quality	
7	Vibration Study	
Total		Rs 7,60,000/-

Source: Approved Mining Plan

6.5 REPORTING SCHEDULES OF MONITORED DATA

The monitored data on air quality, water quality, noise levels and other environmental attributes will be periodically examined by the Cluster Mine Management Coordinator and Respective Head of Organization for taking necessary corrective measures. The monitoring data will be submitted to Tamil Nadu State Pollution Control Board in the Compliance to CTO Conditions & environmental audit statements every year to MoEF & CC and Half-Yearly Compliance Monitoring Reports to MoEF & CC Regional Office and SEIAA.

Periodical reports to be submitted to: -

- MoEF & CC – Half yearly status report
- TNPCB - Half yearly status report
- Department of Geology and Mining: quarterly, half yearly annual reports

Besides the Mines Manager/Agent of respective project will submit the periodical reports to –

- Director of mines safety,
- Labour enforcement officer,
- Controller of explosives as per the norms stipulated by the department.

7. ADDITIONAL STUDIES

7.0 GENERAL

The following Additional Studies were done as per items identified by project proponent and items identified by regulatory authority. And items identified by public and other stakeholders will be incorporated after Public Hearing.

- Public Consultation
- Risk Assessment
- Disaster Management Plan
- Cumulative Impact Study
- Plastic Waste Management

7.1. PUBLIC CONSULTATION

Application to The Member Secretary of the Tamil Nadu Pollution Control Board (TNPCB) to conduct Public Hearing in a systematic, time bound and transparent manner ensuring widest possible public participation at the project site or in its close proximity in the district is submitted along with this Draft EIA / EMP Report and the outcome of public hearing proceedings will be detailed in the Final EIA/EMP Report.

7.2 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 for all proposed projects. Risk Assessment is all about prevention of accidents and to take necessary steps to prevent it from happening.

Factors of risks involved due to human induced activities in connection with these proposed mining & allied activities with detailed analysis of causes and control measures for the mine is given in below Table 7.1.

TABLE 7.1 RISK ASSESSMENT& CONTROL MEASURES

S. No	Risk factors	Causes of risk	Control measures
1	Accidents due to explosives and heavy mining machineries	Improper handling and unsafe working practice	All safety precautions and provisions of Mine Act, 1952, Metalliferous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations; Workers will be sent to the Training in the nearby Group Vocational Training Centre Entry of unauthorized persons will be prohibited; Fire-fighting and first-aid provisions in the mine office complex and mining area; Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the employees and regular check for their use

			Working of quarry, as per approved plans and regularly updating the mine plans; Cleaning of mine faces on daily basis shall be daily done in order to avoid any overhang or undercut; Handling of explosives, charging and firing shall be carried out by competent persons only under the supervision of a Mine Manager; Maintenance and testing of all mining equipment as per manufacturer 's guidelines.
2	Drilling	Improper and unsafe practices Due to high pressure of compressed air, hoses may burst Drill Rod may break	Safe operating procedure established for drilling (SOP) will be strictly followed. Only trained operators will be deployed. No drilling shall be commenced in an area where shots have been fired until the blaster/blasting foreman has made a thorough Examination of all places, Drilling shall not be carried on simultaneously on the benches at places directly one above the other. Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual. All drills unit shall be provided with wet drilling shall be maintained in efficient working in condition. Operator shall regularly use all the personal protective equipment.
4	Blasting	Fly rock, ground vibration, Noise and dust. Improper charging, stemming & Blasting/fining of blast holes Vibration due to movement of vehicles	Restrict maximum charge per delay as per regulations and by optimum blast hole pattern, vibrations will be controlled within the permissible limit and blasting can be conducted safely. SOP for Charging, Stemming & Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation Shots are fired during daytime only. All holes charged on any one day shall be fired on the same day. The danger zone will be distinctly demarcated (by means of red flags)
5	Transportation	Potential hazards and unsafe workings contributing to accident and injuries Overloading of material While reversal & overtaking of vehicle	Before commencing work, drivers personally check the dumper/truck/tipper for oil(s), fuel and water levels, tyre inflation, general cleanliness and inspect the brakes, steering system, warning devices including automatically operated audio-visual reversing alarm, rear view mirrors, side indicator lights etc., are in good condition. Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the vehicle. Concave mirrors should be kept at all corners All vehicles should be fitted with reverse horn with one spotter at every tipping point Loading according to the vehicle capacity Periodical maintenance of vehicles as per operator manual

		Operator of truck leaving his cabin when it is loaded.	
6	Natural calamities	Unexpected happenings	Escape Routes will be provided to prevent inundation of storm water Fire Extinguishers & Sand Buckets
7	Failure of Mine Benches and Pit Slope	Slope geometry, Geological structure	Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m height.

Source: Analysed and Proposed by FAE & EC

7.3 DISASTER MANAGEMENT PLAN

Natural disasters like Earthquake, Landslides have not been recorded in the past history as the terrain is categorized under seismic zone III. The area is far away from the sea hence the disaster due to heavy floods and tsunamis are not anticipated

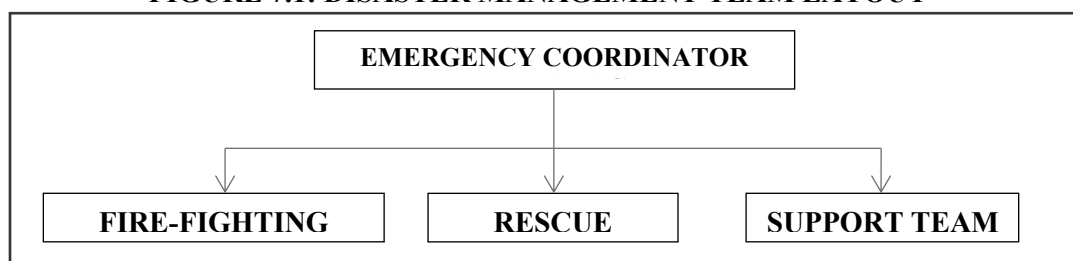
The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.

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.

In case a disaster takes place, despite preventive actions, disaster management will have to be done in line with the descriptions below. There is an organization proposed for dealing with the emergency situations and the coordination among key personnel and their team has been shown in Fig 7.1.

FIGURE 7.1: DISASTER MANAGEMENT TEAM LAYOUT



The emergency organization shall be headed by emergency coordinator who will be qualified competent mine manager. In his absence senior most people available at the mine shall be emergency coordinator till arrival of mine manager. There would be three teams for taking care of emergency situations – Fire-Fighting Team, Rescue Team and Support Team. The proposed composition of the teams is given in Table 7.2.

TABLE 7.2: PROPOSED TEAMS TO DEAL WITH EMERGENCY SITUATION

DESIGNATION	QUALIFICATION
FIRE-FIGHTING TEAM	
Team Leader/ Emergency Coordinator (EC)	Mines Manager
Team Member	Mines Foreman
Team Member	Mining Mate
RESCUE TEAM	
Team Leader/ Emergency Coordinator (EC)	Mines Manager
Team Member/ Incident Controller (IC)	Environment Officer
Team Member	Mining Foreman
SUPPORT TEAM	
Team Leader/ Emergency Coordinator (EC)	Mines Manager
Assistant Team Leader	Environment Officer
Team Member	Mining Mate
Security Team Leader/ Emergency Security Controller	Mines Foreman

Once the mine becomes operational, the above table along with names of personnel will be prepared and made easily available to workers. A mobile communication network and wireless shall connect Mine Emergency Control Room (MECR) to control various departments of the mine, fire station and neighbouring industrial units/mines.

Roles and responsibilities of emergency team –

(a) Emergency coordinator (EC)

The emergency coordinator shall assume absolute control of site and shall be located at MECR.

(b) Incident controller (IC)

Incident controller shall be a person who shall go to the scene of emergency and supervise the action plan to overcome or contain the emergency. Shift supervisor or Environmental Officer shall assume the charge of IC.

(c) Communication and advisory team

The advisory and communication team shall consist of heads of Mining Departments i.e., Mines Manager

(d) Roll call coordinator

The Mine Foreman shall be Roll Call Coordinator. The roll call coordinator will conduct the roll call and will evacuate the mine personnel to assembly point. His prime function shall be to account for all personnel on duty.

(e) Search and rescue team

There shall be a group of people trained and equipped to carryout rescue operation of trapped personnel. The people trained in first aid and fire-fighting shall be included in search and rescue team.

(f) Emergency security controller

Emergency Security Controller shall be senior most security person located at main gate office and directing the outside agencies e.g. fire brigade, police, doctor and media men etc.,

Emergency control procedure –

The onset of emergency, will in all probability, commence with a major fire or explosion or collapse of wall along excavation and shall be detected by various safety devices and also by members of operational staff on duty. If located by a staff member on duty, he (as per site emergency procedure of which he is adequately briefed) will go to nearest alarm call point, break glass and trigger off the alarms. He will also try his best to inform about location and nature of accident to the emergency control room. In accordance with work emergency procedure the following key activities will immediately take place to interpret and take control of emergency.

- On site fire crew led by a fireman will arrive at the site of incident with fire foam tenders and necessary equipment.
- Emergency security controller will commence his role from main gate office
- Incident controller shall rush to the site of emergency and with the help of rescue team and will start handling the emergency.
- Site main controller will arrive at MECR with members of his advisory and communication team and will assume absolute control of the site.
- He will receive information continuously from incident controller and give decisions and directions to:
 - Incident controller
 - Mine control rooms
 - Emergency security controller

Proposed fire extinguishers at different locations –

The following type of fire extinguishers has been proposed at strategic locations within the mine.

TABLE 7.3: PROPOSED FIRE EXTINGUISHERS AT DIFFERENT LOCATIONS

LOCATION	TYPE OF FIRE EXTINGUISHERS
Electrical Equipment's	CO ₂ type, foam type, dry chemical powder type
Fuel Storage Area	CO ₂ type, foam type, dry chemical powder type, Sand bucket
Office Area	Dry chemical type, foam type

Alarm system to be followed during disaster –

On receiving the message of disaster from Site Controller, fire-fighting team, the mine control room attendant will sound siren wailing for 5 minutes. Incident controller will arrange to broadcast disaster message through public address system. On receiving the message of "Emergency Over" from Incident Controller the emergency control room attendant will give "All Clear Signal", by sounding alarm straight for 2 minutes.

7.4 CUMULATIVE IMPACT STUDY

For easy representation of Proposed and Existing Quarries in the Cluster are given unique codes and identifies and studied in this EIA/EMP Report.

TABLE 7.4: LIST OF QUARRIES WITHIN 500 METER RADIUS

PROPOSED QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
P1	Thiru. M. Antony Gomez S/o. Mariadoss No.9/1, M.K. Street, West Tambaram, Chennai – 600 032	Pazhayaseevaram .B	76/15A, 76/15B,76/15C3,7 6/16A ,77/5, 77/6, 77/7, 77/9,77/10	3.63.50	File No.11263 TO24B0108TN5810664N Dated: 23.10.2024-
	TOTAL EXTENT			3.63.50	
EXISTING QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
E-1	Thiru. M. Antony Gomez S/o. Mariadoss No.9/1, M.K. Street, West Tambaram, Chennai – 600 032	Pazhayaseevaram .B	76/1A,76/2,76/4A, 76/6A,76/7,76/8A, 76/8B,76/9,76/10, 76/11,76/12,77/1,7 7/2,77/3& 77/4	4.27.0	07.10.2022 to 06.10.2027
	TOTAL EXTENT			4.27.0	
EXPIRED QUARRIES					
Nil					
ABANDONED QUARRIES					
A-1	Thiru.R.Micheal	Pazhayaseevaram. B	76/1A,76/2,76/4A, 76/7,76/8B	2.05.00	24.11.2024 to 23.11.2019
A-2	Thiru.Javid Syad	Pazhayaseevaram. B	74/2,74/3,4,5 & 66/21	2.02.00	11.02.2012 to 10.02.2017
	TOTAL EXTENT			4.07.0	
	TOTAL CLUSTER EXTENT			7.90.5 Ha	

- Cluster area is calculated as per MoEF & CC Notification – S.O. 2269 (E) Dated: 01.07.2016

TABLE 7.5: SALIENT FEATURES OF PROPOSAL “P1”

Name of the Project	Thiru.M. Antony Gomez Rough Stone and Gravel Quarry
S.F. No.	76/15A,15B,15C3,16A,77/5,6,7,9 &10
Extent	3.63.50 ha
Village, Taluk and District	Pazhayaseevaram B Village, Walajabad Taluk & Kancheepuram District
Land Type	It is an Own Patta land – Patta No. 1204
Existing quarry operation	It is a Fresh quarry proposal
Toposheet No	57- P/13
Latitude between	12° 47' 51.9905"N to 12° 48' 03.6695"N
Longitude between	79° 52' 49.6415"E to 79° 52' 56.8974"E
Elevation of the area	77m AMSL

Lease period	10 Years			
Mining Plan period	5 years			
Proposed Depth of Mining as per Mining Plan	47m BGL			
Restricting Depth of Mining as per ToR	42m BGL			
	Rough Stone in m ³	Weathered Rock (m ³)		Gravel (m ³)
Geological Resources	14,54,000	1,81,750		72,700
Mineable Reserves as per ToR	4,10,240	1,30,360		54,104
Year wise Production for First Five Year as per Mining Plan	2,69,240	91,120		54,104
Year wise Production for Second Five Year as per Mining Plan	1,46,400	39,240		-
Peak Production	62,550	47,570		19,856
Ultimate Pit Dimension as per Mining Plan	Section	Length (m)	Width (m)	Depth (m)
	XY- AB	104	71	32
	X1Y1- CD	45	20	7
	X2Y2- EF	138	136	47
Water Level in the region	58m -63m bgl			
Method of Mining	Opencast Mechanized Mining Method involving small drilling and Controlled blasting using Slurry Explosives			
Topography	The lease applied area is exhibiting plain terrain. The area has gentle sloping towards Eastern side and altitude of the area is 78m 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 nearby Existing quarries			
Machinery proposed	Jack Hammer	8Nos		
	Compressor	2Nos		
	Excavator with Bucket and Rock Breaker	1Nos		
	Trucks	3Nos		
	Water Sprinkling Tanker	1Nos		
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone.			
Proposed Manpower Deployment	33 Nos			
Project Cost	Rs.6,96,97,000/-			
EMP Cost (Ten Years)	Rs.7,60,000/-			
Total Project cost	Rs.7,04,57,000/-			
CER Cost	Rs. 5,00,000/-			
Nearby Water Bodies	Odai	100m East		
	Varadapuram Eri	100m SW		
	Odai	160m South		
	Tank	230m NW		
	Canal	1.5km South		
	Palar River	2.8km South		
	Palur Lake	2.8km SE		
	Palayaseevaram Check Dam	3.2km SW		
	Cheyyar River	4.5km SW		

	Thenneri Lake	6.2km NW
Greenbelt Development Plan	Proposed to plant 1820 Nos of trees considering 500 Nos of trees/ Ha criteria The plantation will be developed around the project site and nearby village roads	
Proposed Water Requirement	2.1 KLD	
Nearest Habitation	630m – Southeast	
Nearest Reserve Forest	Vadakkupattu R.F. – 5.0 km – North East Kaveripakkam R.F. – 7.6km – South Appur R.F – 8.0km - SE	
Nearest Wild Life Sanctuary	Karikili Bird Sanctuary- 21.8 km – Southwest Vedanthangal Bird Sanctuary – 27.8 km Southwest	

TABLE 7.6: SALIENT FEATURES OF PROPOSAL “E1”

Name of the Mine	Thiru. M.Antony Gomez Rough stone and Gravel quarry		
Land Type	It is a Patta land. The lands registered in the name of the Thiru.M. Antony Gomez.		
S.F. No.	76/1A, 76/2, 76/4A, 76/6A, 76/7, 76/8A,76/8B,76/9,76/10,76/11, 76/12,77/1,77/2,77/3 &77/4		
Extent	4.27.0 Ha		
Previous quarry details	It is an existing quarry. Thiru. R.Michel Mahesh (24.11.2014 to 23.11.2019)		
Existing depth of mining	19m below ground level		
Proposed depth of mining	47m below ground level		
Geological Reserves	Rough Stone m ³	Gravel m ³	Weathered Rock m ³
	15,28,281	38,360	95,899
Mineable Reserves	3,60,750	26,750	66,875
Proposed production for this five-year mining plan period	3,60,750	26,750	66,875
Existing Pit Dimension	Pit-1 208m (L) X 88m (W) X 19m (D)		
Ultimate Pit Dimension	Pit-1 208m (L) X 198m (W) X 47m (D)		
Toposheet No	57-P/13		
Latitude	12°47'55.84"N to 12°48'05.28"N		
Longitude	79°52'45.59"E to 79°52'54.16"E		
Highest Elevation	77m (max) above Mean Sea level		
Water Level	60 to 65m BGL		
Machinery	Jack Hammer	9	
	Compressor	3	
	Excavator with Bucket and Rock Breaker	2	
	Tipper	3	
Blasting	Usage of Slurry Explosive with MSD detonators		
Manpower Deployment	34Nos		
Total Project Cost	Project Cost		Rs. 4,93,04,000/-
	EMP Cost		Rs.3,80,000/-
	Total		Rs.4,96,84,000/-

CER cost	Rs. 5,00,000
Greenbelt Development Plan	Proposed to plant 2135 Nos of trees considering 500 Nos of trees/ Ha criteria The plantation will be developed around the project site and nearby village roads
Nearest Habitation	720m-North

The Cumulative Impact is mainly anticipated due to drilling & blasting and excavation and transportation activities in all the quarries (proposed and existing) within the cluster and major impact anticipated is on Air & Noise Environment and Ground Vibrations due to blasting.

Air Environment –

Calculating the Cumulative Load of Mining within the cluster is as shown in table 7.5 & 7.9.

TABLE 7.7: CUMULATIVE PRODUCTION LOAD OF ROUGH STONE

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
P1	2,69,240	53,848	180	15
E1	3,60,750	72,150	241	20
Grand Total	6,29,990	1,25,998	421	35

TABLE 7.8: CUMULATIVE PRODUCTION LOAD OF GRAVEL

Quarry	Production for Three-year plan period	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day
P1	54,104	18,034	60	5
E1	26,750	8,916	30	2
Grand Total	80854	26950	90	7

TABLE 7.9: CUMULATIVE PRODUCTION LOAD OF WEATHERED ROCK

Quarry	Production for Three-year plan period	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day
P1	91,120	30,373	101	8
E1	66,875	22,291	74	6
Grand Total	1,57,995	52664	175	14

On a cumulative basis considering the proposed quarries, it can be seen that the overall production of Rough Stone is 421m³ per day ,overall production of Gravel is 90 m³ per day and overall production of Weathered Rock is 175 m³ per day with a capacity of 35 trips of Rough Stone per day ,7 Trips per day of Gravel and 14 Trips per day of Weathered Rock from the cluster.

Note: Per day production of Rough Stone is calculated for 5 Years Lease Period Gravel production with 3 years of production period and Weathered rock production with 3 years of production period. The load of existing quarries is covered under existing environment of the cluster.

Based on the above production quantities the emissions due to various activities in all the 5 mines includes various activities like ground preparation, excavation, handling and transport of ore. These activities have been analysed systematically basing on USEPA-Emission Estimation Technique Manual, for Mining AP-42, to arrive at possible emissions to the atmosphere and estimated emissions are given in Table 7.18.

TABLE 7.10: EMISSION ESTIMATION FROM QUARRIES WITHIN 500 METER RADIUS

EMISSION ESTIMATION FOR QUARRY “P1”				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.095883154	g/s
	Blasting	Point Source	0.001960316	g/s
	Mineral Loading	Point Source	0.043426568	g/s
	Haul Road	Line Source	0.002494635	g/s/m
	Overall Mine	Area Source	0.057432133	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000876938	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000048776	g/s
EMISSION ESTIMATION FOR QUARRY “E1”				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.095883154	g/s
	Blasting	Point Source	0.001960316	g/s
	Mineral Loading	Point Source	0.043426568	g/s
	Haul Road	Line Source	0.002494635	g/s/m
	Overall Mine	Area Source	0.057432133	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000876938	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000048776	g/s

Source: Emission Calculation

TABLE 7.11: INCREMENTAL & RESULTANT GLC WITHIN CLUSTER

PM₁₀ in µg/m³	
Location	AAQ1 – CORE
Background (average)	44.9
Anticipated Incremental due to the proposals	10.79
Resultant	55.7
NAAQ Norms	100 µg/m ³
PM_{2.5} in µg/m³	
Location	AAQ1 – CORE
Background (average)	23.0
Highest Incremental	4.9
Resultant	27.9
NAAQ Norms	60 µg/m ³
SO₂ in µg/m³	
Location	AAQ1 – CORE
Background (average)	8.4
Anticipated Incremental due to the proposals	1.48
Resultant	9.9
NAAQ Norms	80 µg/m ³
NO_x in µg/m³	
Location	AAQ1 – CORE
Background (average)	22.7
Anticipated Incremental due to the proposals	7.69
Resultant	30.4
NAAQ Norms	80 µg/m ³

Noise Environment –

Noise pollution is mainly due to operation like drilling & blasting and plying of trucks & HEMM. Cumulative Noise modelling has been carried out considering blasting and compressor operation (drilling) and transportation activities. Predictions have been carried out to compute the noise level at various distances around the different quarries within the 500 m radius.

For hemispherical sound wave propagation through homogeneous loss free medium, one can estimate noise levels at various locations at different sources using model based on first principle.

$$Lp_2 = Lp_1 - 20 \log (r_2/r_1) - Ae_{1,2}$$

Where:

Lp_1 & Lp_2 are sound levels at points located at distances r_1 & r_2 from the source.

$Ae_{1,2}$ is the excess attenuation due to environmental conditions. Combined effect of all sources can be determined at various locations by logarithmic addition.

$$Lp_{total} = 10 \log \{10^{(Lp_1/10)} + 10^{(Lp_2/10)} + 10^{(Lp_3/10)} + \dots\}$$

Attenuation due to Green Belt has been taken to be 4.9 dB (A). The inputs required for the model are:

Source data has been computed taking into account of all the machinery and activities used in the mining process.

TABLE 7.12: PREDICTED NOISE INCREMENTAL VALUES FROM CLUSTER

Location ID	Background Value (Day) dB(A)	Incremental Value dB(A)	Total Predicted dB(A)	Residential Area Standards dB(A)
Habitation Near P1	48.2	47.3	46.3	55
Habitation Near E1	39.5	47.4	48.7	

Source: Lab Monitoring Data

The incremental noise level is found within the range of 43.6 – 48.1 dB (A) in Buffer zone. The noise level at different receptors in buffer zone is lower due to the distance involved and other topographical features adding to the noise attenuation. 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, it can be seen that the ambient noise levels at all the locations near habitations are within permissible limits of Residential Area (buffer zone) as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (The Principal Rules were published in the Gazette of India, vide S.O.123(E), dated 14.2.2000 and subsequently amended vide S.O. 1046(E), dated 22.11.2000, S.O. 1088(E), dated 11.10.2002, S.O. 1569 (E), dated 19.09.2006 and S.O. 50 (E) dated 11.01.2010 under the Environment(Protection) Act, 1986).

Ground Vibrations

Ground vibrations due to mining activities in all the 9 Mines within cluster are anticipated due to operation of Mining Machines like Excavators, drilling and blasting, transportation vehicles, etc. However, the major source of ground vibration from all the 9 mines is blasting. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease area. The kuchha houses are more prone to cracks and damage due to the vibrations induced by blasting whereas RCC framed structures can withstand more ground vibrations. Apart from this, the ground vibrations may develop a fear factor in the nearby settlements nearby the mining areas and may cause injury to persons or damage to the structures. Nearest Habitations from 9 mines respectively are as in below Table 7.17.

TABLE 7.13: NEAREST HABITATION FROM EACH MINE

Location ID	Distance & Direction
Habitation Near P1	630-SE
Habitation Near E1	720-N

The ground vibrations due to the blasting in all the mines are calculated using the empirical equation for assessment of peak particle velocity (PPV) is:

$$V = K [R/Q^{0.5}]^{-B}$$

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

Q = maximum instantaneous charge (kg)

B = constant related to the rock and site (usually 1.6)

R = distance from charge (m)

TABLE 7.14: GROUND VIBRATIONS AT 2 MINES

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	20	630-SE	0.182
E1	104	720- N	0.551

Source: Blasting Calculations

From the above table, the charge per blast is considered as maximum in each mine and the resultant PPV is well below the Peak Particle Velocity of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997.

Socio Economic Environment –

The 6 mines shall contribute towards CER and the community shall develop.

TABLE 7.15: SOCIO ECONOMIC BENEFITS FROM 2 MINES

Location ID	Project Cost	CER
P1	Rs.7,04,57,000/-	Rs.5,00,000/-
E1	Rs.4,96,84,000/-	Rs.5,00,000/-
Total	Rs.12,01,41,000/-	Rs.10,00,000/-

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.

- Proposed Project shall fund towards CER – **Rs 5,00,000/-**

TABLE 7.16: EMPLOYMENT BENEFITS FROM 2 MINES

Description	Employment
P1	33
E1	34
Total	67

A total of 33 people will get employment due to 1 proposed mines in cluster and 34 people are already employed at 1 existing mines.

TABLE 7.17: GREEN BELT DEVELOPMENT FROM 2 MINES

Code	No. of tress proposed to be planted	Area to be covered in m ²	Name of the species
P1	1820	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development.	Neem, Pungam, Maa, Senkondrai , Mookusali, Mantharai etc.,
E1	2135		Neem, Pungam, Maa, Senkondrai , Mookusali, Mantharai etc.,
TOTAL		3955	

Based on the Proposed Mining Plans it's anticipated that there shall growth of native species of Neem, Pungam et., in the Cluster at a rate of 3955 Trees Planted over a period of 5 Years with Survival Rate of 80%.

7.5 PLASTIC WASTE MANAGEMENT PLAN

The project Proponent shall comply with Tamil Nadu Government Order (Ms) No. 84 Environment and Forest (EC.2) Department Dated: 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986.

Objective –

- To investigate the actual supply chain network of plastic waste.
- To identify and propose a sustainable plastic waste management by installing bins for collection of recyclables with all the plastic waste
- Preparation of a system design layout, and necessary modalities for implementation and monitoring.

TABLE 7.18: ACTION PLAN TO MANAGE PLASTIC WASTE

Sl.No.	Activity	Responsibility
1	Framing of Layout Design by incorporating provision of the Rules, user fee to be charged from waste generators for plastic waste management, penalties/fines for littering, burning plastic waste or committing any other acts of public nuisance	Mines Manager
2	Enforcing waste generators to practice segregation of bio-degradable, recyclable and domestic hazardous waste	Mines Manager
3	Collection of plastic waste	Mines Foreman
4	Setting up of Material Recovery Facilities	Mines Manager
5	Segregation of Recyclable and Non-Recyclable plastic waste at Material Recovery Facilities	Mines Foreman
6	Channelization of Recyclable Plastic Waste to registered recyclers	Mines Foreman
7	Channelization of Non-Recyclable Plastic Waste for use either in Cement kilns, in Road Construction	Mines Foreman
8	Creating awareness among all the stakeholders about their responsibility	Mines Manager
9	Surprise checking's of littering, open burning of plastic waste or committing any other acts of public nuisance	Mine Owner

Source: Proposed by FAE's and EC

7.6 Cluster Management Committee

The cluster management committee is proposed to form including of 1 Proposed quarry and 1 existing quarry total extent of the cluster is 7.90.5 Ha

In the cluster management committee, the following Environmental Management plan will be followed the activities such as

- Transportation of Minerals and blasting activities with the coordination between the individual quarry owners.
- Sprinkling of water regularly thrice a day in the mutual understanding with the quarry owners
- Carrying out blasting operation as specified times by the Mines Managers and as per the EIA report
- Usage of Haul roads in a time specified by the Cluster Management Committee
- Following Safe operating procedure prescribed by the Mines Manager during natural calamities
- Planting Trees in the Government Land, School and within the project site
- Celebrating Safety month, Environmental Month along with the Mines Managers in every six months once
- Regularly follow the health of the workers and take medical examination as per the DGMS norms under the guidance of Mines Manager
- Meet at Association Hall monthly once to review the Environmental Management and Safety activities prescribed by the Cluster Management Committee
- We have read and understood all the above steps and we ensure to follow these specific steps Quarry owners in the Cluster management committee

Quarries in the Cluster Management Committee

PROPOSED QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
P1	Thiru. M. Antony Gomez S/o. Mariadoss No.9/1, M.K. Street, West Tambaram, Chennai – 600 032	Pazhayaseevaram .B	76/15A, 76/15B,76/15C3,7 6/16A ,77/5, 77/6, 77/7, 77/9,77/10	3.63.50	File No.11263 TO24B0108TN5810664N Dated: 23.10.2024-
	TOTAL EXTENT			3.63.50	
EXISTING QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
E-1	Thiru. M. Antony Gomez S/o. Mariadoss No.9/1, M.K. Street, West Tambaram, Chennai – 600 032	Pazhayaseevaram .B	76/1A,76/2,76/4A, 76/6A,76/7,76/8A, 76/8B,76/9,76/10, 76/11,76/12,77/1,7 7/2,77/3& 77/4	4.27.0	07.10.2022 to 06.10.2027
	TOTAL EXTENT			4.27.0	
EXPIRED QUARRIES					
Nil					
ABANDONED QUARRIES					
A-1	Thiru.R.Micheal	Pazhayaseevaram. B	76/1A,76/2,76/4A, 76/7,76/8B	2.05.00	24.11.2024 to 23.11.2019

A-2	Thiru.Javid Syad	Pazhayaseevaram. B	74/2,74/3,4,5 & 66/21	2.02.00	11.02.2012 to 10.02.2017
	TOTAL EXTENT			4.07.0	
	TOTAL CLUSTER EXTENT			7.90.5 Ha	

STANDARD OPERATING PROCEDURE FOR PAZHAYASEEVARAM-B CLUSTER MANAGEMENT COMMITTEE

1. Maintenance of Haul Roads and Village Roads:

- 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
- 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

2. Maintenance of Drilling Activities

- 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.
- 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 through training and awareness.
- Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects

3. Maintenance of Blasting Activities

- 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 (1.00 PM to 2.00 PM), 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
- The blasting operations in the cluster quarries are carried out without deep hole drilling and blasting using delay detonators, which reduces the ground vibrations;
- Proper quantity of explosive, suitable stemming materials and appropriate delay system will be adopted to avoid overcharging and for safe blasting;
- Adequate safe distance from blasting will be maintained as per DGMS guidelines;
- Blasting shelter will be provided as per DGMS guidelines;
- Blasting operations will be carried out only during day time;
- The charge per delay will be minimized and preferably a greater number of delays will be used per blasts;
- During blasting, other activities in the immediate vicinity will be temporarily stopped;
- Drilling parameters like depth, diameter and spacing will be properly designed to give proper blast;
- A fully trained explosives blast man (Mining Mate, Mines Foreman, 2nd Class Mines Manager/ 1st Class Mines Manager) will be appointed.
- A set of shot firing rules will be drawn up and blasting shall commence outlining the detailed operating procedures that will be followed to ensure that shot firing operations on site take place without endangering the workforce or public.
- Sufficient angular stemming material will be used to confine the explosive force and minimise environmental disturbance caused by venting / misfire.
- The detonators will be connected in a predetermined sequence to ensure that only one charge is detonated at any one time and a NONEL or similar type initiation system will be used.
- The detonation delay sequence shall be designed so as to ensure that firing of the holes is in the direction of free faces so as to minimise vibration effects.
- Appropriate blasting techniques shall be adopted such that the predicted peak particle velocity shall not exceed 8 Hz.
- Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices

4. Maintenance of Greenbelt Activities

- 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

- Suitable plan for conservation of Schedule-I Species have prepared and necessary fund for implement for the same will be made.
- All the preventive measures will be taken for growth & development of fauna.
- Creating and development awareness for nature and wildlife in the adjoin villages.
- The workers shall be trained to not harm any wildlife, should it come near the project site. No work shall be carried out after 6.00 pm

5. Maintenance of Occupational Health

- Dust mask will be provided to the workers and their use will be strictly monitored
- Annual medical checkups, 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
- Specific personnel training on work-site safety management will be taken up;
- Work site assessment will be done by rock scaling of each surface exposed to workers to prevent accidental rock falling and / or landslide, especially after blasting activities;
- Natural barriers, temporary railing, or specific danger signals will be provided along rock benches or other pit areas where work is performed at heights more than 2m from ground level;
- Maintenance of yards, roads and footpaths, providing sufficient water drainage and preventing slippery surfaces with an all-weather surface, such as coarse gravel will be taken up

Occupational health and safety hazards occur during the operational phase of mining and primarily include the following:

- Respiratory hazards
- Noise
- Physical hazards
- Explosive storage and handling

All the persons will undergo pre-employment and periodic medical examination. Employees will be monitored for occupational diseases by conducting the following tests

- General physical tests
- Audiometric tests
- Full chest, X-ray, Lung function tests, Spirometric tests
- Periodic medical examination – yearly
- Lung function test – yearly, those who are exposed to dust
- Eye test

Essential medicines will be provided at the site. The medicines and other test facilities will be provided at free of cost. The first aid box will be made available at the mine for immediate treatment.

First aid training will be imparted to the selected employees regularly. The lists of first aid trained members shall be displayed at strategic places.

6. Cluster Management Committee Policy

- Meet the requirements of all laws, acts, regulations, and standards relevant to its operations and activities
- Implement a program to train employees in general environmental issues and individual workplace environmental responsibilities
- Allocate necessary resources to ensure the implementation of the environmental policy

-
- Ensure that an effective closure strategy is in place at all stages of project development and that progressive reclamation is undertaken as early as possible to reduce potential long-term environmental and community impacts
 - Implement monitoring programme to provide early warning of any deficiency or unanticipated performance in environmental safeguards
 - Conduct periodic reviews to verify environmental performance and to continuously strive towards improvement
 - 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.

8.PROJECT BENEFITS

8.0 GENERAL

The Proposed Project for Quarrying Rough Stone and gravel at Pazhayaseevaram B Villages aims to produce **4,10,240 m³** Rough Stone over a period of 10 Years Gravel **54,104 m³** for period of 3 years & Weathered Rock **1,30,360 m³** for period of 4 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

8.1 EMPLOYMENT POTENTIAL

It is proposed to provide employment to about 33 persons for carrying out mining operations and give preference to the local people in providing employment in the three proposed quarries in the cluster. In addition, there will be opportunity for indirect employment to many people in the form of contractual jobs, business opportunities, service facilities etc. the economic status of the local people will be enhanced due to mining project.

8.2 SOCIO-ECONOMIC WELFARE MEASURES PROPOSED

The impact of mining activity in the area will be more positive on the socio-economic environment in the immediate project impact area. The employment opportunities both direct and indirect will contribute to enhanced money incomes to job seekers with minimal skill sets especially among the local communities.

8.3 IMPROVEMENT IN PHYSICAL INFRASTRUCTURE

The proposed quarry is located in Pazhayaseevaram Village, Walajabad Taluk and Kancheepuram District of Tamil Nadu and the area have communications, roads and other facilities already well established. The following physical infrastructure facilities will further improve due to proposed mine.

- Road Transport facilities
- Communications
- Medical, Educational and social benefits will be made available to the nearby civilian population in addition to the workmen employed in the mine.

8.4 IMPROVEMENT IN SOCIAL INFRASTRUCTURE

Employment is expected during civil construction period, in trade, garbage lifting, sanitation and other ancillary services, Employment in these sectors will be primarily temporary or contractual and involvement of unskilled labour will be more. A major part of the labour force will be mainly from local villagers who are expected to engage themselves both in agriculture and mining activities. This will enhance their income and lead to overall economic growth of the area.

8.5 OTHER TANGIBLE BENEFITS

The proposed mine is likely to have other tangible benefits as given below.

- Indirect employment opportunities to local people in contractual works like construction of infrastructural facilities, transportation, sanitation, for supply of goods and services to the mine and other community services.
- Additional housing demand for rental accommodation will increase
- Cultural, recreation and aesthetic facilities will also improve
- Improvement in communication, transport, education, community development and medical facilities and overall change in employment and income opportunity
- The State Government will also benefit directly from the proposed mine, through increased revenue from royalties, cess, DMF, GST etc.,

CORPORATE SOCIAL RESPONSIBILITY

The Project Proponent will take responsibility to develop awareness among all levels of their staff about CSR activities and the integration of social processes with business processes. Those involved with the undertaking of CSR activities will be provided with adequate training and re-orientation.

CSR Cost Estimation

- CSR activities will be taken up in the Karunchamigoundenpalayam village mainly contributing to education, health, training of women self-help groups and contribution to infrastructure etc., CSR budget is allocated as 2.5% of the profit.

CORPORATE ENVIRONMENT RESPONSIBILITY

For the existing quarries Allocation for Corporate Environment Responsibility (CER) shall be made as per Government of India, MoEF & CC Office Memorandum F.No.22-65/2017-IA.III, Dated: 01.05.2018.

Proponent intends to spent Rs 5,00,000/- towards CER for the Government School near the project site the details are given below:

TABLE 8.1 CER – ACTION PLAN

Activity	CER
• Renovation/ Construction of Existing Toilet • Providing Environmental Related books to the school Library • Carrying out plantation and maintenance in the school Ground • Any other requirements in consultation with the school Head master	Rs 5,00,000/-

9. ENVIRONMENTAL COST BENEFIT ANALYSIS

Not Applicable, Since Environmental Cost Benefit Analysis not recommended at the Scoping stage.

10. ENVIRONMENTAL MANAGEMENT PLAN

10.0. GENERAL

Environment Management Plan (EMP) aims at the preservation of ecological system by considering in-built pollution abatement facilities at the proposed site. Good practices of Environmental Management plan will ensure to keep all the environmental parameters of the project in respect of Ambient Air quality, Water quality, Socio – economic improvement standards.

Mitigation measures at the source level and an overall environment management plan at the study area are elicited so as to improve the supportive capacity of the receiving bodies. The EMP presented in this chapter discusses the administrative aspects of ensuring that mitigative measures are implemented and their effectiveness monitored after approval of the EIA.

10.1. ENVIRONMENTAL POLICY

The Project Proponent is committed to conduct all its operations and activities in an environmentally responsible manner and to continually improve environmental performance.

The Proponent Thiru. M. Antony Gomez will –

- Meet the requirements of all laws, acts, regulations, and standards relevant to its operations and activities
- Implement a program to train employees in general environmental issues and individual workplace environmental responsibilities.
- Allocate necessary resources to ensure the implementation of the environmental policy.
- Ensure that an effective closure strategy is in place at all stages of project development and that progressive reclamation is undertaken as early as possible to reduce potential long-term environmental and community impacts.
- Implement monitoring programmes to provide early warning of any deficiency or unanticipated performance in environmental safeguards.
- Conduct periodic reviews to verify environmental performance and to continuously strive towards improvement.

Description of the Administration and Technical Setup –

The Environment Monitoring Cell discussed under Chapter 6 will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through Mine Management Level of each Proposed Quarry.

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.

10.2. LAND ENVIRONMENT MANAGEMENT –

Landscape of the area will be changed due to the quarrying operation, restoration of the land by converting the quarry pit into temporary reservoir and the remaining part of the area (un utilized areas, infrastructure, haul Roads) will be utilized for greenbelt development. There is no major vegetation in the project area during the course of quarrying operation and after completion of the quarrying operation thick plantation will be developed under greenbelt development programme.

TABLE 10.1. PROPOSED CONTROLS FOR LAND ENVIRONMENT

CONTROL	RESPONSIBILITY
Design vehicle wash-down areas so that all runoff water is captured and passed through oil water separators and sediment catchment devices.	Mines Manager
Refueling to be undertaken in a safe location, away from vehicle movement pathways & 100 m away of any watercourse Refueling activity to be under visual observation at all times. Drainage of refueling areas to sumps with oil/water separation	Mine Foreman & Mining Mate
Soil and groundwater testing as required following up a particular incident of contamination.	Mines Manager
At conceptual stage, the mining pits will be converted into Rain Water Harvesting. Remaining area will be converted into greenbelt area	Mines Manager
No external dumping i.e., outside the project area	Mine Foreman
Garland drains with catch pits / settlement traps to be provided all around the project area to prevent run off affecting the surrounding lands.	Mines Manager
The periphery of Project area will be planted with thick plantation to arrest the fugitive dust, which will also act as acoustic barrier.	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.3. SOIL MANAGEMENT

There overburden in the form of Gravel which will directly loaded into Trucks for the filling and levelling of low-lying areas.

TABLE 10.2. PROPOSED CONTROLS FOR SOIL MANAGEMENT

CONTROL	RESPONSIBILITY
Surface run-off from the project boundary via garland drains will be diverted to the mine pits	Mine Foreman & Mining Mate
Design haul roads and other access roads with drainage systems to minimize concentration of flow and erosion risk	Mines Manager
Empty sediment from sediment traps Maintain, repair or upgrade garland drain system	Mines Manager
Test soils for pH, EC, chloride, size & water holding capacity	Manager Mines

Source: Proposed by FAE's & EIA Coordinator

10.4. WATER MANAGEMENT

In the proposed quarrying project, no process is involved for the effluent generation, only oil & grease from the machinery wash is anticipated and domestic sewage from mines office. The quarrying operation is proposed upto a depth of 32 m BGL, the water table in the area is 55 m – 60 m below ground level, hence the proposed projects will not intersect the Ground water table during entire quarry period.

TABLE 10.3. PROPOSED CONTROLS FOR WATER ENVIRONMENT

CONTROL	RESPONSIBILITY
To maximize the reuse of pit water for water supply	Mines Foreman
Temporary and permanent garland drain will be constructed to contain the catchments of the mining area and to divert runoff from undisturbed areas through the mining areas	Mines Manager
Natural drains/nallahs/brooklets outside the project area should not be disturbed at any point of mining operations	Mines Manager
Ensure there is no process effluent generation or discharge from the project area into water bodies	Mines Foreman
Domestic sewage generated from the project area will be disposed in septic tank and soak pit system	Mines Foreman
Monthly or after rainfall, inspection for performance of water management structures and systems	Mines Manager
Conduct ground water and surface water monitoring for parameters specified by CPCB	Manager Mines

Source: Proposed by FAE's & EIA Coordinator

10.5. AIR QUALITY MANAGEMENT

The proposed quarrying activity would result in the increase of particulate matter concentrations due to fugitive dust. Daily water sprinkling on the haul roads, approach roads in the vicinity would be undertaken and will be continued as there is possibility for dust generation due to truck mobility. It will be ensured that vehicles are properly maintained to comply with exhaust emission requirements

TABLE 10.4. PROPOSED CONTROLS FOR AIR ENVIRONMENT

CONTROL	RESPONSIBILITY
Generation of dust during excavation is minimized by daily (twice) water sprinkling on working face and daily (twice) water sprinkling on haul road	Mines Manager
Wet drilling procedure /drills with dust extractor system to control dust generation during drilling at source itself is implemented	Mines Manager
Maintenance as per operator manual of the equipment and machinery in the mines to minimizing air pollution	Mines Manager
Ambient Air Quality Monitoring carried out in the project area and in surrounding villages to access the impact due to the mining activities and the efficacy of the adopted air pollution control measures	Mines Manager
Provision of Dust Mask to all workers	Mines Manager
Greenbelt development all along the periphery of the project area	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.6. NOISE POLLUTION CONTROL

There will be intermittent noise levels due to vehicular movement, trucks loading, drilling and blasting and cutting activities. No mining activities are planned during night time.

TABLE 10.5.: PROPOSED CONTROLS FOR NOISE ENVIRONMENT

CONTROL	RESPONSIBILITY
Development of thick greenbelt all along the Buffer Zone (7.5 Meters) of the project area to attenuate the noise and the same will be maintained	Mines Manager
Preventive maintenance of mining machinery and replacement of worn-out accessories to control noise generation	Mines Foreman
Deployment of mining equipment with an inbuilt mechanism to reduce noise	Mines Manager
Provision of earmuff / ear plugs to workers working in noise prone zones in the mines	Mining Mate
Provision of effective silencers for mining machinery and transport vehicles	Mines Manager
Provision of sound proof AC operator cabins to HEMM	Mines Manager
Sharp drill bits are used to minimize noise from drilling	Mines Foreman
Controlled blasting technologies are adopted by using delay detonators to minimize noise from blasting	Mines Manager
Annual ambient noise level monitoring are carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring	Mines Manager
Reduce maximum instantaneous charge using delays while blasting	Mining Mate
Change the burden and spacing by altering the drilling pattern and/or delay layout, or altering the hole inclination	Mines Manager
Undertake noise or vibration monitoring	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.7. GROUND VIBRATION AND FLY ROCK CONTROL

The Rough stone quarry operation creates vibration due to the blasting and movement of Heavy Earth moving machineries, fly rocks due to the blasting.

TABLE 10.6.: PROPOSED CONTROLS FOR GROUND VIBRATIONS & FLY ROCK

CONTROL	RESPONSIBILITY
Controlled blasting using delay detonators will be carried out to maintain the PPV value (below 8Hz) well within the prescribed standards of DGMS	Mines Manager
Drilling and blasting will be carried under the supervision of qualified persons	Mines Manager
Proper stemming of holes should be carried out with statutory competent qualified blaster under the supervision of statutory mines manager to avoid any anomalies during blasting	Mines Manager
Suitable spacing and burden will be maintained to avoid misfire / fly rocks	Manager Mines
Number of blast holes will be restricted to control ground vibrations	Manager Mines
Blasting will be carried out only during noon time	Mining Mate
Undertake noise or vibration monitoring	Mines Manager
ensure blast holes are adequately stemmed for the depth of the hole and stemmed with suitable angular material	Mines Foreman

Source: Proposed by FAE's & EIA Coordinator

10.8. BIOLOGICAL ENVIRONMENT MANAGEMENT

The proponent will take all necessary steps to avoid the impact on the ecology of the area by adopting suitable management measures in the planning and implementation stage. During mining, thick plantation will be carried out around the project periphery, on safety barrier zone, on top benches of quarried out area etc.,

Following control measures are proposed for its management and will be the responsibility of the Mines Manager.

- Greenbelt development all along the safety barrier of the project area
- It is also proposed to implement the greenbelt development programme and post plantation status will be regularly checked for every season.
- The main attributes that retard the survival of sapling is fugitive dust, this fugitive dust can be controlled by water sprinkling on the haul roads and installing a sprinkler unit near the newly planted area.
- Year wise greenbelt development will be recorded and monitored
 - Based on the area of plantation.
 - Period of plantation
 - Type of plantation
 - Spacing between the plants
 - Type of manuring and fertilizers and its periods
 - Lopping period, interval of watering
 - Survival rate
 - Density of plantation
- The ultimate reclamation planned leaves a congenial environment for development of flora & immigration of small fauna through green belt and water reservoir. The green belt and water reservoir developed within the Project at the end of mine life will attract the birds and animals towards the project area in the post mining period.

10.8.1. Green Belt Development Plan

About 1820 nos. of saplings is proposed to be planted for the Mining plan period in safety barrier of applied mine lease area with survival rate 80%. The greenbelt development plan has been prepared keeping in view the land use changes that will occur due to mining operation in the area.

TABLE 10.7: PROPOSED GREENBELT ACTIVITIES

No. of tress proposed to be planted	Area to be covered in m ²	Name of the species
1820	The safety zone along the boundary barrier and Village roads has been utilized for Greenbelt development.	Neem, Pungam, Maa, Senkondrai , Mookusali, Mantharai etc.,

Source: Approved Mining plan

The objectives of the greenbelt development plan are –

- Provide a green belt around the periphery of the quarry area to combat the dispersal of dust in the adjoining areas,
- Protect the erosion of the soil, Conserve moisture for increasing ground water recharging,
- Restore the ecology of the area, restore aesthetic beauty of the locality and meet the requirement of fodder, fuel and timber of the local community.

A well-planned Green Belt with multi rows (three tiers) preferably with long canopy leaves shall be developed with dense plantations around the boundary and haul roads to prevent air, dust noise propagation to undesired places and efforts will be taken for the enhancement of survival rate.

10.8.2. Species Recommended for Plantation

Following points have been considered while recommending the species for plantation:

- Creating of bio-diversity.
- Fast growing, thick canopy cover, perennial and evergreen large leaf area,
- Efficient in absorbing pollutants without major effects on natural growth

TABLE 10.8. RECOMMENDED SPECIES FOR THE PLANTSATION

S.No	Botanical Name	Local Name	Importance
1	Azadirachta indica	Neem, Vembu	Neem oil & neem products
2	Tamarindus indica	Tamarind	Edible & Medicinal and other Uses
3	Polyalthia longifolia	Nettilinkam	Tall and evergreen tree
4	Borassus Flabellifer	Palmyra Palm	Tall Wind breaker tree and its fruits are edible

Source: Proposed by FAE's & EIA Coordinator

10.9. OCCUPATIONAL SAFETY & HEALTH MANAGEMENT

Occupational safety and health are very closely related to productivity and good employer-employee relationship. The main factors of occupational health impact in quarries are fugitive dust and noise. Safety of employees during quarrying operation and maintenance of mining equipment will be taken care as per Mines Act 1952 and Rule 29 of Mines Rules 1955. To avoid any adverse effect on the health of workers due to dust, noise and vibration sufficient measures have been provided.

10.9.1. Medical Surveillance and Examinations –

The health status of workers in the mine will be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detailed medical examination at the time of employment. The medical examination covers the following tests under mines act 1952.

- General Physical Examination and Blood Pressure
- X-ray Chest and ECG
- Sputum test
- Detailed Routine Blood and Urine examination

The medical histories of all employees will be maintained in a standard format annually. Thereafter, the employees will be subject to medical examination annually. The below tests keep upgrading the database of medical history of the employees.

TABLE 10.9. MEDICAL EXAMINATION SCHEDULE

Sl.No	Activities	1 st Year	2 nd Year	3 rd Year	4 th Year	5 th Year
1	Initial Medical Examination (Mine Workers)					
A	Physical Check-up					
B	Psychological Test					
C	Audiometric Test					

D	Respiratory Test					
2	Periodical Medical Examination (Mine Workers)					
A	Physical Check – up					
B	Audiometric Test					
C	Eye Check – up					
D	Respiratory Test					
3	Medical Camp (Mine Workers & Nearby Villagers)					
4	Training (Mine Workers)					

10.9.2 Proposed Occupational Health and Safety Measures –

- The mine site will have adequate drinking water supply so that workers do not get dehydrated.
- Lightweight and loose-fitting clothes having light colours will be preferred to wear.
- Noise exposure measurements will be taken to determine the need for noise control strategies.
- The personal protective equipment will be provided for mine workers.
- At noisy working activity, exposure time will be minimized.
- Dust generating sources will be identified and proper control measure will be adopted.
- Periodic medical examinations will be provided for all workers.
- In respect of contract work, safety code for contractors and workers will be implemented. They will be allowed to work under strict supervision of statutory person/officials only after they will impart training at vocational training centres. All personal protective equipment's will be provided to them.
- A safety committee meeting every month will be organized to discuss the safety of the mines and the persons employed.
- Celebration of annual mines safety week and environmental week in order to develop safety awareness and harmony amongst employees and co quarry owners.

FIGURE 10.1.: PERSONAL PROTECTIVE EQUIPMENT TO THE MINE WORKERS



10.9.3: Health and Safety Training Programme

The Proponent will provide special induction program along with machinery manufacturers for the operators and co-operators to run and maintain the machinery effectively and efficiently. The training program for the supervisors and office staffs will be arranged in the Group Vocational Training Centres in the State and engage Environmental Consultants to provide periodical training to all the employees to carry out the mining operation in and eco-friendly manner as per Metalliferous Mines Regulation, 1961.

10.9.4.: Budgetary Provision for Environmental Management –

Adequate budgetary provision has been made by the Company for execution of Environmental Management Plan. The Table 10.11 gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures.

TABLE 10.10: EMP BUDGET FOR PROPOSED PROJECT

Activities	Mitigation Measure	Provision for Implementation	Capital	Recurring
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	36350	36350
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	800000	50000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	5000
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance - 8 Units	200000	20000
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed - 3 Units	15000	750
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5000
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	72700

	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Compentent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	700024
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	5000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0

Mine Closure	1. Progressive Closure Activity - Surface Runoff managment	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	36350	5000
	2. Progressive Closure Activity Barbed Wire Fencing to quarry area will be provisioned.	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	727000	10000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 1820 Trees - 970 Inside Lease Area & 850 Outside Lease Area)	Site clearance, preparation of land, digging of pits / trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	194000	29100
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	255000	25500
	4. Implementation of Final Mine Closure Actity as per Approved Mining Plan on Last Year	Few activities already covered as progressive closure activities as greenbelt development, wire fencing, garland drain. *For Final Closure Activities 15% of the proposed closure cost will be spent during the final mine closure stage - Last Year	152250	0
	5. Contribution towards Green Fund. As per TNMMCR 1959, Rule 35 A	The Contribution towards Green Funds @ 10% of Seigniorage fee are indicated as part of EMP Budge and not necessarily implemented in the Project Site	2423160	0

Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	10000	1000
	Air, Water, Noise and Soil Quality Sampling every 6 Months for Compliance Report of EC Conditions	Submission of 2 Half Yearly Compliance - Lab Monitoring Report as per CPCB norms	0	50000
	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee) - 33 Employees	132000	33000
	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	33000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	7270
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000
	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	181750	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000
	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 st Class / 2 nd Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR, 1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0	780000

CER	As per MoEF &CC OM 22-65/2017-IA.III Dated 25.02.2021	Detailed Description in following slides and Budget allocation is included as per MoeEF & CC OM	500000	0
TOTAL			3237450	1939694

*Marked cost is already discussed in the mining plan hence that is not included in the total Environmental Management plan cost Total Cost for the five years. The EMP has been prepared for the **lease period of 5 years**.

Year	Total Cost
I	₹ 51,77,144/-
II	₹ 20,36,679/-
III	₹ 21,38,513/-
IV	₹ 22,45,438/-
V	₹ 23,57,710/-
VI	₹ 40,94,320/-
VII	₹ 26,80,311/-
VIII	₹ 28,14,327/-
IX	₹ 29,55,043/-
X	₹ 32,55,045/-
Total	₹ 298 lakhs

Cost inflation 5% per annum

Note: This Environmental Management plan cost will vary according to the public consultation comments

10.10.: CONCLUSION –

Various aspects of mining activities were considered and related impacts were evaluated. Considering all the possible ways to mitigate the environmental concerns Environmental Management Plan was prepared and fund has been allocated for the same. The EMP is dynamic, flexible and subjected to periodic review. For project where the major environmental impacts are associated, EMP will be under regular review. Senior Management responsible for the project will conduct a review of EMP and its implementation to ensure that the EMP remains effective and appropriate. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP and the project will bring the positive impact in the study area.

11. SUMMARY AND CONCLUSION

This EIA & EMP report prepared for the proposed Rough Stone and Gravel Quarry project located in S.F.Nos. S.F.Nos. 76/15A, 15B, 15C3, 16A, 77/5,6,7,9 & 10, Pazhayaseevaram-B Village, Walajabad Taluk & Kanchipuram District belongs to Thiru. M. Antony Gomez. the Project falls in the Cluster category consist of 1 Proposed, 1 Existing Quarry falls under “B” category as per MoEF & CC Notification S.O. 3977 (E).

Now, 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 clarified the requirement for EIA, EMP and therefore, Public Consultation for all areas from 5 to 25 ha falling in Category B-1 and appraised by SEAC/ SEIAA as well as for cluster situation.

The proposed project is categorized under category “B1” Activity 1(a) (mining lease area in cluster situation) and will be considered at SEIAA – TN after conducting Public Hearing and Submission of EIA/EMP Report for Grant of Environmental Clearance. “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”.

Environmental monitoring and audit mechanism have been recommended before and after commencement of the project, where necessary, to verify the accuracy of the EIA predictions and the effectiveness of recommended mitigation measures.

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster quarries and formulate the effective mitigation measures for each individual leases. A detailed account of the emission sources, emissions control equipment, background Air quality levels, Meteorological measurements, Dispersion model and all other aspects of pollution like effluent discharge, Dust generation etc., have been discussed in this report. The baseline monitoring study has been carried out during the months October – December 2024. for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suitable mitigation measures for likely adverse impacts due to the proposed project is suggested individually for the respective proposed project under Chapter 10.

The project proponent ensures to obtain necessary clearances and quarrying will be carried out as per rules and regulations. The Mining Activity will be carried out in a phased manner as per the approved mining plan after obtaining EC, CTO from TNPCB, execution of lease deed and obtaining DGMS Permission and working will be carried out under the supervision of Competent Persons employed. Overall, the EIA report has predicted that the project will comply with all environment standards and legislation after commencement of the project and operational stage mitigation measures are implemented.

Mining operations has positive impact on environment and socio economy such as landscape improvement, water as by-product, economy development and better public services, providing and supply of Rough Stone as per market demand. Sustainable and modern mining leads us to see positive impact of mining operation and providing consistent employment for nearly 33 people directly in the proposed projects and indirectly around 70 people.

As discussed, it is safe to say that the proposed quarries are not likely to cause any significant impact to the ecology of the area, as adequate preventive measures will be adopted to keep the various pollutants within the permissible limits. Green belt development around the area will also be taken up as an effective pollution mitigate technique, as well as to serve as biological indicators for the pollutants released from the Thiru. M. Antony Gomez Rough Stone and Gravel Quarry (Extent – 3.63.5 ha).

12. DISCLOSURE OF CONSULTANT

M/s Geo Exploration and Mining Solutions, an Accredited Organization under Quality Council of India – National Accreditation Board for Education & Training, New Delhi, for carrying out the EIA Study as per the ToR Issued for the proposed project.

Name and address of the consultancy:

GEO EXPLORATION AND MINING SOLUTIONS

No 17, Advaita Ashram Road,

Alagapuram, Salem – 636 004

Tamil Nadu, India

Email: info@geoexploration@gmail.com

Web: www.gemssalem.com

Phone: 0427 2431989.

The Accredited Experts and associated members who were engaged for this EIA study as given below –

Sl.No.	Name of the expert	In house/ Empanelled	EIA Coordinator		FAE	
			Sector	Category	Sector	Category
1	Dr. M. Ifthikhar Ahmed	In-house	1	A	WP GEO SC	B A A
2	Dr. P. Thangaraju	In-house	-	-	HG GEO	A A
3	Mr. A. Jagannathan	In-house	-	-	AP NV SHW	B A B
4	Mr. N. Senthilkumar	Empanelled	38 28	B B	AQ WP RH	B B A
5	Mrs. Jisha parameswaran	In-house	-	-	SW	B
6	Mr. Govindasamy	In-house	-	-	WP	B
7	Mrs. K. Anitha	In-house	-	-	SE	A
8	Mrs. Amirtham	In-house	-	-	EB	B
9	Mr. Alagappa Moses	Empanelled	-	-	EB	A
10	Mr. A. Allimuthu	In-house	-	-	LU	B
11	Mr. S. Pavel	Empanelled	-	-	RH	B
12	Mr. J. R. Vikram Krishna	Empanelled	-	-	SHW RH	A A

Abbreviations			
EC	EIA Coordinator	EB	Ecology and bio-diversity
AEC	Associate EIA Coordinator	NV	Noise and vibration
FAE	Functional Area Expert	SE	Socio economics
FAA	Functional Area Associates	HG	Hydrology, ground water and water conservation
TM	Team Member	SC	Soil conservation
GEO	Geology	RH	Risk assessment and hazard management
WP	Water pollution monitoring, prevention and control	SHW	Solid and hazardous wastes
AP	Air pollution monitoring, prevention and control	MSW	Municipal Solid Wastes
LU	Land Use	ISW	Industrial Solid Wastes
AQ	Meteorology, air quality modeling, and prediction	HW	Hazardous Wastes

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA/EMP

This EIA/EMP for Thiru. M. Antony Gomez Rough Stone & Gravel Quarry over an Extent of 3.63.5 ha in Pazhayaseevaram- B Village, Walajabad Taluk, Kancheepuram District of Tamil Nadu is prepared as per the Generic Structure of EIA Guidelines manual. It is also certified that information furnished in the above EIA study are true and correct to the best of our knowledge.

I, hereby, certify that I was a part of the EIA team in the following capacity that developed the EIA/EMP Report.

Name: **Dr. M. Ifthikhar Ahmed**

Designation: **EIA Coordinator**

Date & Signature:

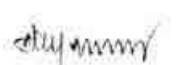
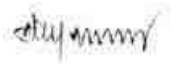


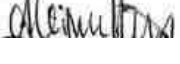
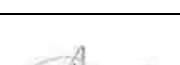
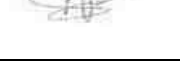
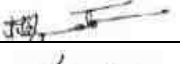
Period of Involvement: **January 2023 to till date**

Associated Team Member with EIA Coordinator:

1. **Mr. S. Nagamani**
2. **Mr.P. Viswanathan**
3. **Mr. M. Santhoshkumar**
4. **Mr. S. Ilavarasan**

FUNCTIONAL AREA EXPERTS ENGAGED IN THE PROJECT

Sl. No.	Functional Area	Involvement	Name of the Expert/s	Signature
1	AP	- Identification of different sources of air pollution due to the proposed mine activity - Prediction of air pollution and propose mitigation measures / control measures	Mr. A. Jagannathan	
2	WP	- Suggesting water treatment systems, drainage facilities - Evaluating probable impacts of effluent/waste water discharges into the receiving environment/water bodies and suggesting control measures.	Dr. M. Ifthikhar Ahmed	
			Mr. N. Senthilkumar	
3	HG	- Interpretation of ground water table and predict impact and propose mitigation measures. - Analysis and description of aquifer Characteristics	Dr. P. Thangaraju	
4	GEO	- Field Survey for assessing the regional and local geology of the area. - Preparation of mineral and geological maps. - Geology and Geo morphological analysis/description and Stratigraphy/Lithology.	Dr. M. Ifthikhar Ahmed	
			Dr. P. Thangaraju	
5	SE	- Revision in secondary data as per Census of India, 2011. - Impact Assessment & Preventive Management Plan - Corporate Environment Responsibility.	Mrs. K. Anitha	

6	EB	- Collection of Baseline data of Flora and Fauna. - Identification of species labelled as Rare, Endangered and threatened as per IUCN list. - Impact of the project on flora and fauna. - Suggesting species for greenbelt development.	Mrs. Amirtham	
			Mr. Alagappa Moses	
7	RH	- Identification of hazards and hazardous substances - Risks and consequences analysis - Vulnerability assessment - Preparation of Emergency Preparedness Plan - Management plan for safety.	Mr. N. Senthilkumar	
			Mr. S. Pavel	
			Mr. J. R. Vikram Krishna	
8	LU	- Construction of Land use Map - Impact of project on surrounding land use - Suggesting post closure sustainable land use and mitigative measures.	Mr. A. Allimuthu	
9	NV	- Identify impacts due to noise and vibrations - Suggesting appropriate mitigation measures for EMP.	Mr. A. Jagannathan	
10	AQ	- Identifying different source of emissions and propose predictions of incremental GLC using AERMOD. - Recommending mitigations measures for EMP	Mr. N. Senthilkumar	
11	SC	Assessing the impact on soil environment and proposed mitigation measures for soil conservation	Dr. M. Ifthikhar Ahmed	
12	SHW	- Identify source of generation of non-hazardous solid waste and hazardous waste. - Suggesting measures for minimization of generation of waste and how it can be reused or recycled.	Mr. A. Jagannathan	
			Mr. J. R. Vikram Krishna	

LIST OF TEAM MEMBERS ENGAGED IN THIS PROJECT

Sl.No.	Name	Functional Area	Involvement	Signature
1	Mr. S. Nagamani	AP; GEO; AQ	- Site Visit with FAE - Provide inputs & Assisting FAE with sources of Air Pollution, its impact and suggest control measures - Provide inputs on Geological Aspects - Analyse & provide inputs and assist FAE with meteorological data, emission estimation, AERMOD modelling and suggesting control measures	
2	Mr. Viswathanan	AP; WP; LU	- Site Visit with FAE - Provide inputs & Assisting FAE with sources of Air Pollution, its impact and suggest control measures - Assisting FAE on sources of water pollution, its impacts and suggest control measures - Assisting FAE in preparation of land use maps	
3	Mr. Santhoshkumar	GEO; SC	- Site Visit with FAE - Provide inputs on Geological Aspects - Assist in Resources & Reserve Calculation and preparation of Production Plan & Conceptual Plan - Provide inputs & Assisting FAE with soil conservation methods and identifying impacts	

4	Mr. Umamahesvaran	GEO	- Site Visit with FAE - Provide inputs on Geological Aspects - Assist in Resources & Reserve Calculation and preparation of Production Plan & Conceptual Plan	<i>S. Umamahesvaran</i>
5	Mr. A. Allimuthu	SE	- Site Visit with FAE - Assist FAE with collection of data's - Provide inputs by analysing primary and secondary data	<i>A. Allimuthu</i>
6	Mr. S. Ilavarasan	LU; SC	- Site Visit with FAE - Assisting FAE in preparation of land use maps - Provide inputs & Assisting FAE with soil conservation methods and identifying impacts	<i>S. Ilavarasan</i>
7	Mr. E. Vadivel	HG	- Site Visit with FAE - Assist FAE & provide inputs on aquifer characteristics, ground water level/table - Assist with methods of ground water recharge and conduct pump test, flow rate	<i>E. Vadivel</i>
8	Mr. D. Dinesh	NV	- Site Visit with FAE - Assist FAE and provide inputs on impacts due to proposed mine activity and suggest mitigation measures - Assist FAE with prediction modelling	<i>D. Dinesh</i>
9	Mr. Panneer Selvam	EB	- Site Visit with FAE - Assist FAE with collection of baseline data - Provide inputs and assist with labelling of Flora and Fauna	<i>P. Panneer Selvam</i>
10	Mrs. Nathiya	EB	- Site Visit with FAE - Assist FAE with collection of baseline data - Provide inputs and assist with labelling of Flora and Fauna	<i>T. Annam</i>

DECLARATION BY THE HEAD OF THE ACCREDITED CONSULTANT ORGANIZATION

I, Dr. M. Ifthikhar Ahmed, Managing Partner, Geo Exploration and Mining Solutions, hereby, confirm that the above-mentioned Functional Area Experts and Team Members prepared the Cluster EIA/EMP for Thiru. M.Antony Gomez Rough Stone & Gravel Quarry over an Extent of 3.63.5 ha in Sirudhamur, Pazhayaseevaram- B Village, Walajabad Taluk, Kancheepuram District of Tamil Nadu. It is also certified that information furnished in the EIA study are true and correct to the best of our knowledge.

Signature& Date:



Name:

Dr. M. Ifthikhar Ahmed

Designation:

Managing Partner

Name of the EIA Consultant Organization:

M/s. Geo Exploration and Mining Solutions

NABET Certificate No & Issue Date:

NABET/EIA/2225/RA 0276 Dated: 20-2-2023

Validity:

Valid till 06.08.2025

ANNEXURE

THIRU M. ANTONY GOMEZ ROUGH STONE AND GRAVEL QUARRY

S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10,

Pazhayaseevaram-B Village,

Walajabad Taluk,

Kanchipuram District

Extent: 3.63.5 Ha

ToR obtained vide

File No. 11263 TOR Identification No. TO24B0108TN5810664N

Dated:23.10.2024

Project Proponent

Thiru. M. Antony Gomez

S/o. Mariadoss

No.9/1, M.K.Street,

West Tambaram,

Chennai – 600 032

LIST OF ANNEXURES

ANNEXURES	DESCRIPTION	PAGE NO
P1 THIRU. M. ANTONY GOMEZ	COPY OF TERMS OF REFERENCE	1A – 24A
	COPY OF MINING PLAN APPROVED LETTER	25A – 28A
	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	29A – 31A
	COPY OF APPROVED MINING PLAN WITH PLATES	32A – 117A
	COPY OF 300m & VAO ATTESTATION LETTER	118A-119A
	COPY OF CER LETTER	120A-121A
	COPY OF HYDRO - GEOLOGICAL	122A – 137A
E1 THIRU. M. ANTONY GOMEZ	COPY OF MINING PLAN APPROVED LETTER	138A-140A
	COPY OF BASELINE MONITORING REPORT	141A – 181A
	COPY OF CONSULTANT ACCREDITATION CERTIFICATE	182A



File No: 11263
Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment
Authority(SEIAA), TAMIL NADU)



Dated 23/10/2024



To,

Thiru.antony gomezmariadoss
No.9/1, M.K.Reddy Street, West Tambaram, Chennai, West Thambaram, CHENNAI, TAMIL NADU,
600032
vamaminerals19@gmail.com

Subject: Grant of Terms of Reference with Public Hearing under the provision of the EIA Notification 2006-as amended regarding.

Sir/Madam,

SEIAA, Tamil Nadu – Proposed Rough Stone & Gravel quarry lease over an extent of 3.63.50 Ha at SF. Nos. 76/15A, 15B, 15C3, 16A, 77/5, 6, 7, 9 & 10 of Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District, Tamil Nadu by Thiru.M.Antony Gomez - under project category – “B1” and Schedule S.No. 1(a) – ToR issued along with Public Hearing- preparation of EIA report – Regarding.

Ref:

1. Online proposal No. SIA/TN/MIN/496189/2024, Dated: 11.09.2024.
2. Your application submitted for Terms of Reference dated: 20.09.2024.
3. Minutes of the 502nd Meeting of SEAC held on 03.10.2024.
4. Minutes of the 765th Meeting of Authority held on 15.10.2024.

2. The particulars of the proposal are as below :

(i) TOR Identification No.	TO24B0108TN5810664N
(ii) File No.	11263
(iii) Clearance Type	TOR
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vii) Name of Project	Thiru.M.Antony Gomez Rough Stone and Gravel Quarry
(viii) Name of Company/Organization	antony gomezmariadoss
(ix) Location of Project (District, State)	KANCHIPURAM, TAMIL NADU
(x) Issuing Authority	SEIAA
(xii) Applicability of General Conditions	no

1. In view of the particulars given in the Para 1 above, the project proposal interalia including Form-1 (Part A and B) were submitted to the SEIAA for an appraisal by the SEAC under the provision of EIA notification 2006 and its subsequent amendments.
2. The above-mentioned proposal has been considered by (SEIAA) Appraisal Committee of SEIAA in the meeting held on 15/10/2024. The minutes of the meeting and all the Application and documents submitted [(viz. Form-1 Part A, Part B,)] are available on PARIVESH portal which can be accessed by scanning the QR Code above.
3. The State Expert Appraisal Committee (SEAC), based on the information & clarifications provided by the project proponent and after detailed deliberations on all technical aspects recommended the proposal for grant of Terms of Reference with Public Hearing under the provision of EIA Notification, 2006 and as amended thereof subject to the stipulation of specific and general conditions as detailed in Annexure (2).
4. The SEIAA has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the SEAC hereby decided to issue the following Terms of Reference for instant proposal of Thiru. Antony Gomez Mariadoss under the provisions of EIA Notification, 2006 and as amended thereof.
5. The Ministry/SEIAA-TN reserves the right to stipulate additional conditions, if found necessary.
6. The Terms of Reference with Public Hearing to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/Regulations or Statutes, as applicable, to the project.
7. This issues with the approval of the Competent Authority.
8. The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OM No. J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.

Copy To

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Additional Chief Secretary to Government, Natural Resources Department, Tamil Nadu.
4. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
5. The Chair Person, TNPC Board, 76, Mount Salai, Guindy, Chennai-32
6. The District Collector, Kanchipuram District
7. The Commissioner of Geology and Mines, Guindy, Chennai-32
8. The Assistant Director, Department of Geology & Mining, Kanchipuram District
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Integrated Regional office of MoEF&CC, Sastri Bhawan, Nungambakkam, Chennai
11. File Copy

Annexure 1

Specific Terms of Reference for (Mining Of Minerals)

1. Seiaa Specific Conditions:

S. No	Terms of Reference
1.1	After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant Terms of Reference (ToR) along with Public Hearing under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions and

S. No	Terms of Reference
	conditions in Annexure 'B' of this minutes. 1. Restricting the ultimate depth of mining up to 42m BGL and quantity of 4,10,240 cu.m of Rough Stone & 54,104 cu.m of Gravel are permitted for mining over a period of ten years and the annual peak production should not exceed 62,550 cu.m of Rough stone & 19,856 cu.m of Gravel considering water bodies around, fertility of agriculture land around the mining area and the environmental impacts due to the mining, safety precautionary measures of the working personnel & sustainable mining. The PP shall obtain modified mining plan for the same during EIA appraisal.

2. Seac Conditions - Site Specific

S. No	Terms of Reference
2.1	1. A Cluster Management Committee (CMC) shall be constituted including all the mines in the cluster as Committee Members for the effective management of the mining operation in the cluster through systematic & scientific approach with appointment of statutory personnel, appropriate environmental monitoring, good maintenance of haul roads and village/panchayat roads, authorized blasting operation etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal: (i) Copy of the agreement forming CMC. (ii) The Organisation chart of the Committee with defining the role of the members (iii) The 'Standard Operating Procedures' (SoP) executing the planned activities. 2. As there are four waterbodies situated near the proposed mining lease area and also as the River Palar is flowing at a distance of 2.8 km from the lease boundary, the PP shall conduct hydrological and hydrogeological studies through IIT, Madras. As the depth of quarrying proposed is 47m, hydrological and hydrogeological studies shall study the depth of ground water table within 1 Km radius from the proposed site & implications of planned quarrying operations on the ground water table. 3. The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m & upto 1km shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc. and spell out the mitigation measures to be proposed for the protection of the above structures, if any during the quarrying operations. 4. The proponent shall furnish photographs of adequate fencing, garland drainage built with siltation tank & green belt along the periphery including replantation of existing trees; maintaining the safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan. 5. The Proponent shall carry out Bio diversity study as a part of EIA study and the same shall be included in the Report. 6. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine. 7. The PP shall prepare a conceptual working plan accommodating the inclusion of haul road accessibility keeping the benches intact, by ensuring the slope stability of the working benches to be constructed and existing quarry wall.

3. Seac Standard Conditions

S. No	Terms of Reference
3.1	1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be

S. No	Terms of Reference
	submitted and it shall include the following: (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated. (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area (viii) Condition of Safety zone/benches (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m. 2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site. 3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc. 4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry. 5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report. 6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site. 7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC. 8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level. 9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent. 10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site. 11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences. 12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines, 13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines? 14. Quantity of minerals mined out. · Highest production achieved in any one year

S. No	Terms of Reference
	· Detail of approved depth of mining. · Actual depth of the mining achieved earlier. · Name of the person already mined in that leases area. · If EC and CTO already obtained, the copy of the same shall be submitted. · Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches. 15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone). 16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc., 17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan. 18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same. 19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment. 20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. 21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study. 22. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind. 23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted. 24. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given. 25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided. 26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.

S. No	Terms of Reference
	27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided. 28. Impact on local transport infrastructure due to the Project should be indicated. 29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity. 30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific. 31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible. 32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner. 33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner 34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period. 35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period. 36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed. 37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations. 38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation. 39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given. 40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc. 41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB. 42. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine. 43. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

4. Seiaa Standard Conditions:

S. No	Terms of Reference
4.1	Cluster Management Committee - Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry. - The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc., - The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines. - Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network. - The committee shall deliberate on risk & emergency management plan, fire safety & evacuation plan and sustainable development goals pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan. - The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail in the EIA Report. - The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner. - The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity. Agriculture & Agro-Biodiversity - Impact on surrounding agricultural fields around the proposed mining Area. - Impact on soil flora & vegetation around the project site. - Details of type of vegetation including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetation all along the boundary of the proposed mining area shall committed mentioned in EMP. - The Environmental Impact Assessment should study the agro-biodiversity, agro-forestry, horti-cultural plantations, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem. - Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services. - The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock. Forests

S. No	Terms of Reference
	15. The project proponent shall detailed study on impact of mining on Reserve forests and free ranging wildlife. 16. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna. 17. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection. 18. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site. Water Environment 19. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period. 20. Erosion Control measures. 21. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas. 22. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir. 23. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities. 24. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts. 25. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components. 26. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites. 27. The EIA shall include the impact of mining activity on the following: a) Hydrothermal/Geothermal effect due to destruction in the Environment. b) Bio-geochemical processes and its foot prints including environmental stress. c) Sediment geochemistry in the surface streams. Energy

S. No	Terms of Reference
	28. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished. Climate Change 29. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities. 30. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock, soil health and physical, chemical & biological soil features. 31. Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood. Mine Closure Plan 32. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued. EMP 33. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued and the scope for achieving SDGs. 34. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan. Risk Assessment 35. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining. Disaster Management Plan 36. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued. Others 37. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc. 38. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.

S. No	Terms of Reference
	39. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

Standard Terms of Reference for (Mining of minerals)

1.

S. No	Terms of Reference
1.1	An EIA-EMP Report shall be prepared for peak capacity (.....MTPA)operation in an ML/project area of.....ha based on the generic structure specified in Appendix III of the EIA Notification, 2006.
1.2	An EIA-EMP Report would be prepared for peak capacity operation to cover the impacts and environment management plan for the project specific activities on the environment of the region, and the environmental quality encompassing air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modeling for..... MTPA of mineral production based on approved project/Mining Plan for.....MTPA. Baseline data collection can be for any season (three months) except monsoon.
1.3	Propoer KML file with pin drop and coordinate of mine at 500-1000 m interval be provided
1.4	A Study area map of the core zone (project area) and 10 km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage pattern including rivers/streams/nullahs/canals, locations of human habitations, major constructions including railways, roads, pipelines, major industries, mines and other polluting sources. In case of ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, forests (Reserved/Protected), migratory corridors of fauna, and areas where endangered fauna and plants of medicinal and economic importance found in the 15 km study area should be given. The above details to be furnished in tabular form also
1.5	Map showing the core zone delineating the agricultural land (irrigated and un-irrigated, uncultivable land as defined in the revenue records, forest areas (as per records), along with other physical features such as water bodies, etc should be furnished.
1.6	A contour map showing the area drainage of the core zone and 25 km of the study area (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated in the separate map.
1.7	Catchment area with its drainage map of 25 km area within and outside the mine shall be provided with names, details of rivers/ riverlet system and its respective order. The map should clearly indicate drainage pattern of the catchment area with basin of major rivers. Diversion of drains/ river need eloboration in form of lengthe, quantity and quality of water to be diverted
1.8	(Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working scheme until the end of mine life should be provided on the basis of the approved rated capacity and calendar plans of production

S. No	Terms of Reference																																																
	from the approved Mining Plan. Geological maps and sections should be included. The Progressive mine development and Conceptual Final Mine Closure Plan should also be shown in figures. Details of mine plan and mine closure plan approval of Competent Authority should be furnished for green field and expansion projects.																																																
1.9	Details of mining methods, technology, equipment to be used, etc., rationale for selection of specified technology and equipment proposed to be used vis-à-vis the potential impacts should be provided.																																																
1.10	Impact of mining on hydrology, modification of natural drainage, diversion and channeling of the existing rivers/water courses flowing though the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.																																																
1.11	A detailed Site plan of the mine showing the proposed break-up of the land for mining operations such as the quarry area, OB dumps, green belt, safety zone, buildings, infrastructure, Stockyard, township/colony (within and adjacent to the ML), undisturbed area -if any, and landscape features such as existing roads, drains/natural water bodies to be left undisturbed along with any natural drainage adjoining the lease /project areas, and modification of thereof in terms of construction of embankments/bunds, proposed diversion/re-channelling of the water courses, etc., approach roads, major haul roads, etc should be indicated.																																																
1.12	Original land use (agricultural land/forestland/grazing land/wasteland/water bodies) of the area should be provided as per the tables given below. Impacts of project, if any on the land use, in particular, agricultural land/forestland/grazing land/water bodies falling within the lease/project and acquired for mining operations should be analyzed. Extent of area under surface rights and under mining rights should be specified. Area under Surface Rights <table><thead><tr><th>S.N</th><th>ML/Project Land use</th><th>Area under Surface Rights(ha)</th><th>Area Under Mining Rights(ha)</th><th>Area under Both (ha)</th></tr></thead><tbody><tr><td>1</td><td>Agricultural land</td><td></td><td></td><td></td></tr><tr><td>2</td><td>Forest Land</td><td></td><td></td><td></td></tr><tr><td>3</td><td>Grazing Land</td><td></td><td></td><td></td></tr><tr><td>4</td><td>Settlements</td><td></td><td></td><td></td></tr><tr><td>5</td><td>Others (specify)</td><td></td><td></td><td></td></tr></tbody></table> <table><thead><tr><th>S.N.</th><th>Details</th><th>Area (ha)</th></tr></thead><tbody><tr><td>1</td><td>Buildings</td><td></td></tr><tr><td>2</td><td>Infrastructure</td><td></td></tr><tr><td>3</td><td>Roads</td><td></td></tr><tr><td>4</td><td>Others (specify)</td><td></td></tr><tr><td></td><td>Total</td><td></td></tr></tbody></table>	S.N	ML/Project Land use	Area under Surface Rights(ha)	Area Under Mining Rights(ha)	Area under Both (ha)	1	Agricultural land				2	Forest Land				3	Grazing Land				4	Settlements				5	Others (specify)				S.N.	Details	Area (ha)	1	Buildings		2	Infrastructure		3	Roads		4	Others (specify)			Total	
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1.13	Study on the existing flora and fauna in the study area (10km) should be carried out by an institution of relevant discipline. The list of flora and fauna duly authenticated separately for the core and study area and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna should be given. If the study area has endangered flora and fauna, or if the area is occasionally visited or used as a habitat by Schedule-I species, or if the project falls within 15 km of an ecologically sensitive area, or used as a migratory corridor then a																																																

S. No	Terms of Reference
	Comprehensive Conservation Plan along with the appropriate budgetary provision should be prepared and submitted with EIA-EMP Report; and comments/observation from the CWLW of the State Govt. should also be obtained and furnished.
1.14	One-season (other than monsoon) primary baseline data on environmental quality - air (PM10, PM2.5, SOx, NOx and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil - along with one-season met data coinciding with the same season for AAQ collection period should be provided. The detail of NABL/ MoEF&CC certification of the respective laboratory and NABET accreditation of the consultant to be provided.
1.15	Map (1: 50, 000 scale) of the study area (core and buffer zone) showing the location of various sampling stations superimposed with location of habitats, other industries/mines, polluting sources, should be provided. The number and location of the sampling stations in both core and buffer zones should be selected on the basis of size of lease/project area, the proposed impacts in the downwind (air)/downstream (surface water)/groundwater regime (based on flow). One station should be in the upwind/upstream/non-impact/non-polluting area as a control station. The monitoring should be as per CPCB guidelines and parameters for water testing for both ground water and surface water as per ISI standards and CPCB classification wherever applicable. Observed values should be provided along with the specified standards.
1.16	For proper baseline air quality assessment, Wind rose pattern in the area should be reviewed and accordingly location of AAMSQ shall be planned by the collection of air quality data by adequate monitoring stations in the downwind areas. Monitoring location for collecting baseline data should cover overall the 10 km buffer zone i.e. dispersed in 10 km buffer area. In case of expansion, the displayed data of CAAQMS and its comparison with the monitoring data to be provided
1.17	A detailed traffic study along with presence of habitation in 100 mts distance from both side of road, the impact on the air quality with its proper measures and plan of action with timeline for widening of road. The project will increase the no. of vehicle along the road which will indirectly contribute to carbon emission so what will be the compensatory action plan should be clearly spell out in EIA/ EMP report.
1.18	The socio-economic study to conducted with actual survey report and a comparative assessment to be provided from the census data should be provided in EIA/ EMP report also occupational status & economic status of the study area and what economically project will contribute should be clearly mention. The study should also include the status of infrastructural facilities and amenities present in the study area and a comparative assessment with census data to be provided and to link it with the initialization and quantification of need based survey for CSR activities to be followed.
1.19	The Ecology and biodiversity study should also indicate the likely impact of change in forest area for surface infrastructural development or mining activity in relation to the climate change of that area and what will be the compensatory measure to be adopted by PP to minimize the impact of forest diversion.
1.20	Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine should be submitted.
1.21	Impact of proposed project/activity on hydrological regime of the area shall be assessed and report be submitted. Hydrological studies as per GEC 2015 guidelines to be prepared and submitted

S. No	Terms of Reference
1.22	Impact of mining and water abstraction from the mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term monitoring measures should be provided. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone.
1.23	Study on land subsidence including modeling for prediction, mitigation/prevention of subsidence, continuous monitoring measures, and safety issues should be carried out.
1.24	Detailed water balance should be provided. The break up of water requirement as per different activities in the mining operations, including use of water for sand stowing should be given separately. Source of water for use in mine, sanction of the Competent Authority in the State Govt. and impacts vis-à-vis the competing users should be provided.
1.25	PP shall submit design details of all Air Pollution control equipment (APCEs) to be implemented as part of Environment Management Plan vis-à-vis reduction in concentration of emission for each APCEs
1.26	PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of mineral. The measures adopted to conserve energy or use of renewable sources shall be explored
1.27	PP to evaluate the green house emission gases from the mine operation and corresponding carbon absorption plan.
1.28	Site specific Impact assessment with its mitigation measures, Risk Assessment and Disaster Preparedness and Management Plan should be provided.
1.29	Impact of choice of mining method, technology, selected use of machinery and impact on air quality, mineral transportation, handling & storage/stockyard, etc, Impact of blasting, noise and vibrations should be provided.
1.30	Impacts of mineral transportation within the mining area and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions should be provided. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop etc, management plan for maintenance of HEMM and other machinery/equipment should be given. Details of various facilities such as rest areas and canteen for workers and effluents/pollution load emanating from these activities should also be provided.
1.31	Details of various facilities to be provided to the workers in terms of parking, rest areas and canteen, and effluents/pollution load resulting from these activities should also be given.
1.32	The number and efficiency of mobile/static water jet, Fog cannon sprinkling system along the main mineral transportation road inside the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality should be provided.
1.33	Conceptual Final Mine Closure Plan and post mining land use and restoration of land/habitat to the pre- mining status should be provided. A Plan for the ecological restoration of the mined out area and post mining land use should be prepared with detailed cost provisions. Impact and management of wastes and issues of re-handling (wherever applicable) and backfilling and progressive mine

S. No	Terms of Reference
	closure and reclamation should be furnished.
1.34	Adequate greenbelt nearby areas, mineral stock yard and transportation area of mineral shall be provided with details of species selected and survival rate Greenbelt development should be undertaken particularly around the transport route.
1.35	Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.
1.36	Details of R&R. Detailed project specific R&R Plan with data on the existing socio- economic status of the population (including tribals, SC/ST, BPL families) found in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered, etc and costs along with the schedule of the implementation of the R&R Plan should be given.
1.37	CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project should be given.
1.38	Corporate Environment Responsibility:
1.39	a) The Company must have a well laid down Environment Policy approved by the Board of Directors.
1.40	b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.
1.41	c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.
1.42	d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.
1.43	e) Environment Management Cell and its responsibilities to be clearly spelled out in EIA/ EMP report
1.44	f) In built mechanism of self-monitoring of compliance of environmental regulations should be indicated.
1.45	Status of any litigations/ court cases filed/pending on the project should be provided.
1.46	PP shall submit clarification from DFO that mine does not falls under corridors of any National Park and Wildlife Sanctuary with certified map showing distance of nearest sanctuary.
1.47	Copy of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer plan approval. NOC from Flood and Irrigation Dept. (if req.), etc. wherever applicable.
1.48	Details on the Forest Clearance should be given as per the format given:

S. No	Terms of Reference
	Total ML Total Date Extent of Balance area for which Status of appl For Project Area Forest of FC Forest Land FC is yet to be diversion of forest (ha) land (ha) obtained land If more than one provide details of each FC
1.49	In case of expansion of the proposal, the status of the work done as per mining plan and approved mine closure plan shall be detailed in EIA/ EMP report
1.50	Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of Public Hearing, the points raised by the general public and commitments made by the proponent and the time bound action proposed with budgets in suitable time frame. These details should be presented in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided.
1.51	PP shall carry out survey through drone highlighting the ground reality for atleast 10 minutes
1.52	Detailed Chronology of the project starting from the first lease deed allotted/Block allotment/ Land acquired to its No. of renewals, CTO /CTE with details of no. renewals, previous EC(s) granted details and its compliance details, NOC details from various Govt bodies like Forest NOC(s), CGWA permissions, Power permissions, etc as per the requisites respectively to be furnished in tabular form.
1.53	The first page of the EIA/ EMP report must mention the peak capacity production, area, detail of PP, Consultant (NABET accreditation) and Laboratory (NABL / MoEF & CC certification)
1.54	The compliances of ToR must be properly cited with respective chapter section and page no in tabular form and also mention sequence of the respective ToR complied within the EIA-EMP report in all the chapter,s section.

A. STANDARD TERMS OF REFERENCE

- 1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
- 2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
- 3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
- 4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
- 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.

- 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
- 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
- 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
- 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
- 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
- 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly

authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.

- 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
- 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
- 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on

ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.

- 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
- 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
- 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
- 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
- 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
- 29) Details of any stream, seasonal or otherwise, passing through the lease area and

modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.

- 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
- 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
- 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
- 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
- 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 37) Measures of socio economic significance and influence to the local community

- proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
 - 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
 - 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
 - 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
 - 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
 - 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
 - 44) Besides the above, the below mentioned general points are also to be followed:-
 - a) Executive Summary of the EIA/EMP Report
 - b) All documents to be properly referenced with index and continuous page numbering.
 - c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
 - e) Where the documents provided are in a language other than English, an English translation should be provided.
 - f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
 - g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.

- h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.
- i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
- j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

In addition to the above, the following shall be furnished:-

The Executive summary of the EIA/EMP report in about 8-10 pages should be prepared incorporating the information on following points:

1. Project name and location (Village, District, State, Industrial Estate (if applicable).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.

10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of its acquisition, nearby (in 2-3 km.) water body, population, within 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.

31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

Besides the above, the below mentioned general points should also be followed:-

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF& CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website <http://www.moef.nic.in/> may be referred.
 - After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
 - The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.
 - The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.

From

Dr.S.Vediappan,M.Sc.,Ph.D.,
Deputy Director,
Dept of Geology and Mining,
Kancheepuram.

To

Thiru. M. Antony Gomez,
S/o. Mariadoss,
No.9/1, M.K. Reddy Street,
West Tambaram,
Chennai-600045.

Rc.No.70/Q3/2023, Dated:23.08.2024.

Sir,

Sub: Mines and Minerals – Minor Mineral - Rough Stone and Gravel – Kancheepuram District– Walajabd Taluk – Pazhayaseevaram 'B' Village- Patta land in S.F.No. 76/15A (0.05.0), 76/15B (0.14.0), 76/15C3 (0.34.0), 76/16A (1.15.0), 77/5 (0.22.0), 77/6 (0.35.5), 77/7 (0.67.5), 77/9 (0.38.5) and 77/10 (0.32.0) Over an extent of 3.63.50 Hects - Application preferred by Thiru. M. Antony Gomez S/o. Mariadoss - Precise area communicated over an extent of 3.63.50 Hect - Draft Mining Plan submitted - Approved - reg.

- Ref:**
- 1 Application prepared by Thiru. M. Antony Gomez, S/o. Mariadoss, No.9/1, M.K. Reddy Street, West Tambaram, Chennai-600045 dated: 15.02.2023.
 - 2 This Office Memorandum Letter No. 70/ Q3/ 2023 dated: 14.08.2024.
 - 3 Draft Mining plan submitted by Thiru. M. Antony Gomez S/o. Mariadoss, letter dated: 21.08.2024.

Kind attention is invited to the references cited above.

2. Thiru. M. Antony Gomez S/o. Mariadoss has been preferred an application for quarrying Rough stone and Gravel over an extent of 3.63.50 Hects of patta land in S.F.No. 76/15A (0.05.0), 76/15B (0.14.0), 76/15C3 (0.34.0), 76/16A (1.15.0), 77/5 (0.22.0), 77/6 (0.35.5), 77/7 (0.67.5), 77/9 (0.38.5) and 77/10 (0.32.0) in Pazhayaseevaram 'B' Village, Walajabad Taluk, Kancheepuram District for a period of 10 year under the provisions of Rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959. In this regard,

the precise area communication has been issued only to an extent of 3.63.50 Hect has vide letter dated: 21.08.2024 with a direction to submit approved mining plan and Environment Clearance.

3. Accordingly, Thiru. M. Antony Gomez S/o. Mariadoss had submitted 03 copies of draft Mining Plan vide letter dated: 21.08.2024 and the same has been examined in details and it is found correct.

4. As per the mining plan the year wise production for the proposed first and second five years as detailed below.

First Five Years	Year	Recoverable Reserves (m³) @ 100%	Weathered rock (m³)	Gravel in (m³)
	1 st Year	52300	47570	19856
	2 nd year	54720	21440	17680
	3 rd year	56430	22110	16568
	4 th year	62550	0	0
	5 th year	43240	0	0
	Total	269240	91120	54104
Second Five Years	Year	Recoverable Reserves (m³) @ 100%	Weathered rock (m³)	Top Soil Gravel in (m³)
	1 st Year	29000	0	0
	2 nd year	30400	0	0
	3 rd year	28025	39240	0
	4 th year	31005	0	0
	5 th year	27970	0	0
	Total	146400	39240	0
	Grand Total	415640	130360	54104

5. Hence, as per the power delegated under Rule 41 of TNMMCR, 1959 and as per the guidelines/instructions issued by the Commissioner of Geology and Mining, vide letter Rc.No.3868/LC/2012 dated:19.11.2012, the said mining plan submitted by the lessee is hereby approved subject to the following conditions.

i) That the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.

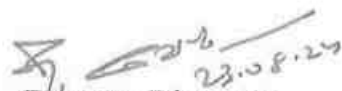
ii) This approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of Mines and Minerals Development and Regulation) Act 1957, or any other connected laws including Forest (Conservation) Act 1957, or any other connected Laws industry Forest (Conservation) Act 1980, Forest Conservation Rules 1981 Environment protection Act 1980, Indian Explosive Act 1884 (Central Act IV of 1884) and the rules made there under, Minor Mineral Conservation and Development Rules, and The Tamil Nadu Minor Mineral Concession rules, 1959.

iii) That the mining plan is approved without prejudice to any other order or directions from any court of competent jurisdiction.

iv) All the conditions mentioned in the precise area letter should be followed during quarry operation as per rules.

v) The applicant should get prior Environmental clearance from the appropriate authority and same has to be submit to the Deputy Director of Geology and Mining, Kancheepuram.

vi) Every Mining Plan duly approved under rule 41(9) of TNMMCR, 1959 shall be valid for a period of five years. Further, the applicant shall submit modification in the mining plan if any, review the mining plan and submit scheme of mining plan for the next five years of the lease if any as per TNMMCR 1959.


Deputy Director,
Dept of Geology and Mining,
Kancheepuram.

Copy submitted to The Commissioner,
Dept of Geology and Mining,
Guindy, Chennai -32.

From

Dr.S.Vediappan,M.Sc.,Ph.D.,
Deputy Director,
Dept of Geology and Mining,
Kancheepuram.

To

Thiru. M. Antony Gomez,
S/o. Mariadoss,
No.9/1, M.K. Reddy Street,
West Tambaram,
Chennai-600045.

Roc.No.70/Q3/2023 Dated:23.08.2024

Sir,

Sub: Mines and Minerals – Minor Mineral - Rough Stone and Gravel – Kancheepuram District- Walajabd Taluk – Pazhayaseevaram 'B' Village- Patta land in S.F.No. 76/15A (0.05.0), 76/15B (0.14.0), 76/15C3 (0.34.0), 76/16A (1.15.0), 77/5 (0.22.0), 77/6 (0.35.5), 77/7 (0.67.5), 77/9 (0.38.5) and 77/10 (0.32.0) Over an extent of 3.63.50 Hects - Application preferred by Thiru. M. Antony Gomez S/o. Mariadoss – Other quarries situated in 500 mtrs radial distance – Details furnished - reg.

- Ref:** 1 Application prepared by Thiru. M. Antony Gomez, S/o. Mariadoss, No.9/1, M.K. Reddy Street, West Tambaram, Chennai-600045 dated: 15.02.2023.
- 2 This Office Memorandum Letter No. 70/ Q3/ 2023 dated: 14.08.2024.
- 3 Draft Mining plan submitted by Thiru. M. Antony Gomez S/o. Mariadoss, letter dated: 21.08.2024.
- 4 Mining plan approved by the Deputy Director of Geology and Mining, Kancheepuram vide Letter.No.70/Q3/2023 dated. .08.2024.

Kind attention is invited to the references cited above.

2. Thiru. M. Antony Gomez S/o. Mariadoss has been preferred an application for quarrying Rough stone and Gravel over an extent of 3.63.50 Hects of patta land in S.F.No. 76/15A (0.05.0), 76/15B (0.14.0), 76/15C3 (0.34.0), 76/16A (1.15.0), 77/5 (0.22.0), 77/6 (0.35.5), 77/7 (0.67.5), 77/9 (0.38.5) and 77/10 (0.32.0) in Pazhayaseevaram 'B' Village, Walajabad Taluk,

Kancheepuram District for a period of 10 year under the provisions of Rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959. In this regard, the precise area communication has been issued only to an extent of 3.63.50 Hect has vide letter dated: 14.08.2024 with a direction to submit approved mining plan and Environment Clearance.

3. Accordingly, Thiru. M. Antony Gomez S/o. Mariadoss has submitted three copies of draft Mining Plan vide letter dated: 21.08.2024 and the same has been examined in detail and approved by Deputy Director of Geology and Mining, Kancheepuram vide Letter dated. .08.2024.

4) In this connection, Thiru. M. Antony Gomez S/o. Mariadoss has requested vide letter dated.21.08.2024 to issue the details of other quarries situated within 500 mts radial distance from the subject quarries are furnished as follows.

I. Details of Existing quarries.

Sl. No	Name of the Lessee	Village & Taluk	SF.No	Extent in Hect	Proceeding No. & Date	Lease Period
1.	M. Antony Gomas S/o. Mariyadoss, No.1/9, M.K. Reddy street, west Tambaram, Chennai- 45.	Pazhayasevaram Walajabad Tk	76/1A, 76/2, 76/4A, 76/6A, 76/7, 76/8A, 76/8B, 76/9, 76/10, 76/11, 76/12, 77/1, 77/2, 77/3, 77/4	4.27.00	Assistant Director (i/c), Dept. of Geology and Mining, Kancheepuram Proceedings Rc.No. 279/Q3/2019, Dated.07.10.2022.	07.10.2022 To 06.10.2027 (5 Years)

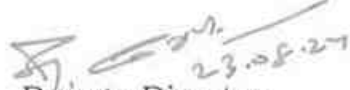
II. Details of abandoned/Old quarries.

SL No	Name of the Lessee	Village	SF.No	Extent in Hect	Proceeding No. & Date	Lease Period
1	R. Micheal Mahesh, S/o. Jasurathinam, No.34,Thiruneer malai Road, Kamarajapuram, Anagaputhur, Chennai 70.	Pazhayasevaram Walajabad Tk	76/1A, 76/2, 76/4A, 76/7, 76/8B,	2.05.00	636/2012/Q3 dt.24.11.2014	24.11.2014 To 23.11.2019

2	Javid Syad, S/o. Kamardhun, No.13, Kamarajar Nagar, 2nd Street, Jamin Pallavaram, Chennai- 43.	Pazhayasevaram Walajabad Tk	74/2,74/3,4, 5, & 66/21	2.02.00	269/2011/Q3 dated 11.02.2012	11.02.2012 To 10.02.2017
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III. Details of other Proposed/applied quarries

Sl. No.	Name of the lessee	Name of the Mineral	Village & Taluk	S.F No.	Extent in Het	Lease period.
1.	M. Antony Gomas S/o. Mariyadoss, No.1/9, M.K. Reddy street, west Tambaram, Chennai- 45.	Rough stone and Gravel	Pazhayasevaram Walajabad Tk	76/15A, 76/15B, 76/15C3, 76/16A, 77/5, 77/6, 77/7, 77/9, 77/10	3.63.50	Instant Proposal


 Deputy Director,
 Dept of Geology and Mining,
 Kancheepuram.

Copy to :-

The Chairman, Tamil Nadu State Environment
 Impact Assessment Authority,
 3rd Floor, Panakal Maligai,
 No. 1 Jeenes Road, Saidapet, Chennai -15.

MINING PLAN AND PROGRESSIVE QUARRY CLOSURE PLAN FOR PAZHAYASEEVARAM - B ROUGH STONE AND GRAVEL QUARRY



(PREPARED UNDER RULES 20, 41 & 42 AS PER THE AMENDED UNDER TAMIL NADU MINOR MINERAL
CONCESSION RULES, 1959)

Patta Land / Lease Period = Ten Years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT : 3.63.5 Ha
S.F.NOS. : 76/15A,15B,15C3,16A,77/5,6,7,9 and 10
VILLAGE : PAZHAYASEEVARAM-B
TALUK : WALAJABAD
DISTRICT : KANCHIPURAM
STATE : TAMIL NADU

FOR

APPLICANT

THIRU. M. ANTONY GOMEZ,
S/o. Mariadoss
No. 9/1, M.K. Reddy Street,
West Tambaram,
Chennai,
Tamil Nadu State – 600 032.

PREPARED BY

M. SANTHOSHKUMAR, M.Sc.,
Qualified Person

Plot No.3, Kattuvattam, Kothukara Samathi Via,
Kannakurich,
Salem District,
Tamil Nadu – 636 008.
Mobile No. : +91 97914 41745.
E-mail ID : santoshgeo2004@gmail.com

ABBREVIATIONS



- EIA - Environment Impact Assessment.
- EMP - Environment Management Plan.
- SEIAA - State Level Environment Impact Assessment Authority.
- SEAC - State Expert Appraisal Committee
- MoEF&CC - Ministry of Environment, Forest and Climate changes.
- CPCB - Central Pollution control board.
- TNPCB - Tamil Nadu Pollution control board.
- DMS - Director of Mines Safety.
- DGMS - Director of General Mines Safety.
- CRZ - Coastal Regulatory Zone.
- HACA - Hill Area Conservation Authority.
- S.F.No. - Survey Field Number.
- MMR - Metalliferous Mines Regulations.
- MCR - Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules.
- TNMMCR - Tamil Nadu Minor Mineral Concession Rules.
- PPV - Peak Particle Velocity.
- QP - Qualified Person.
- MSL - Mean Sea Level



M. ANTONY GOMEZ,
S/o. Mariadoss
No. 9/1, M.K. Reddy Street,
West Thambaram,
Chennai,
Tamil Nadu State – 600 032.

CONSENT LETTER FROM THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Pazhayaseevaram-B Rough Stone and Gravel Quarry over an extent 3.63.5 Hectares of patta lands in S.F.Nos. 76/15A, 76/15B, 76/15C3, 76/16A, 77/5, 77/6, 77/7, 77/9 and 77/10 of Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District, Tamil Nadu State has been prepared by

M. SANTHOSHKUMAR, M.Sc.,

Qualified Person

I have entrusted the works to prepare the Mining plan based upon the production requirements to me as per the Mines Acts, Rules, Regulations and Amendments as on date. I request to the Deputy Director, Department of Geology and Mining, Kanchipuram District, Tamil Nadu State to make further correspondence regarding the modification of the Mining plan with the said Qualified Person at his following address.

M. SANTHOSHKUMAR, M.Sc.,

Plot No.3, Kattuvattam, Kothukara Samathi Via,

Kannakurich,

Salem District – 636 008.

Mobile No.: +91 97914 41745

E-mail ID : santoshgeo2004@gmail.com.

I hereby undertake that all the responsibilities of contents in the Mining plan and if any corrections made in the Mining plan by the Qualified Person may be deemed to have been made with my knowledge and consent and shall be acceptable to me and binding on me in all respects. If there is any substantial change during operation. I will carried out a Modified Mining plan and seek its approval from concerned Authorities.

Signature of the Applicant

(M. ANTONY GOMEZ)

Place: Chennai

Date: 16.08.2024



M. ANTONY GOMEZ,
S/o. Mariadoss
No. 9/1, M.K. Reddy Street,
West Tambaram,
Chennai,
Tamil Nadu State – 600 032.

DECLARATION OF THE APPLICANT

The Mining plan and Progressive Quarry Closure Plan in Respect of Pazhayaseevaram-B Rough Stone and Gravel Quarry over an extent 3.63.5 Hectares of patta lands in S.F.Nos. 76/15A, 76/15B, 76/15C3, 76/16A, 77/5, 77/6, 77/7, 77/9 and 77/10 of Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District, Tamil Nadu State has been prepared in full consultation with me by.

M. SANTHOSHKUMAR, M.Sc.,
Qualified Person

I have understood its contents and agree to implement the same in accordance with Laws applicable to Mines and I will take all the responsibility for working the quarry in a manure under Rule 23 of Tamil Nadu Minor Mineral Concession Rules, 1959.

Signature of the Applicant


(M. ANTONY GOMEZ)

Place: Chennai

Date: 19.08.2024

CERTIFICATE

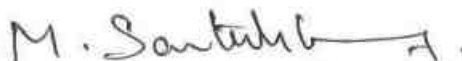


Certified that I am, **M. SANTHOSHKUMAR, M.Sc.**, residing at Plot No.3, Kattuvattam, Kothukara Samathi Via, Kannakurichi, Salem District – 636 008, Mobile No.: +91 97914 41745, holding a Post Graduate Degree in Geology (M.Sc. Applied Geology) from Annamalai University, Chidambaram and I worked in the field of Mining in a role of Geologist.

Rule 15(I)(a) and (b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016 stipulates the eligibility for preparing Mining plans as “(I)(a) a post graduate degree in Geology granted by a university established” and (I)(b) “Professional experience of five years of working in a supervisory capacity in the field of mining after obtaining the degree”. Since my qualification and experience are satisfied the Rule (I)(a) and (I)(b) of 15 of the said Rules, I am eligible to prepare Mining Plans for both Major and Minor Minerals.

Accordingly, I prepared this Mining plan and Progressive Quarry Closure Plan in Respect of Pazhayaseevaram-B Rough Stone and Gravel Quarry over an extent 3.63.5 Hectares of patta lands in S.F.Nos. 76/15A, 76/15B, 76/15C3, 76/16A, 77/5, 77/6, 77/7, 77/9 and 77/10 of Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District, Tamil Nadu State for **Thiru. M. Antony Gomez**, S/o. Mariadoss residing at No. 9/1, M.K. Reddy Street, West Thambaram, Chennai, Tamil Nadu – 600 032. Since the Mining Plan is prepared as per the provisions contained in Rule 15(I)(a) and (I)(b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016.

Signature of the Qualified Person


(M. SANTHOSHKUMAR, M.Sc.,)

Place: Salem

Date: 19.08.2024

M. SANTHOSHKUMAR, M.Sc.,
Plot No.3, Kattuvattam, Kothukara Samathi Via,
Kannakurich,
Salem District – 636 008.
Mobile No.: +91 97914 41745
E-mail ID : santoshgeo2004@gmail.com.



CERTIFICATE FROM THE QUALIFIED PERSON

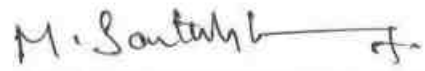
This is to certify that the Provisions of Prepared under Rules 41 & 42 as Amended in Tamil Nadu Minor Mineral Concession Rules, 1959. The preparation of Mining plan and Progressive Quarry Closure Plan for Pazhayaseevaram-B Rough Stone and Gravel Quarry over an extent 3.63.5 Hectares of patta lands in S.F.Nos. 76/15A, 76/15B, 76/15C3, 76/16A, 77/5, 77/6, 77/7, 77/9 and 77/10 of Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District, Tamil Nadu State has been prepared for

THIRU. M. ANTONY GOMEZ,
S/o. Mariadoss
No. 9/1, M.K. Reddy Street,
West Tambaram,
Chennai,
Tamil Nadu State – 600 032.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of the Deputy Director, Department of Geology and Mining, Kanchipuram District, Tamil Nadu for such permissions/ exemptions/ relaxations and approvals.

It is also certified that information furnished in the above Mining plan are true and correct to the best of my knowledge.

Signature of the Qualified Person


(M. SANTHOSHKUMAR, M.Sc.,)

Place: Salem

Date: 19.08.2024



M. SANTHOSHKUMAR, M.Sc.,
Plot No.3, Kattuvattam, Kothukara Samathi Via,
Kannakurich,
Salem District – 636 008.
Mobile No.: +91 97914 41745
E-mail ID : santoshgeo2004@gmail.com.

CERTIFICATE FROM THE QUALIFIED PERSON

Certified that the Provisions of Mines Act, Rules and Regulations or Orders made there under have been observed in the preparation of Mining plan and Progressive Quarry Closure Plan for Pazhayaseevaram-B Rough Stone and Gravel Quarry over an extent 3.63.5 Hectares of patta lands in S.F.Nos. 76/15A, 76/15B, 76/15C3, 76/16A, 77/5, 77/6, 77/7, 77/9 and 77/10 of Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District, Tamil Nadu State has been prepared for

THIRU. M. ANTONY GOMEZ,
S/o. Mariadoss
No. 9/1, M.K. Reddy Street,
West Tambaram,
Chennai,
Tamil Nadu State – 600 032.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of Director of Mines Safety (DMS), No.5, II Street, Block-AA, Anna Nagar, Chennai-40, Tamil Nadu for such permissions / exemptions / relaxations and approvals.

It is also certified that information furnished in the Mining plan are true and correct to the best of my knowledge.

Signature of the Qualified Person


(M. SANTHOSHKUMAR, M.Sc.,)

Place: Salem

Date: 19.08.2024

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MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN FOR PAZHAYASEEVARAM-B ROUGH STONE AND GRAVEL QUARRY.

(PREPARED UNDER RULES 41 & 42 AS PER THE AMENDED TAMIL NADU MINOR MINERAL
CONCESSION RULES, 1959)

INTRODUCTION AND EXECUTIVE SUMMARY

The applicant **Thiru. M. Antony Gomez**, S/o. Mariadoss residing at No. 9/1, M.K.Reddy Street, West Tambaram, Chennai, Tamil Nadu – 600 032 has entrust and given consent to preparation of Mining plan and Progressive Mine Closure Plan as per the provisions of Mines Act, Rules, Regulations and as amended till date.

The applicant (Thiru. M. Antony Gomez) has applied for Rough stone and Gravel quarry lease for over an extent 3.63.5 Hectares of patta lands in S.F.Nos. 76/15A, 76/15B, 76/15C3, 76/16A, 77/5, 77/6, 77/7, 77/9 and 77/10 of Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District for the period of Ten years under rule 19(1) and 20 of Tamil Nadu Minor Mineral Concession Rules, 1959.

The application was examined, Scrutinized, Inspected and processed by the Deputy Director, Department of Geology and Mining, Kanchipuram District and passed a precise area communication letter vide **Rc.No.70/Q3/2023, Dated: 14.08.2024** under rule 19 and 20 of Tamil Nadu Minor Mineral Concession Rules, 1959 for submission of draft Mining plan under Rules 41 and 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and obtain approval and obtain Environmental Clearance from the State Level Environment Impact Assessment Authority, Tamil Nadu to quarrying Rough stone for the period of Ten years with following conditions (Refer Annexure No. I):

General Condition:

1. The applicant should be paid the necessary seigniorage fee for transporting the quarry materials as per Schedule II of the Tamil Nadu Minor Mineral Concession Rules, 1959.
2. A safety distance of 7.5 meters should be provided to the adjacent patta lands while quarrying operation.
3. No hindrance shall be caused to the Public and Public properties while quarrying operation in a safe manner.
4. The applicant should use mild explosives while blasting with authorized explosive agency without any hindrance to the adjacent pattadars / no encroachment shall be caused to the adjacent patta and Government lands while quarrying operation.



5. The applicant should submit the Approved Mining Plan within stipulated time as per Rules.
6. The applicant should submit the Environmental Clearance from the Environmental Impact Assessment Authority for the quarry lease applied area before grant of quarry lease.

Special Conditions:

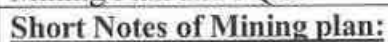
1. A safety distance of 10 meters should be provided to the Government lands in S.F.Nos. 77/8 (Anadheenam) situated on the Eastern side and S.F.Nos. 76/13 (Anadheenam) situated on the Northwestern side of the area.

This Mining Plan along with Progressive quarry closure Plan is prepared in full consultation with **Thiru. M. Antony Gomez**, S/o. Mariadoss residing at No. 9/1, M.K.Reddy Street, West Tambaram, Chennai, Tamil Nadu – 600 032 for his proposed Rough stone and Gravel quarry over an extent 3.63.5 Hectares of patta lands in S.F.Nos. 76/15A, 76/15B, 76/15C3, 76/16A, 77/5, 77/6, 77/7, 77/9 and 77/10 of Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District, Tamil Nadu State under amended Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959 with obtained full consent as per the application and Production schedule in preparation of Mining plan as per the provisions of Mines Act, Rules, Regulations as on date.

The Mining plan has been prepared after carrying the field survey, collection of Primary & secondary data, environmental setting, geological features and tentatively estimated the Resources & Reserves, depth of mining as identified in the field with best our knowledge and experience. This present mining plan is prepared by considering the Rule 41 & 42 as amended in Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the EIA Notification 2006 and its subsequent amendments.

In order to ensure compliance of the order of the Honourable Supreme Court Dated: 27.02.2012 in I.A.No.12.13.2011 in Special Leave Petition SLP (C) No 19628-19629/2009, it has been now decided that all mining projects of minor minerals including their renewal is require prior environmental clearance. As per amendment in EIA Notification 2006 vide S.O. 1886(E), Dated:20.04.2022 "All mining lease area in respect of minor mineral mining leases and ≤ 250 ha mining lease area in respect of major mineral mining lease other than coal" would be treated as category B1 and will be considered by the state notified by Ministry of Environment, Forest and Climate Change as prescribed procedure under EIA notification 2006.

The field survey carried out by the Qualified Person and Team as on 17.08.2024.



- 43 A



- p. The approach road from the main road to quarry is already existence; the same will be maintain in good condition for the haulage of quarry materials and machineries.
- q. There is No Export of this Rough stone and Gravel.
- r. Topo sketch covering 10km and 1km radius around the proposed area with markings of habitations, water bodies including streams, rivers, roads, major structure like bridges, wells, archaeological importance and places of worships is marked and enclosed as Plate Nos. IA & IC.
- s. The lease applied area is about 3.63.5Ha bounded by nineteen corners; the corners are designated as 1 – 19 clock-wise from the Southwestern side and Co-ordinates for all the corners are clearly marked in the Quarry Lease Plan and Surface Plan enclosed as Plate No. II.
- t. The plans of proposed quarrying area showing the dimensions of the pit, their proposed depth and maximum area of proposed quarrying are enclosed as Plate Nos. III, III-A, V and VI.
- u. General conditions will not applicable for the proposed area. The area applied for lease is 10Km away from the,
- i) Interstate Boundary,
 - ii) Protected area under wild life protection ACT 1972,
 - iii) Critically polluted areas as identified by CPCB,
 - iv) Notified Eco sensitive areas.
- v. There is no waste anticipated during this quarry operation. Hence, waste dump is not proposed in the lease applied area.
- w. Around 33 employees are proposed to deploying the quarrying operation.
- x. Total Cost of the project is about **Rs. 7,18,67,000/-**.

**1.0 GENERAL INFORMATION****1.1 Name of the Applicant with Address:**

Name : **Thiru. M. Antony Gomez,**
S/o. Mariadoss
Address : No. 9/1, M.K.Reddy Street,
West Tambaram
Chennai
State with PIN Code : Tamil Nadu – 600 032.
Mobile No : +91 98407 54360
Aadhaar No : 4143 9399 2757 (Refer Annexure No. VII)
E-mail : maginfra21@gmail.com

1.2 Status of the Applicant (Individual / Company / Firm):

The applicant is an Individual.

1.3 Mineral which the Applicant intends to mine:

The Applicant intends to quarry Rough stone and Gravel.

1.4 Period of permission / lease to be granted:

Ten Years as mentioned in Precise area Communication letter.

1.5 Name and address of the Qualified Person who preparing the Mining Plan:

Name : **M. SANTHOSHKUMAR, M.Sc.,**
Qualified Person (As per Rule 15(I)(a) and (I)(b) of MCR, 2016)
Address : Plot No.3, Kattuvattam, Kothukara Samathi Via,
Kannakurich,
Salem District,
State with PIN Code : Tamil Nadu – 636 008.
Mobile : +91 97914 41745
Email : santoshgeo2004@gmail.com

(Refer Annexure Nos. VIII and VIII-A).

1.6 Name and Address of the Prospecting Agency:

State Geology and Mining Department, Government of Tamil Nadu, has carried out the regional prospecting and exploration in these areas during 1992 to 1993.

Geological Survey of India has carried out detailed regional exploration studies and geological mapping in Tamil Nadu. Besides, the Qualified Person and his team members made a detailed geological study of the proposed area and the Rough stone is clearly inferred from the outcrops and adjacent existing quarry pit situated on the Northwestern side. No detailed Exploration has carried out.

1.7 Reference no. Date of grant/ Precise Area Communication received from the State Government:

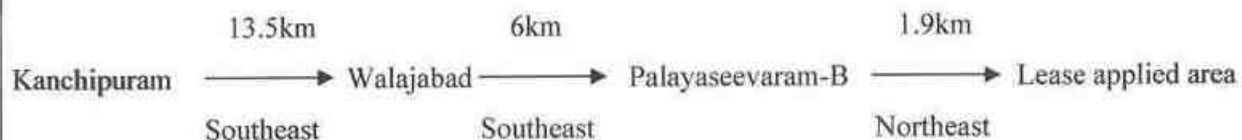
The precise area communication letter was received from the Deputy Director, Department of Geology and Mining, Kanchipuram District vide **Rc.No.70/Q3/2023, Dated: 14.08.2024** (Refer Annexure No. I) and was given to us for the preparation of mining plan to meet out the applicant's production schedule.



2.0 LOCATION AND ACCESSIBILITY:

2.1. Details of the area with location map:

The lease applied area is located about 19.5km Southeastern side of Kanchipuram, 6.5km Northeastern side of Walajabad town and 1.9km Northeastern side of Palayaseevaram-B Village.



Location Map of the Lease Applied area

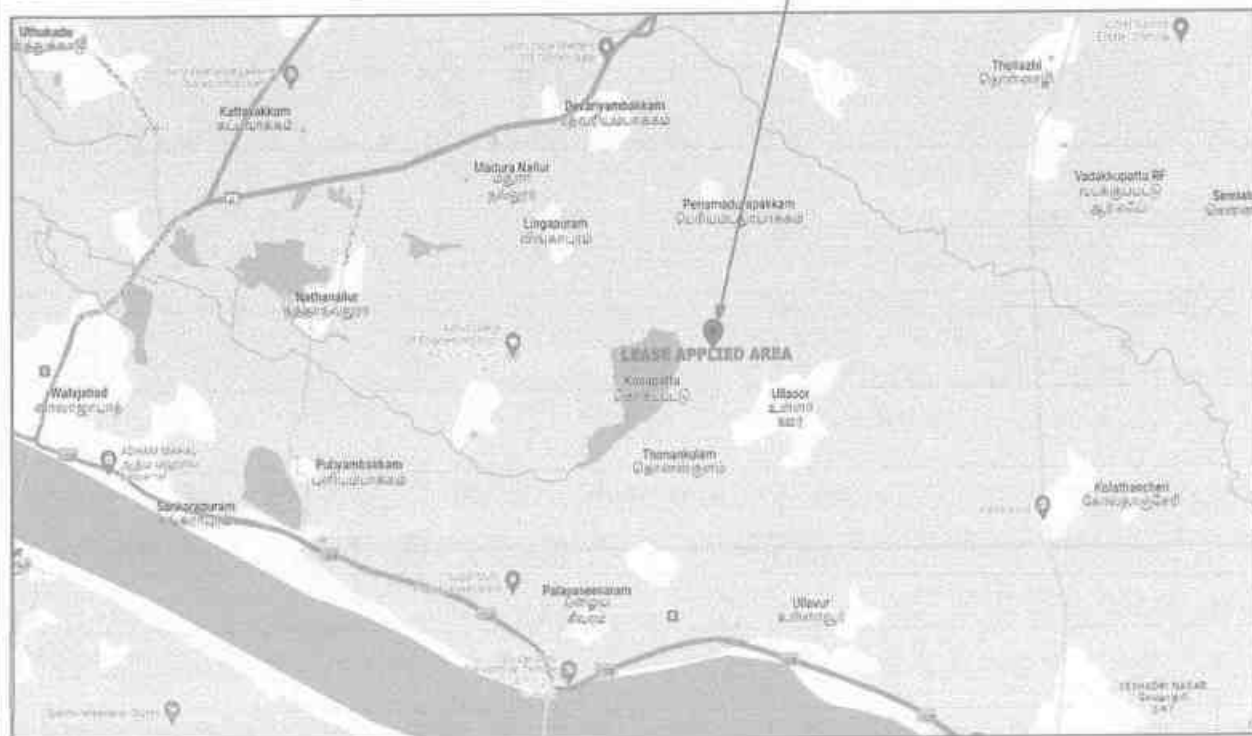
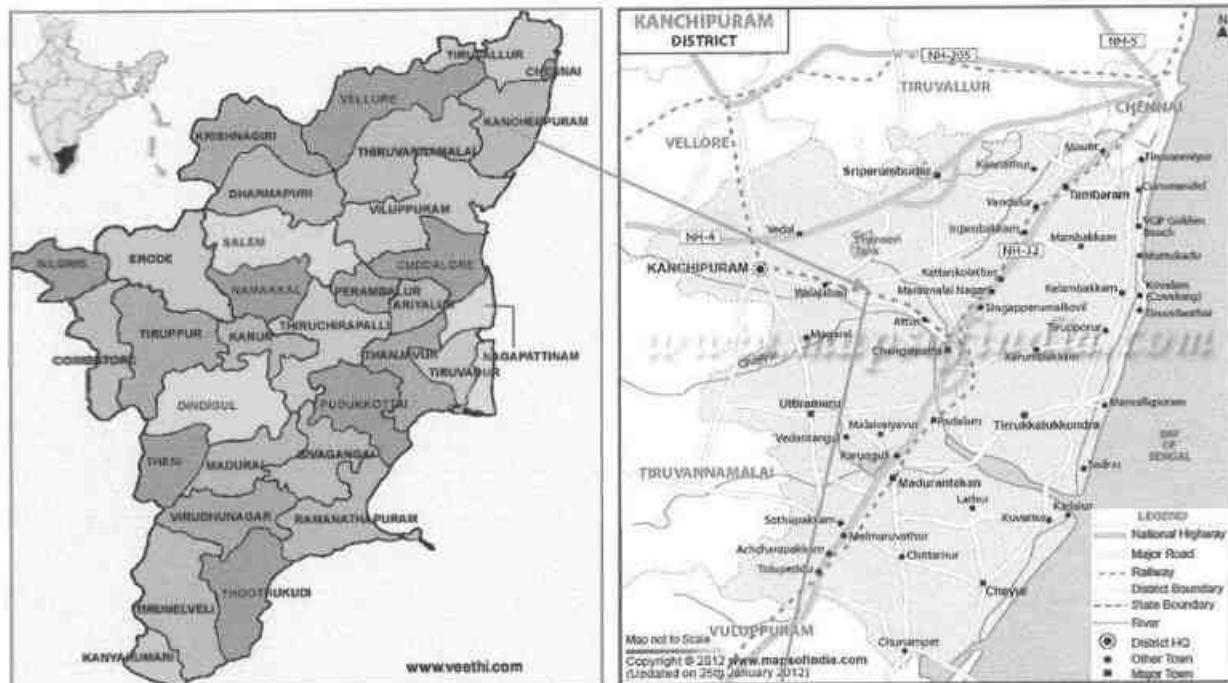


Table – 1

District	Taluk	Village	S.F. No.	Area (Ha.)	Patta no.
Kanchipuram	Marakkanam	Nalmukkal	76/15A	0.05.0	3146
			76/15C3	0.34.0	1323
			76/15B	0.14.0	1436
			76/16A	1.15.0	
			77/5	0.22.0	
			77/6	0.35.5	
			77/7	0.67.5	
			77/9	0.38.5	
			77/10	0.32.0	
			Total	3.63.5	

Source: As per the FMB and 'A' register record furnished by the applicant.

2.2. Classification of the area (Ryotwari/ Poreamboke / others):

It is a patta lands (classified as punsei) which is not fit for vegetation/ Cultivation.

2.3. Ownership / Occupancy of the applied area (surface right):

It is patta lands, registered in the name of applicant (Thiru. M. Antony Gomez) vide patta Nos. 3146, 1323 and 1436 (Refer Annexure Nos. IV to VI).

2.4. Existence of public road / Railway line, if any nearby and approximate distance:

The approach (cart track) road is situated on the Southwestern side, which connects to the Ullavur Village road at a distance 800m on the Eastern side of the lease applied area.

Road access is available from the quarry to National Highway, no towns are enrooted hence the traffic density is not much more due to the transportation of Rough stone and Gravel.

The approach road from the quarry is already existence on the Southwestern side and the same has been utilized for haulage and maintained during the entire lease period.

The Nearest Railway line is Kanchipuram - Chengalpattu which is located at 2.4km on the Southern side of the area as per the GSI Toposheet and Google Map.

2.5. Toposheet No. with latitude and longitude:

The lease applied area falls in the Toposheet No: **57P/13** Latitude between: **12°47'51.9905"N to 12°48'03.6695"N** and Longitude between: **79°52'49.6415"E to 79°52'56.8974"E** on WGS datum-1984 as per the GSI Toposheet (Refer Plate Nos. I to II).

PART – A**3.0 GEOLOGY AND MINERAL RESERVES:****3.1 Brief description of the Topography and general Geology of the area (with plans):**

The lease applied area is situated in flat terrain. The gradient of the area towards Eastern side and altitude of the area is 77m above from Mean Sea Level. The area is covered by gravel having an average thickness of 2m, 5m Weathered rock and followed by Massive Charnockite which is clearly inferred from the outcrop and adjacent existing quarry pit.

The Water level in the surrounding area is 58m - 63m below from general ground profile which is observed from the nearby bore wells. Average annual rainfall is about 985mm.

Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite lies over with accumulation of recent quaternary formation. On regional scale of the Charnockite body is N30°E – S30°W with dipping towards SE60°.

The general geological sequences of the rocks in this area are given below:

AGE	FORMATION
Recent	- Quaternary formation (Gravel)
-----Unconformity-----	
Archaean	- Charnockite
	Peninsular Gneissic complex

3.2 Details of exploration already carried out if any:

State Geology and Mining Department, Govt. of Tamil Nadu, has carried out the regional prospecting and exploration in these areas during 1992 to 1993.

Geological Survey of India has carried out detailed mapping in Kanchipuram District. Besides, the Qualified Person and his team members made a detailed geological study of the proposed area. The Rough stone is clearly inferred from the outcrop and adjacent existing quarry pit.

3.3 Estimation of Reserves:**a) Geological Resources with geological sections on a scale of 1:1000 / 1:2000**

As far as Rough stone (Charnockite) is concerned, the only practical method is the systematic geological mapping and delineation of Rough stone within the field and careful evaluation of body luster, physical properties, engineering properties, commercial aspects etc.,

Totally six sections have been drawn, three along the strike direction as (X-Y, X1-Y1 and X2-Y2) Length wise and other three cross sections are drawn perpendicular to strike (A-B, C-D and E-F) Width wise to cover the maximum area considered for lease upto 47m depth below from the existing ground profile.

The Topographical, Geological plan and sections demarcated the commercial marketable Rough stone and Gravel deposit has been prepared in the scale of 1:1000 (please refer the Geological plan and sections Plate No. III). As the sale of Rough stone and Gravel are in terms of cubic metres (Volume) only and not in terms of tonnage. No Exploration has been carried out.

Estimation of Geological Resources:

The Geological Resources of Rough stone and Gravel are calculated upto a depth of 47m below from the existing ground profile of the area. The geological resources are estimated in area method and the total geological resources are given below:

TABLE – 2

Extent (Ha)	Area (m ²)	Depth (m)	Rough stone @ 100% Recovery (m ³)	Weathered Rock (m ³)	Gravel (m ³)
3.63.5	36350	2	-	-	72700
3.63.5	36350	5	-	181750	-
3.63.5	36350	40	1454000	-	-

The Geological Resources of Rough Stone : 14,54,000m³

The Geological Resources of Weathered rock : 1,81,750m³

The Geological Resources of Gravel : 72,700m³

Geological Resources has been computed based on the physical investigation and filed survey data.

Tentative Mineable Reserves:

The mineable reserves are calculated after leaving the safety distance and Bench loss.

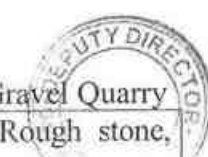
TABLE – 3

Section	Bench	Length (m)	Width (m)	Depth (m)	Rough stone @ 100% Recovery (m ³)	Weathered Rock (m ³)	Gravel (m ³)
XY-AB	i	104	71	2	-	-	14768
	ii	102	69	5	-	35190	-
	iii	92	59	5	27140	-	-
	iv	82	49	5	20090	-	-
	v	72	39	5	14040	-	-
	vi	62	29	5	8990	-	-
	vii	52	19	5	4940	-	-
Total					75200	35190	14768
X1Y1-CD	i	45	20	2	-	-	1800
	ii	45	18	5	-	4050	-
Total					-	4050	1800
X2Y2-EF	i	138	136	2	-	-	37536
	ii	136	134	5	-	91120	-
	iii	125	124	5	77500	-	-
	iv	115	114	5	65550	-	-
	v	105	104	5	54600	-	-
	vi	95	94	5	44650	-	-
	vii	85	84	5	35700	-	-
	viii	74	74	5	27380	-	-
	ix	64	64	5	20480	-	-
	x	54	54	5	14580	-	-
Total					340440	91120	37536
Grand Total					415640	130360	54104

Tentative Mineable Reserves of Rough Stone : 4,15,640m³

Tentative Mineable Reserves of Weathered rock : 1,30,360m³

Tentative Mineable Reserves of Gravel : 54,104m³



The Tentative mineable reserves have been computed as **4,15,640m³** of Rough stone, **1,30,360m³** of Weathered rock and **54,104m³** of Gravel at the rate of 100% recovery upto a depth of 47m below from the existing ground profile.

The applicant intends to apply and obtain permission from Director of Mines Safety, Chennai Under Regulation 111(3) of Metalliferous Mines Regulations, 1961 for Amalgamating the Mine boundaries with adjacent existing quarry lease held by Thiru. M. Antony Gomez, S/o. Mariadoss over an extent of 4.27.0Ha of patta lands in S.F.Nos. 76/1A, 76/2, 76/4A, 76/6A, 76/7, 76/8A, 76/8B, 76/9, 76/10, 76/11, 76/12, 77/1, 77/2, 77/3 and 77/4 of Pazhayaseevaram-B Village situated on the Western side of this applied area. This relaxation will be applied and obtained after execution of lease deed. The mineral reserves locked up under safety distance and benches will be removed only after obtained permission and approval from the competent authority.

The estimated Reserves locked up under safety distance and benches for proposed to Amalgamating the Mine boundaries on the Western side is given table below (Refer Plate No. VI).

Table – 3A

Mineral Reserves Locked Up under safety distance and Benches for proposed Amalgamating Mine Boundaries on the Western side							
Section	Bench	Length (m)	Width (m)	Depth (m)	Rough stone @ 100% Recovery (m ³)	Weathered Rock (m ³)	Gravel (m ³)
XY-AB	i	117	9	2	-	-	2106
	ii	115	10	5	-	5750	-
	iii	109	15	5	8175	-	-
	iv	104	20	5	10400	-	-
	v	81	25	5	10125	-	-
	vi	66	30	5	9900	-	-
	vii	52	35	5	9100	-	-
	viii	40	48	5	9600	-	-
	ix	31	43	5	6665	-	-
	x	21	38	5	3990	-	-
Total					67955	5750	2106
XIY1-CD	i	45	8	2	-	-	720
	ii	45	9	5	-	2025	-
	iii	45	22	5	4950	-	-
	iv	45	17	5	3825	-	-
	v	45	12	5	2700	-	-
	vi	45	7	5	1575	-	-
	vii	45	2	5	450	-	-
Total					13500	2025	720

X2Y2-EF (West)	i	78	9	2	-	-	1404
	ii	75	10	5	-	3750	-
	iii	67	15	5	5025	-	-
	iv	58	20	5	5800	-	-
	v	50	25	5	6250	-	-
	vi	42	30	5	6300	-	-
	vii	36	35	5	6300	-	-
	viii	28	40	5	5600	-	-
	ix	22	45	5	4950	-	-
	x	25	50	5	6250	-	-
Total					46475	3750	1404
EF-X2Y2 (North)	i	9	82	2	-	-	1476
	ii	10	80	5	-	4000	-
	iii	15	73	5	5475	-	-
	iv	20	66	5	6600	-	-
	v	25	58	5	7250	-	-
	vi	30	51	5	7650	-	-
	vii	35	45	5	7875	-	-
	viii	40	37	5	7400	-	-
	ix	45	30	5	6750	-	-
	x	50	26	5	6500	-	-
Total					55500	4000	1476
Grand Total					183430	15525	5706

Rough stone locked up under safety zone and Benches on the Western side : 1,83,430m³

Weathered rock : 15,525m³

Gravel : 5,706m³

Table – 3B

SUMMARY OF RESERVES AND RESOURCES			
Description	Rough Stone (m ³)	Weathered rock (m ³)	Gravel (m ³)
Geological Resources	14,54,000	1,81,750	72,700
Tentative Mineable Reserves.	4,15,640	1,30,360	54,104
Blocked Mineral Resources on the Western side.	1,83,430	15,525	5,706
Tentative Mineable Reserves After obtained permission for Amalgamation.	5,99,070	1,45,885	59,810

**4.0 MINING:****4.1 Method of mining (opencast / underground):**

Open cast Mechanized Mining is being carried out with 5.0 meter vertical bench with a bench width is not less than the bench height.

However, as far as the quarrying of Rough Stone is concerned, observance of the provisions of Regulation 106 (2) (b) is available with Director General of Mines Safety. If the applicant intends to modify the dimensions of benches, relaxation and permission are available with Director General of Mines Safety under 106 (2) (b) of Metalliferous Mines Regulations, 1961.

The applicant intends to apply and obtain permission from Director of Mines Safety, Chennai for Amalgamating the mine boundaries with adjacent existing quarry lease under Regulation 111(3) of Metalliferous Mines Regulations, 1961. The relaxation will be applied and obtained after execution of lease deed/ commencement of quarry operation. In such a scenario if there is any drastic change in the Resources and Reserves a modified mining plan will be submitted to the concerned authority for necessary relaxation, clearance and permission.

4.2 Mode of working (mechanized/ manual):

The Rough Stone is proposed to quarry at 5m bench height & width with conventional Opencast Mechanized Method.

The quarry operation involves Drilling, Blasting, Rock breaking, Excavation, Loading and Transportation of Rough Stone to the needy crusher.

The production of Rough Stone in this quarry involves the following method which is typical for Rough Stone quarrying in contrast to other major mineral mining.

Splitting of rock mass by considerable volume from the parent rock mass by drilling with Hand Jack Hammer and blasting, the liberated Rough stone will be loaded into the Trucks by hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers.

Hydraulic excavators are attached with rock breakers for fragmentation of large boulders to avoid secondary blasting and easy handling of material. The primary boulders thus splitted are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators. It is a conventional opencast mechanized method of mining.

4.3 Proposed Bench Height and Width:

The bench height is proposed 5.0 meter vertical bench the width of the bench is not less than the Height as per 106 2(b) and 111(3) of Metalliferous Mines Regulations, 1961 from the DMS, the realignment of benches will be carried out.



4.4 Indicate the overburden / mineral production expected pit wise as detailed below (composite plan and section showing pit layout, dumps, disposal of waste if any etc.):

The overburden in the form of Gravel and Weathered rock, the quarried out gravel and Weathered rock will be directly loaded into Truck for the filling and levelling of low-lying areas, this will be done only after obtaining permission and paying necessary seigniorage fees to the Government. The excavated Rough stone will be directly loaded into Truck to the needy customers. The Composite year wise Development and production plan and sections indicating the pit layout and green belt development are shown in Plate No. III and III-A given tables below.

Year wise Development and Production

TABLE - 4

YEARWISE DEVELOPMENT AND PRODUCTION FOR 1 st FIVE YEARS									
Year	Section	Bench	Length (m)	Width (m)	Depth (m)	Rough stone @ 100% recovery (m ³)	Weathered rock (m ³)	Gravel (m ³)	Ore to Waste ratio
I	X2Y2-EF	i	73	136	2	-	-	19856	1:0
		ii	71	134	5	-	47570	-	
		iii	40	124	5	24800	-	-	
		iv	30	114	5	17100	-	-	
		v	20	104	5	10400	-	-	
	Total					52300	47570	19856	
II	X2Y2-EF	i	65	136	2	-	-	17680	1:0
		ii	32	134	5	-	21440	-	
		iii	32	124	5	19840	-	-	
		iv	32	114	5	18240	-	-	
		v	32	104	5	16640	-	-	
	Total					54720	21440	17680	
III	X2Y2-EF	ii	33	134	5	-	22110	-	1:0
		iii	33	124	5	20460	-	-	
		iv	33	114	5	18810	-	-	
		v	33	104	5	17160	-	-	
	XY-AB	i	104	71	2	-	-	14768	1:0
	X1Y1-CD	i	45	20	2	-	-	1800	
	Total					56430	22110	16568	
IV	X2Y2-EF	vi	75	94	5	35250	-	-	1:0
		vii	65	84	5	27300	-	-	
	Total					62550	-	-	
V	X2Y2-EF	viii	54	74	5	19980	-	-	1:0
		ix	44	64	5	14080	-	-	
		x	34	54	5	9180	-	-	
	Total					43240	-	-	
Grand Total						269240	91120	54104	1:0

The Recoverable reserves have been computed as **2,69,240m³** of Rough stone, **91,120m³** of Weathered rock and **54,104m³** of Gravel at 100% recovery for first five years upto a depth of 47m below from the existing ground profile (Refer Plate No. III).

TABLE - 4A

YEARWISE DEVELOPMENT AND PRODUCTION FOR 2 nd FIVE YEARS								
Year	Section	Bench	Length (m)	Width (m)	Depth (m)	Rough stone @ 100% recovery (m ³)	Weathered rock (m ³)	Ore to Waste ratio
VI	X2Y2-EF	iii	20	124	5	12400	-	1:0
		iv	20	114	5	11400	-	
		v	10	104	5	5200	-	
	Total					29000	-	
VII	X2Y2-EF	v	10	104	5	5200	-	1:0
		vi	20	94	5	9400	-	
		vii	20	84	5	8400	-	
		viii	20	74	5	7400	-	
	Total					30400	-	
VIII	X2Y2-EF	ix	20	64	5	6400	-	1:0
		x	20	54	5	5400	-	
	X1Y1-CD	ii	45	18	5	-	4050	
		ii	102	69	5	-	35190	
	XY-AB	iii	55	59	5	16225	-	
		Total					28025	
IX	XY-AB	iii	37	59	5	10915	-	1:0
		iv	82	49	5	20090	-	
	Total					31005	-	
X	XY-AB	v	72	39	5	14040	-	1:0
		vi	62	29	5	8990	-	
		vii	52	19	5	4940	-	
	Total					27970	-	
Grand Total						146400	39240	1:0

The Recoverable reserves have been computed as **1,46,400m³** of Rough stone and **39,240m³** of Weathered rock at 100% recovery to a depth of 47m below from existing ground profile for **remaining five years of the lease period** (Refer Plate No. III-A). Total excavation will be proposed **4,15,640m³** of Rough stone, **1,30,360m³** of Weathered rock and **54,104m³** of Gravel for the period of ten years. If the applicant is obtained permission for Amalgamation to the mine boundaries the excavation will enhance for **5,99,070m³** of Rough stone, **1,45,885m³** of Weathered rock and **59,810m³** of Gravel for the period of ten years.

The peak production capacity in the quarry is **62,550m³** of Rough stone on 4th year of the plan period and the proposed production schedule is arrived as per applicant's requirement and the EIA & EMP will be prepared an annual peak production.

If the applicant obtained permission for amalgamating the mine boundaries from DGMS, Chennai, the annual Peak production will be increase and the EIA & EMP will be altered accordingly.



The applicant ensures the total quantity proposed in the benches will not exceed during the quarrying operation. Besides the rough stone locked up in benches will be exploited after obtaining necessary permission from the office of Director of Mine Safety, Chennai region by submitting relevant documents, appropriate safety plans and its Mitigation measures.

One lorry load	=	12m ³ (approximate)
Total Number of Working days	=	300 days per year
Total Rough stone to be removed during the lease period	=	4,15,640m ³
Peak production capacity during the 4 th year	=	62,550m ³
Hence total Lorry loads per day	=	62,550m ³ /12m ³
	=	5,213 Lorry loads
	=	5,213/300 days
Rough Stone (Maximum)	=	17 Lorry loads per day
Total Gravel to be removed during the lease period	=	54,104m ³
Peak production capacity during the 1 st year	=	19,856m ³
Hence total Lorry loads per day	=	19,856m ³ /12m ³
	=	1,655 Lorry loads
	=	1,655/300 days
Gravel (Maximum)	=	6 Lorry loads per day
Weathered rock Peak production on 1 st year	=	47,570m ³
Hence total Lorry loads per day	=	47,570m ³ /12m ³
	=	3,964 Lorry loads
	=	3,964/300 days
Weathered rock (Maximum)	=	13 Lorry loads per day
Working hours = 8.30 am to 5.30 pm (with 12.30-1.30 P.M. lunch break).		

4.5 Machineries to be used:

For Mining:

The following machineries are utilized for the development and production work at this quarry.

TABLE – 5

I. DRILLING MACHINE:

S. No.	Type	Nos.	Dia Hole mm	Size Capacity	Motive power
1	Hand Jackhammer	8	32	1.2m to 2.0m	Air Compression
2	Compressor	2	-	400 psi	Diesel Drive

**II. EXCAVATION & LOADING EQUIPMENT:**

S. No.	Type	Nos.	Capacity	Motive Power
1	Excavator with Bucket and Rock Breaker	1	300	Diesel Drive

III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT:

S. No.	Type	Nos.	Capacity	Motive Power
1	Truck	3	30 tonnes	Diesel Drive
2	Water Sprinkling Tanker	1	6,000 litres	Diesel Drive

4.6 Brief note on conceptual mining plan for the entire lease period base on the geological, mining and environmental considerations:

Conceptual mining plan is prepared with an object of long-term systematic development of benches, layouts, selection of permanent structures, depth of quarrying and ultimate pit dimensions, selection of sites for construction of infrastructure, etc.,

The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc.,

As the applicant has awarded quarry lease for ten years, the ultimate pit limit (dimension) at the end of this lease period is given below:

TABLE – 6

Ultimate Pit Dimension (Maximum)				
Section	Length (m)	Width (m)	Depth (m)	Proposal
XY-AB	104	71	32	Leaving safety and Benches (Refer Plate No. V)
X1Y1-CD	45	20	7	
X2Y2-EF	138	136	47	
XY-AB	104	80	47	As per Amalgamation (Refer Plate No. VI)
X1Y1-CD	45	28	32	
X2Y2-EF	138	145	47	

All the base line information studies like Air quality monitoring, Noise and vibration monitoring, Water analysis studies will be carried out every year as per the MoEF & CC Norms. Please refer Plate Nos. III, IV and V. As per the NGT orders the applicant is directed to plant 500 tree saplings per hectares along the quarry site either at the regular or the phased manner by planting native species.

There is no waste anticipated during the entire life of quarry. Hence, there is no proposal for backfilling. After completion of quarry operations, the quarry pit will be allowed to collect the seepage and rain water, the water storage will be kept as temporary reservoir to charging the nearby wells and will be utilized for greenbelt development. When the quarry reaches its ultimate pit limit or at the end of life of quarry, greenbelt development will be carried out over the quarried out top bench. The Conceptual Mining is based upon the entire ROM proposed for the life of the Mine.

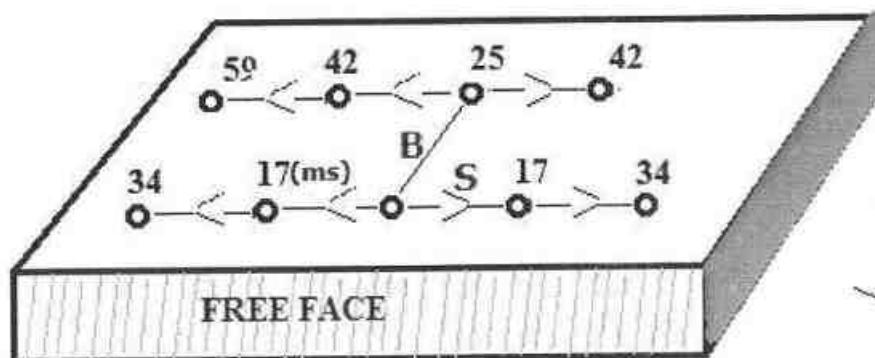
The quarry area will be fenced with barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle (Refer Plate No. IV, V and VI).

5.0 BLASTING:**5.1 Blasting pattern:**

Selection of drilling pattern for blasting varies with the type and size of the drills used, depth of hole, kind of rock, quantity, rapidity of the explosives and amount of steaming. The quarrying operation is proposed to be carried out by Jack hammer drilling and blasting of shattering effect for loosening the Rough Stone with NONEL initiation. Hand Jackhammer drilling will be proposed for primary drilling and blasting for splitting the boulders from parent rock mass followed by rock breaker attached with excavator for secondary fragmentation of large size boulders to avoid secondary blasting. Nonel initiation provides reasonably good solution to fly rock problem. The main objectives of Nonel Blasting are to reduce the ground vibration, noise, flyrocks generated due to blasting operations. The overall cost of blasting in NONEL is very less compared to electrical blasting hence it optimizes the cost of blasting.

Drilling and blasting parameters are as follows:

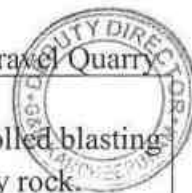
Depth of Each hole	:	1.5m
Spacing between holes	:	1.0m
Burden for hole	:	0.75m
Diameter of hole	:	32mm
Pattern of hole	:	Staggered pattern
Inclination of holes	:	80° from horizontal
Use of delay detonators	:	NONEL
Hole to Hole	:	17 milli second delay (ms)
Row to Row	:	25 milli second delay (ms)

Staggered Pattern of Blasting Design**NONEL DELAY PATTERN**

Spacing (S)	=	1.0m
Burden (B)	=	0.75m
Depth of the hole	=	1.5m
No. of holes proposed per day (Peak Production)	=	180 Holes

5.2 Type of explosives to be used:

25mm Slurry explosives are proposed to be used for shattering and heaving effect for removal and winning of Rough stone. No deep hole drilling or secondary blasting is proposed. NONEL blasting and muffle blasting may be adopted after permission from DGMS.



5.3 Measures proposed to minimize ground vibration due to blasting:

The quarry is situated more than 300m away from the nearby villages, Controlled blasting measures by NONEL initiation is being adopt for minimizing ground vibration and fly rock.

Hand jackhammer drilling with blasting is proposed to be carried out with minimum use of explosive mainly to give heaving effect in Rough stone for easy excavation and to control fly rock.

NONEL Delay detonators:

NONEL blasting permits for bottom initiation and lesser charge per delay.

The major advantages of NONEL blasting are:

- Reduction of ground vibration.
- Reduction in air blast.
- Reduction in over break.
- Improved fragmentation.
- Better control of fly-rock.

Blasting program for the production per day (As per Peak production capacity):

The Hydraulic excavators are attached with rock breakers for breaking the rock mass to reduce the blasting and explosive usage also to avoid secondary blasting. Anyhow, as per day's production schedule the maximum blasting program proposed as given below.

Peak production (4 th Year)	= 62,550m ³ x 2.6(Bulk Density) = 1,62,630 Tons
No of Holes	= 180 Holes
Yield	= 540 Tons
Powder factor	= 6 Tons/ Kg of explosives
Maximum explosive required	= 90 Kg-Slurry explosives
Charge/ hole	= 0.5 Kg
Blasting at day time only	= 12.30 – 1.00 P.M. (whenever required)

Anticipated theoretical calculation of PPV

The empirical equation for assessment of peak particle velocity (PPV) is:

$$V = K [R/Q^{0.5}]^{-B}$$

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

Q = maximum instantaneous charge (kg)

B = constant related to the rock and site (usually 1.6)

R = distance from charge (m)

PREDICTED PPV VALUES DUE TO BLASTING

Table – 7

Maximum Charge per day (kg)	Number of Round Blast per day	Maximum Charge per Round (kg)	Number of holes blasted per round	Number of holes blasted per day	Maximum Charge blast at a time by NONEL (kg)	Nearest Infrastructure (m)	PPV (mm/s)
90	1	90	180	180	1 (2 Holes)	630	0.607

From the above table, the charge per blast of 90kg is well below the Peak Particle Velocity of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997. Anyhow, the applicant ensures that carry out the blasting based on the site condition under the supervision of competent qualified statutory personnel employed. However, as per statutory requirement control measures will be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.



5.4 Storage and safety measures to be taken while blasting:

The applicant will engage authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory foreman/Permit Mines Manager. The explosives agencies should be having the valid Blaster certificate. He will blast holes in the quarry site. After completion of Blasting the explosive Agency will take it out back the remaining quantity of Explosives. The Competent Qualified Statutory personnel appointed by the applicant will maintain the records of Explosives as per the Indian Explosives Act.

6.0 MINE DRAINAGE:

6.1 Depth of water table (based on nearby wells and water bodies):

The lease applied area consist dendritic drainage pattern. The water table in the area is about 58m - 63m which is observed from the existing private boreholes. The lease applied area is fully covered by Massive Charnockite. The quarry operation confined to well above the water table hence, the Ground Water problem will not arise. Anyhow, Garland drain will be constructed along the boundary to prevent surface run-off water entering into the quarry.

TABLE - 8

Type	Distance & Direction	Location
Bore Well	1.4km Southwestern side	12°47'55.0211"N 79°52'3.2604"E

6.2 Arrangements and places where the mine water is finally proposed to be discharged:

The quarry operations are confined to well above the water table during the entire lease period. If water is encountered at quarry due to rain water and seepage, the same will be pumped out by 5HP water pump and discharge to the Greenbelt development areas. Besides, the water will also be used for dust suppression on haul roads during Haulage of machineries.

7.0 STACKING OF MINERAL WASTE AND DISPOSAL OF WASTE:

There is no waste anticipated during entire life of the quarry hence, disposal/stacking of waste does not arise.

8.0 USE OF THE MINERAL:

The excavated rough stone (100%) will be directly loaded into Trucks as raw form to the needy nearby crushing unit to making Road metals and construction materials. The quarried out gravel and Weathered rock will be directly loaded into Trucks for filling and levelling of low-lying areas, this will be done only after obtaining permission and paying necessary seigniorage fee to the Government.

**9.0 OTHERS:****9.1 Other Permanent Structure (also shown in the map)****TABLE - 9**

S.No.	Description-Nearest	Particulars	Aerial Distance & Direction																	
1	National Highway	(NH-132B) Kanchipuram – Chengalpattu	2.6km – South																	
2	State Highways	(SH-48) Walajabad - Perungalthur	2.5km – NW																	
3	Railway station	Walajabad	6.8km – SW																	
4	Airport	Chennai	36.5km – NE																	
5	Town	Walajabad	6.5 km – SW																	
6	Government School	Ullavur – Govt. School	730m – SE																	
7	Government Hospital	Walajabad	6.9 km – SW																	
8	Habitation	630m – SE																		
9	Reserved Forest	Vadakkupattu R.F. – 5.0km – NE																		
10	Defence Installation/ Historical Monuments/ Archaeological	Nil within 500m radius.																		
11	Nearby Water Bodies	Varadapuram Lake – 100m – SW																		
12	Interstate Boundary	Around 47km – NW (Andhra Pradesh State border)																		
13	Critically Polluted areas identified by the CPCB	Around 57.2km – NE (Manali, Chennai)																		
14	Protected areas Notified under wildlife (Protection) Act, 1972.	21.9 km – SW (Karikili Birds Sanctuary)																		
15	Applicability of CRZ, Notification 2011 as amended.	Not Applicable																		
16	Applicability of Hill Area Conservation Authority (HACA) Clearance.	Not Applicable																		
17	Housing area, EB line (HT & LT Line)	There is no EB-LT/HT line or Housing area located within 50m radius from the lease applied area.																		
18	Boundaries of the permitted area.	The boundaries of the permitted areas are as follows (Refer Plate No. II): North - S.F.No. 23 East - S.F.Nos. 77/8, 77/11, 77/14, 77/15, 77/20, 77/21 and 778(Ullavur Village) South - S.F.Nos. 76/15C2 and 76/16B West - S.F.Nos. 76/4, 76/6A, 76/14, 15C1, 76/15C2 and 77/3.																		
19	Adjacent Patta lands / Govt. Land	<table><tr><th>Direction</th><th>Classification</th><th>Safety Distance</th></tr><tr><td>North</td><td>Patta land</td><td>7.5m</td></tr><tr><td rowspan="2">East</td><td>Govt. land</td><td>10m to the Anadheenam</td></tr><tr><td>Patta land</td><td>7.5m</td></tr><tr><td>South</td><td>Patta land</td><td>7.5m</td></tr><tr><td>West</td><td>Patta land</td><td>7.5m</td></tr></table> (Refer Plate No. II):		Direction	Classification	Safety Distance	North	Patta land	7.5m	East	Govt. land	10m to the Anadheenam	Patta land	7.5m	South	Patta land	7.5m	West	Patta land	7.5m
Direction	Classification	Safety Distance																		
North	Patta land	7.5m																		
East	Govt. land	10m to the Anadheenam																		
	Patta land	7.5m																		
South	Patta land	7.5m																		
West	Patta land	7.5m																		



TABLE – 10

STRUCTURE WITHIN 50 - 100m Number of Structures – 2 Nos.					
Number of Structure	Type of Structure	Usage Purpose	Commercial / industry/ residential/ farm house/ Govt. building	Occupants of Building/ Structure	Remarks
2	Shed	Quarry Labour Rest shed	Industry	No resident	Applicant own
STRUCTURE WITHIN 100 - 200m Number of Structures – Nil.					
Nil	-	-	-	-	-
STRUCTURE WITHIN 200 - 300m Number of Structures – Nil.					
Nil	-	-	-	-	-

9.2 Employment potential (skilled, semi-skilled, un skilled):

TABLE – 11

Designation	Present Employment position	Employees Requirement	Total
a) Supervisory category			
Mine Manager	-	1	1
Geologist	-	1	1
b) Skilled labour			
Mine Foreman	-	1	1
Blaster/Mate	-	1	1
Excavator – Operator	-	1	1
Truck Driver	-	3	3
Water sprinkler Driver	-	1	1
Jack-Hammer Drillers	-	16	16
c) Unskilled			
Security	-	1	1
Labour & Helper	-	2	2
Co-operator and Cleaner	-	5	5
Total	-	33	33

The proposed output per man shift:

TABLE – 11A

Peak Production at 4 th year	62,550m ³
No. of days likely to be worked	300 days
Average production per day	209m ³
OMS = Average Production per day / Average employment per day	209m ³ / 33 = 6.3m ³

The above manpower is adequate to meet out the production schedule and the machinery strength envisaged in the mining plan and to comply with the statutory provisions of the Mines Safety Regulations. It is been ensured that the labour will not be employed less than 18 years, **No child labour** will engaged or entertained for any kind of quarrying operations. All the labours engaged for quarrying operations will be insured during the quarry lease period.



9.3 Welfare Measures:

a) Drinking Water:

Packaged drinking water is available from the nearby water vendors in Walajabad which is located about 6.5km on the Southwestern side of the lease applied area.

b) Sanitary Facilities:

Hygienic modern Sanitary Facilities will be constructed as semi-permanent structure within the applied area and it will be maintained periodically.

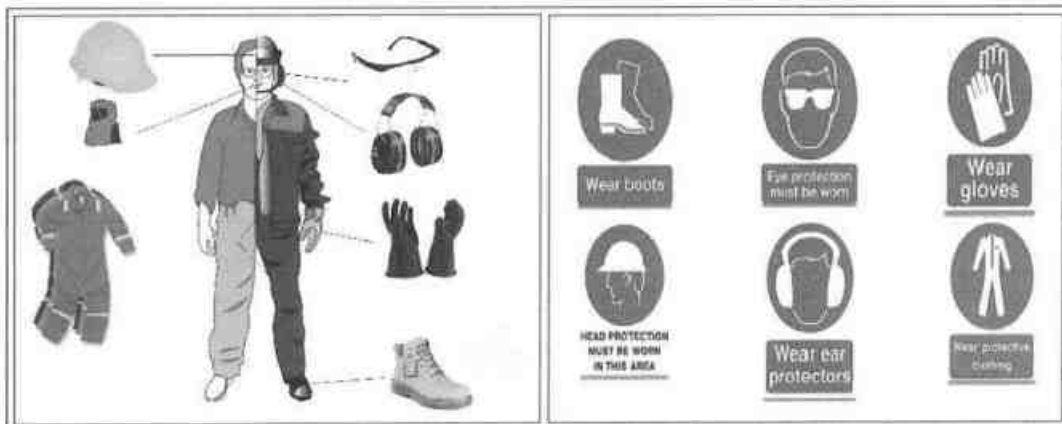
c) First aid facility:

First aid kits are kept in Mines office room, in case of such eventuality is the victim will be given first aid immediately at the site by the competent and statutory foreman/permit manager/mate will be in charge of first aid and injured person will be taken to the hospital by the applicant's vehicle. Hospital is available in Walajabad located at 6.9km on the Southwestern side of the area.

d) Labour Health:

Periodically medical check-up related to occupational health safety will be conducted to all the workers in applicant own cost.

e) Precautionary safety measures to the labourers:



- Helmets,
- Reflector Jackets
- Dust mask
- Mine Goggles,
- Ear plugs,
- Ear muffs
- Safety Shoes

All personnel protective equipment as per the DGMS standard will be provided as per the specification approved by Director of mines safety. Periodically medical check-up will be conducted for all workers for any mine health related problems. Proper training and vocational education will be given by qualified and experienced safety officer to all the employees about the safety and systematic Rough stone quarrying operations. The drillers and workers will be sent for vocational training periodically, to carry out the quarrying operations scientifically and to safe guard the men and machinery and to create awareness about conventional opencast quarrying operations.

10.0 MINERAL PROCESSING:

No mineral processing/beneficiation involved.

PART - B**11.0 ENVIRONMENT MANAGEMENT PLAN**

The EMP is prepared based on the Mines act, Rules & amendment from by state & central government. If the SEIAA/SEAC instructed the modification and alter the EMP the outcome of their recon would be final and the applicant is instructed to follow the EIA / EMP for its compliance as per the CPCB / TNPCB Norms.

Environment	Anticipated impact	Mitigation measure
Land Environment	i. Topography of the area will change due to mining activity. ii. Soil quality and agriculture land on surrounding land environment will impact due to; a) Dust propagation during quarry operation like drilling, blasting, loading, unloading and movement of men, Vehicle and machineries. b) Vehicular and machineries emissions and spillage of oil and grease will	i. Backfilling is the only source of mitigation measure for topographical changes, but no waste will be anticipated during entire life of the Rough stone and Gravel quarrying operation hence, backfilling is not proposed. ii. The Mining benches will not exceed beyond the approved height and width. iii. At the end of life of mine, the pit will be allowed to collect the seepage and rain water and the water storage will be kept as temporary reservoir for charging the nearby wells also the water utilized for greenbelt development purpose. i. Regular water sprinkling on dust prone area like haul road and other active area to arrest the dust generation. ii. Greenbelt will be developed in the safety zone with thick long leave plants to arrest the fugitive dust and vehicular emissions propagation. iii. Wet drilling with dust extractor unit by proper drilling pattern and controlled blasting with NONEL initiation will be carried out to minimize the dust generation. iv. Excavated benches shall be developed by planting with grasses, herbs and shrubs of local species to prevent soil erosion and landslide.



	impact on land environment. c) Propagation of foreign material like polythene bag, jute bag, Plastic water containers or cool drink containers and undecomposed waste materials dumping.	v. PUC (Pollution under control) certified vehicles will be used for transportation and all vehicles and their exhausts would be well maintained and regularly tested for pollutant concentrations. vi. Oiling and greasing will be managed in respective places at vehicle maintenance shed and oil tray will be use to collect the spillage during maintenance and the same will be disposed in manner. vii. Leftover foreign material like polythene bag, jute bag, undecomposed materials or ill managed dumping will not be allowed.
Water Environment	Surface Mining can have direct impact on physico-chemical characteristics of the local drainage and groundwater resources. The detrimental effects, if any, to water resources resulting from surface mining are caused by following: i. Flow direction of Surface run off water will interrupting during rainy season due to modification of topography. ii. Surface water body (Lake and Odai) will be contaminated due to dust propagation and vehicle emissions.	i. Garland drain with check dam will be constructed all along the boundary barrier to prevent surface run off rain water entering into the pit. ii. The pit water due to rain and seepage will be utilized for water sprinkling on haul Roads and plantations. iii. Green belt will be developed in the safety zone with thick long leaves plants and water sprinkling on dust prone area to arrest the fugitive dust and vehicular emissions. iv. Further mining will be completely stopped during the monsoon for free flow of surface run off and allowing natural recharge of groundwater. v. No wastewater will be generated from the quarry activity. Proper drainage will be Maintained to eliminate inundation of working pit during rain from run-off water. vi. Septic tanks and soak pits will be provided for the disposal of domestic/ washroom effluents, the same will be disposed in manner.



Air Environment	In surface mining operations, the source of air pollution may cause deterioration of air quality due to; a) The fugitive dust emissions from drilling/blasting, scooping, loading-unloading operation of extracted mineral and its transportation. Drilling/blasting and loading of quarry material would be associated with the fugitive dust emission in the active area whereas fugitive emission during transportation would affect the areas/villages situated adjacent to the road side. Another source of air pollution would be emission from the drilling machinery and excavators/Trucks vehicles to be used for loading.	i. Regular water sprinkling on haul road and dust prone area to arrest the dust generation. ii. Green belt will be developed in the safety zone with thick long leaves plants to arrest the fugitive dust and vehicular emissions. iii. Wet drilling with dust extractor unit by proper drilling pattern and controlled blasting with NONEL initiation will be carried out to minimize the dust generation. iv. Quarry material will be handled under wet condition during scooping, loading and unloading to minimize the dust propagation, besides loaded materials are covered by Tarpaulin until to reaches its destination. v. Provision of dust filters/ Nose mask to workers working at dust prone areas. vi. Vehicular emission as a result of combustion of diesel generates particulate matter (PM₁₀ & PM_{2.5}), Nitrogen oxides and Sulphur dioxide (NO₂ & SO₂). High quality diesel will be used in the motor vehicles to control these pollutants. vii. PUC (Pollution under control) certified vehicles will be used for transportation and all vehicles and their exhausts would be well maintained and regularly tested the pollutant concentrations. viii. CPCB Prescribed emission standards for the vehicles would be followed.
Noise Environment	In the present mining activity for building material, noise will be generated from drilling machinery, blasting and vehicular movement. Noise level in the working environment is compared with the standards prescribed by Central Pollution Control Board as adopted and enforced by the Govt. of India through Noise Pollution (Regulation and Control) Rules, 2000.	i. Selection of innovative low – noise equipments for the quarry operation. ii. The noise levels shall be maintained within the permissible levels by involving all the noise regulating measures in vehicles and drilling/blasting operations. iii. To ensure minimum vibrations and noise due to blasting, Nonel in continuous sequence is proposed. iv. Personnel Protective Equipment (PPE) like earmuffs and earplugs shall be provided to the employees whose in critical operation like drilling, blasting and excavation as occupational safety measures. v. Proper maintenance done with regular interval by the Oiling and greasing for the machineries and vehicles to control the Source of noise during operation and transportation.



		vi. Regular and proper maintenance of machinery and transportation vehicles shall be ensured. vii. Transporting vehicles are enforcing the speed limits of 20km/hour within quarry area and not exceed 40km per hour from quarry to destination to reduce Noise and vibration. viii. There would be restrictions on mining activity and vehicular movement during night hours.
Biological Environment	The area having main floras are Groundnut, Brinjal, Ridge Gourd, Snake Gourd, Neem, Palm, Pungan, Prosopis juliflora, Bushes and shrubs. No plants of botanical interest or animals of zoological interest recorded within 500m radius. The anticipated impacts on biological environment as follows: - Cattles may die by entering the pit. - Natural habitats of the existing faunas will change due to the noise and vibration during operation. - Diversity of living insects and faunas due to vibration. - The mining activities can also disrupt the ecological diversity. - Deposition of dust on the plant and crop leaves is affecting the photosynthesis, Pollination, growth ratio and agriculture productivity.	i. Barbed wire fencing and safety bund will be constructed around the quarry to prevent inadvertent entry of public and cattle. ii. The natural habitats of the existing flora and fauna will not be disturbed. iii. No mining will be carried out during the monsoon season to minimize impact on aquatic life which is mainly breeding season for many species. iv. Fruit bearing trees will be planted to survive the existing faunas. v. No clearance of vegetation will be done during the entire mining operations. vi. Regular Water sprinkling on haul roads would be reduces the dust propagation, thus avoiding damage to the crops and plants. vii. No night hour mining will be carried out which may catch the attention of faunas.



Socio Economic Environment	Any activity during mining will have adverse impact on Environment, careful mitigation measures are proposed to balance the impact on the existing environment and the applicant is always instruct to carry out safe, sustainable, eco-friendly mining operations at all times. The following positive impact on the society due to this mining activity. - It is proposed to provide employment to about 33 persons for carrying out mining operations and give preference to the local people in providing employment in this cluster. In addition, there will be opportunity for indirect employment to many people in the form of contractual jobs, business opportunities, service facilities etc. the economic status of the local people will be enhanced due to mining project. - The employment opportunities both direct and indirect will contribute to enhanced money incomes to job seekers with minimal skill sets especially among the local communities. - Improvement of Physical structure like Road Transport facilities, Communications, Medical, Educational and social benefits will be made available to the nearby civilian population in addition to the workmen employed in the mine. - The continuation of opportunity for the employments, the nearby villages, living peoples and their life style would be improved. - The applicant is advised to invest the CER cost (@ 2% from the total Project Cost) to develop the local Panchayat. Does not arise.
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11.1 Environmental impact assessment statement describing impact of mining on the next Ten years:

In the mining plan proposed for a small production of Rough stone and gravel does not involve deep hole drilling and blasting. Such limited mining activity is not likely to cause any impact adversely on the environment. As far as pollution of air, water and noise concerned, the environmental impact studies will be conducted as per EIA notification issued by MoEF& CC. It is B Category mine. The compliance monitoring will be carried out for every six months as prescribed by the MOEF&CC and with state concerned authorities.

11.2 Proposal for waste management:

There is no waste anticipated in this Rough stone and Gravel quarrying operation. The entire quarried out materials will be utilized (100%). The maintenance of machineries & fuelling will be carried out as per the TNPCB Norms and the waste will be disposed in the Norms.

11.3 Proposal for reclamation of land affected during mining activities and at the end of mining (refilling / fencing etc.):

In the mining plan only to a maximum depth of 47m below from the existing ground profile has been envisaged as workable depth for safe & economic quarrying operation during entire life of quarry. There is no waste anticipated during entire life of the quarry hence, backfilling is not proposed. After completion of quarry operations, the quarry pit will be allowed to collect the seepage and rain water, the water storage will be kept as temporary reservoir to charging the nearby wells and will be utilized for greenbelt development. When the quarry reaches its ultimate pit limit or at the end of life of quarry, greenbelt development will be carried out over the quarried out top bench. The quarry area will be fenced with Barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle.

11.4 Programme of Greenbelt development (indicate extend, number, name of species to be afforested):

The safety zone all along the boundary barrier has been identified to be utilized for greenbelt development by planting 1000 tree saplings also the applicant proposed to plant 500 tree saplings in the quarried out top benches and 500 saplings on haul road and maintain at least 1,600 plants at the end of the lease period at a survival rate of 80%. Manuring and tree guards will be provided by the applicant to safeguard and maintain the plants. The plantation will be carried out as recommended by the SEIAA based on the output Environmental Clearance and the recommended species will be planted in a phased manner as described below (Refer Plate No. III).

Table – 12

Year	No. of trees proposed to be planted	Area to be covered (m ²).	Survival (%)	Name of the species	No. of trees expected to be grown
I	100	798	80%	Neem, Pongamia Pinnata, Cordia dichotoma, Mango, Senkondrai, Mookusali maram, Mantharai, etc.,	80
II	100	798	80%		80
III	100	798	80%		80
IV	100	798	80%		80
V	100	798	80%		80
VI	100	784	80%		80
VII	100	784	80%		80
VIII	100	784	80%		80
IX	100	784	80%		80
X	100	784	80%		80

If the applicant obtained permission for Amalgamating the mine boundaries, the area for greenbelt development may decrease. In such scenario, the applicant will be compensating the greenbelt as to developing in the benches and haul road as per proposal.

**11.5 Proposed financial estimate / budget for the project:**

Budget Provision for the Mining Plan period:

TABLE – 13

A. Operational Cost / Project Cost / Investment:		Cost (Rs.)																																												
i) Land cost	The Land value as per the Government Guideline land cost is calculated as follows,	5,27,32,000																																												
	<table><tr><th>S.F. No.</th><th>Area (Ha)</th><th>Cost / Ha.</th><th>Total/Rs.</th></tr><tr><td>76/15A</td><td>0.05.0</td><td>1,72,97,00</td><td>8,64,850</td></tr><tr><td>76/15B</td><td>0.14.0</td><td>1,72,97,00</td><td>24,21,580</td></tr><tr><td>76/15C3</td><td>0.34.0</td><td>1,72,97,00</td><td>58,80,980</td></tr><tr><td>76/16A</td><td>1.15.0</td><td>1,72,97,00</td><td>1,98,91,550</td></tr><tr><td>77/5</td><td>0.22.0</td><td>98,84,000</td><td>21,74,480</td></tr><tr><td>77/6</td><td>0.35.5</td><td>74,13,000</td><td>26,31,615</td></tr><tr><td>77/7</td><td>0.67.5</td><td>98,84,000</td><td>66,71,700</td></tr><tr><td>77/9</td><td>0.38.5</td><td>1,72,97,00</td><td>66,59,345</td></tr><tr><td>77/10</td><td>0.32.0</td><td>1,72,97,00</td><td>55,35,040</td></tr><tr><td>Total</td><td>3.63.5</td><td>-</td><td>5,27,31,140</td></tr></table>		S.F. No.	Area (Ha)	Cost / Ha.	Total/Rs.	76/15A	0.05.0	1,72,97,00	8,64,850	76/15B	0.14.0	1,72,97,00	24,21,580	76/15C3	0.34.0	1,72,97,00	58,80,980	76/16A	1.15.0	1,72,97,00	1,98,91,550	77/5	0.22.0	98,84,000	21,74,480	77/6	0.35.5	74,13,000	26,31,615	77/7	0.67.5	98,84,000	66,71,700	77/9	0.38.5	1,72,97,00	66,59,345	77/10	0.32.0	1,72,97,00	55,35,040	Total	3.63.5	-	5,27,31,140
	S.F. No.		Area (Ha)	Cost / Ha.	Total/Rs.																																									
	76/15A		0.05.0	1,72,97,00	8,64,850																																									
	76/15B		0.14.0	1,72,97,00	24,21,580																																									
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	77/10		0.32.0	1,72,97,00	55,35,040																																									
	Total		3.63.5	-	5,27,31,140																																									
Total Land Cost = Rs.5,27,32,000/- (source : https://tnreginet.gov.in/portal/)																																														
ii) Machinery cost	The following machineries will be proposed to meet out the productions.																																													
	i. Excavator (1 No.)	50,00,000																																												
	ii. Rock breaker (1 No.)	1,00,000																																												
	iii. Trucks (3 Nos.)	75,00,000																																												
	iv. Compressor (2 No.)	15,00,000																																												
	v. Hand jack hammer and loose tools (8 Nos.)	4,00,000																																												
Total		1,45,00,000																																												
iii) Refilling/ Fencing	Fencing will be constructed around the quarry pit to prevent the inadvertent entry of public and cattle cost would be around (Total Peripheral length (1050m x Rs. 300/meter)).	3,15,000																																												
iv) Labourers shed	Labour shed will be constructed as semi-permanent structure. The cost is around	5,00,000																																												
v) Sanitary facility	Adequate latrine and urinal accommodation has provided at conveniently accessible places the cost would be around.	1,00,000																																												
vi) Others items	First aid room & accessories	50,000																																												
vii) Drinking water facility for the labourers	Packaged drinking water will be provided for all the Labours. Drinking water will be readily available at conveniently accessible points during the whole of the working shift the cost would be around.	1,00,000																																												
viii) Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around.	50,000																																												
ix) Safety kit	All the Safety kit such as Helmet, Earmuffs, Goggles, Reflector Jackets, Safety shoes etc., will be provided to the workers by the applicant own cost which would be around.	50,000																																												



x) Water sprinkling	Water will be sprinkled in the haul roads by own water sprinkler. The cost would be around.	6,00,000
xi) Garland drain	Construction of Garland drain with check dam to prevent surface run-off rain water entering to the quarry pit, the construction cost is around (Total Peripheral length 1000m x Rs. 300/meter).	3,00,000
xii) Greenbelt etc.	Greenbelt development will be carried out along the safety barrier; the cost would be around (1000 saplings x Rs. 200/sapling).	2,00,000
	Greenbelt development will be carried out along the quarried out top benches; the cost would be around (500 saplings x Rs. 200/sapling).	1,00,000
	Greenbelt development will be carried out on haul road; the cost would be around (500 saplings x Rs. 200/sapling).	1,00,000
	Total Cost	6,96,97,000

B. EMP Cost: (Per year)	
Air Quality monitoring	Rs. 52,000/-
Water Quality Sampling	Rs. 18,000/-
Noise Monitoring	Rs. 2,000/-
Ground vibration test	Rs. 4,000/-
Total Cost	Rs. 76,000/-
Total EMP Cost for the Ten years period is Rs.7,60,000/-	
Description	Amount (Rs.)
A. Operational Cost	6,96,97,000/-
B. EMP Cost	7,60,000/-
Total Project Cost (A+ B)	7,04,57,000/-
C. The applicant Indents to involve corporate environment responsibilities (CER) activity like Water Purifier, Plantation, Smart class Board, class room painting, sanitary facility and as per requirement to the Ullavur Govt. School at 2.0% from the total project cost. The Cost would be around Rs.14,10,000/. If the concerned authority is directed to modify the CER cost and mode of utilization of the cost, the same will be implement by the applicant.	14,10,000/-
Total Cost (A+B+C)	7,18,67,000/-
The total cost would be around seven crores eighteen lakhs and sixty seven thousand only.	

**12.0 PROGRESSIVE QUARRY CLOSURE PLAN****12.1 Introduction:**

As per guidelines for preparation of mining plan prescribed under Minor Mineral Conservation and Development Rules, 2010 also the entire area is proposed for a short period of Ten years only hence, the progressive quarry closure plan may not be applicable to this quarry. Anyhow, during temporary discontinuance of quarry the following measures will be taken.

- a. Barbed wire fencing will be constructed around the quarry.
- b. Benches will be smoothening.
- c. Quarry will be closed & sentries will be posted round the clock.
- d. Green belt development will be maintained.
- e. Machineries will be removed from pit and engaged in another site.

12.2 Present and Post Land use pattern:

TABLE – 14

Description	Present area (Ha)	Area required during first five years (Ha)	Area at the end of the lease period (Ha)
Area Under Quarrying	Nil	2.81.40	2.81.40
Infrastructure	Nil	0.01.00	0.01.00
Roads	Nil	0.02.00	0.02.00
Green Belt	Nil	0.39.90	0.79.10
Unutilized Area	3.63.50	0.39.20	Nil
Grand Total	3.63.50	3.63.50	3.63.50

Note: Greenbelt area may variable due to amalgamation of mine boundaries.

12.3 Statutory obligations:

The applicant ensures to comply all the conditions stipulated in the precise area communication letter before grant of quarry lease and during the course of quarry operations as per the DGMS, Department of Geology and Mines, Labour Enforcement officer, controller of Explosives etc., circulars, Norms, Rules, Regulations and Act.

12.4 Progressive quarry closure plan preparation:

Name and address of the Qualified Person who prepared the progressive closure plan and name and address of the executing agency who is involved in the Preparation of progressive quarry closure plan.

Name : **M. SANTHOSHKUMAR, M.Sc.,**
 Qualified Person (Under Rule 15(I)(a) and (I)(b) of MCR, 2016)

Address : Plot No.3, Kattuvattam, Kothukara Samathi Via,
 Kannakurich,
 Salem District

State with PIN Code : Tamil Nadu – 636 008.

Mobile No. : +91 97914 41745

Email ID : santoshgeo2004@gmail.com

The applicant will himself implement the closure plan; no outside agency will be involved.

**(i) Safety & Security:**

Safety measures will be implemented to prevent access in the excavation area an unauthorized persons as per Mine Act 1952, MMR 1961.

- Safety measures will be implemented as per Mine Act 1952, MMR 1961, and Mines Rules 1955.
- Provisions of MMR 1961 shall be strictly followed and all roads shall be wider than the height of the bench or equal to the height of the bench and have a gradient of not more than 1 in 16.
- The bench height will be 5.0m.
- Width of working bench will be kept about 5.0m for ease of operations and provide sufficient room for the movement of machineries and vehicles.
- Protective equipment like dust masks, ear-plugs/ muffs and other equipment shall be provided for use by the work persons.
- Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries.
- Danger signs shall be displayed near the excavations and proper signal by siren alarm will be given to the public before blasting to prevent accident.
- Security guards will be posted.
- In the event of temporary closer, approaches will be fenced off and notice displayed.
- Installation of CCTV cameras in the quarry and entrance of the quarry.
- Monitoring of Quarrying operation by external agency as directed by authorities.

(ii) Disaster Management and Risk Assessment:

This should deal with action plan for high risk accidents like landslides, subsidence, flood, fire, seismic activities, tailing dam failures etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of applicant to meet such eventualities and the assistance to be required from the local authorities should be described.

- The mechanized mining activities in the area may involve any high risk accident due to side falls/collapse, flying stones due to blasting etc.
- The complete mining operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS.
- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, TNMMCR 1959 and other laws applicable to mine will be strictly complied with.
- During heavy rainfall the mining activities will be suspended.
- All persons in supervisory capacity will be provided with proper communication facilities.
- Competent persons will be provided FIRST AID kits which they will always carry.
- The Greenbelt Development will be formed in around the quarried out top benches and panchayat road of the lease applied area.

Environmental Monitoring Cell:

A dedicated team nominated by the mine manager or Agent will monitor and maintain the environmental compliances of the quarry as per the approved Environment Management Plan and report the Compliance to the Mine Manager half yearly.

Disaster Management Cell:

The Competent Qualified Statutory managers appointed by the applicant as per the Director of Mines Safety will be responsible for Disaster Management. It care any eventualities his mobile number will be displayed and he will take all the precautions and safety measures as per Mines and Minerals (Development and Regulations) Act, 1957.

**(iii) Disposal of mining machinery**

All the Machineries will be purchased fresh, the same has been maintained in good condition during entire life of quarry. After completion of quarry operation all machineries will be engaged at another quarry area or sold out to the second hand. Hence, disposal or decommissioning of mining machinery does not arise.

(iv) Care and Maintenance during Temporary Discontinuance:

In case of any temporary discontinuance due to court order or due to statutory requirement or any other unforeseen circumstance following measures shall be taken for care, maintenance and monitoring of conditions.

- Notice of temporary discontinuance of work in mine shall be given to the DGMS as per the MMR 1961.
- All the mining machinery shall be shifted to a safe place.
- Entrance to the mine or part of the mine, to be discontinued shall be fenced off. Fencing shall be as per the circular 11/1959 from DGMS.
- Security Guards shall be posted for the safety and to prevent any unauthorized entry to the area.
- Carry out regular maintenance of the facilities/area detailed below in such a way as would have been done as if the mines were operation:
 - Quarry roads and approach roads,
 - Fencing on approach roads,
 - Checking and maintenance of machines and equipment,
 - Drinking water arrangements,
 - Quarry office, first aid stations etc.
- Competent persons shall inspect the area regularly.
- Air, water and other environmental monitoring shall be carried out as per CPCB and IBM Guideline.
- Care and upkeep of plantation shall be carried out on regular basis.
- Status of the working and status monitoring for re-opening of the mines shall be discussed daily.

In case of discontinuance due to any natural calamities/abnormal conditions, mining operation will be restarted as early as possible after completing rescue work, restoring safety and security, repairs of roads etc.

**(v) Economic Repercussion of Closure of Quarry and manpower Retrenchments:**

The quarry lease is granted for a period of Ten years only. As per the production Programme envisaged, there will be no effect on the man power as the majority of persons belong to nearby villages and will have an option either to be available for employment for the next contract/ lease or do the agriculture in their fields.

(vi) Abandonment Cost:

As at present mining is not going to be closed so abandonment cost could not be assessed. However, based on the progressive quarry closure activities during the plan period, cost is assessed as given below at present scenario:

TABLE – 15

ACTIVITY		YEARS										RATE	COST (Rs.)
		I	II	III	IV	V	VI	VII	VIII	IX	X		
Plantation under safety zone	Nos	100	100	100	100	100	100	100	100	100	100		2,00,000
	Cost	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000		
Plantation in quarried out top bench and Haul road	Nos	Haul Road			Quarried out top bench							Rs.200 Per sapling	2,00,000
		500	-	-	200	200	100	-	-	-	-		
	Cost	100000	-	-	40000	40000	20000	-	-	-	-		
Barbed Wire Fencing (1,050 Mtrs)		3,15,000	-	-	-	-	-	-	-	-	-	Rs300 Per Meter	3,15,000
Garland Drain (1,000 Mtrs)		3,00,000	-	-	-	-	-	-	-	-	-	Rs300 Per Meter	3,00,000
Total													10,15,000

**13.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT:**

This Mining plan for Rough stone (Charnockite) and Gravel is under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959. The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied within the quarrying operation, so that the safety of the mine, machinery and person will be well protected. Permission, relaxation or exemption wherever required for the safe and scientific quarrying of the deposit will be obtained from the Department of Mines Safety. Any violation pointed out by the inspecting authorities shall be rectified and modified after scrutiny comments as per the guidelines of the Concerned Department and Authorities.

This Mining Plan and mine design is prepared based on the requirement instructed by the applicant to me. If there is any change in the production schedule, change of technology, change in product mix during the course of operations, the applicant is advice to prepare a modified mining plan and get approval by the concerned authority for subsequent clearance and approval. The same will be monitored by the inspecting authority of Department of Geology and mining and other Concerned Departments under Rule 25 and sub rule (5)(d) in Rule 36 of Tamil Nadu Minor Mineral Concession Rules, 1959.

I hereby ensure that the information provided is correct to best of my knowledge and experience, some of the information contained in this report has been provided by external sources and by the applicant and is presented as the form as submitted by the applicant. The information is not intended to serve as legal advice related to the individual situation. I do not owe and specifically disclaim any liability resulting from the use during the course of quarrying operations after the grant of lease. The document may be scrutinized by the competent authority before approval.

Prepared by

M. Santhosh Kumar
M. SANTHOSHKUMAR, M.Sc.,
Qualified Person

Place: Salem

Date: 19.08.2024

This Mining Plan is approved subject
to the conditions / stipulations
indicated in the Mining Plan approval
Letter No. 70/23/2023
Dated, 08.2024

This Mining Plan is approved as per the
powers conferred Under Rule 41 (2) of
Tamil Nadu Minor Mineral Concession
Rules, 1959

S. [Signature]
23.08.24
Deputy Director of Geology and Mining,
Kancheepuram District.

PHOTOGRAPHS OF THE PAZHAYASEEVARAM - B
ROUGH STONE AND GRAVEL QUARRY LEASE APPLIED AREA



OUTCROPS



ANNEXURES

நக.எண். 70/க்யூ3/2023
நாள். 14.08.2024

துணை இயக்குநர் அலுவலகம்,
புவியியல் மற்றும் சுரங்கத்துறை,
காஞ்சிபுரம்.

குறிப்பாணை

பொருள்:- கனிமங்களும் குவாரிகளும் - சிறுகனிமம் - சாதாரண கற்கள் மற்றும் கிராவல் மண் - காஞ்சிபுரம் மாவட்டம் - வாலாஜாபாத் வட்டம் - பழையசீவரம் ஆ கிராமம் - புல எண்கள். 76/14, 76/15A, 76/15B, 76/15C3, 76/16A, 77/5, 77/6, 77/7, 77/9 மற்றும் 77/10-ன் மொத்த பரப்பு 3.81.50 ஹெக்டேர்ஸ் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க - திரு. M. ஆண்டனி கோமஸ் த/பெ. P. மரியதாஸ் என்பவர் தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி எண்.19(1) - ன்கீழ் பத்து ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் கோரி விண்ணப்பம் செய்தது -புலத்தணிக்கை செய்யப்பட்டது - அறிக்கைகள் வரப்பெற்றது - விதிகளின் படி புல எண்.76/14- நீங்கலாக புல எண்கள்.76/15A, 76/15B, 76/15C3, 76/16A, 77/5, 77/6, 77/7, 77/9 மற்றும் 77/10-ன் மொத்த பரப்பு 3.63.50 ஹெக்டேர்ஸ் பரப்பு மட்டும் தகுதி வாய்ந்த நிலப்பரப்பாக கருதி ஏற்பளிக்கப்பட்ட சுரங்கதிட்டம் மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மை சான்று பெற்று சமர்ப்பிக்க கோருதல் - தொடர்பாக.

- பார்வை:-
1. திரு. M. ஆண்டனி கோமஸ் த/பெ. P. மரியதாஸ் என்பவரின் விண்ணப்பம் நாள். 15.02.2023, பெறப்பட்ட நாள். 23.02.2023.
 2. இவ்வலுவலக கடித நக.எண்.70/ க்யூ3/ 2023, நாள். 23.02.2023.
 3. வாலாஜாபாத் வட்டாட்சியர் அவர்களின் கடித நாள். 586/2023/அ1, நாள். 13.04.2023 மற்றும் 22.07.2024.
 4. காஞ்சிபுரம் வருவாய் கோட்டாட்சியர் அவர்களின் அறிக்கை நக.எண்.978/2023/அ1, நாள்.02.08.2024.
 5. உதவி புவியியலாளர் மற்றும் தனித்துணை வட்டாட்சியர் (கனிமம்), காஞ்சிபுரம் அவர்களின் புலத்தணிக்கை அறிக்கை நாள். 12.08.2024.
 6. மற்றும் உரிய ஆவணங்கள்.

பார்வையில் காணும் கடிதங்களின்பால் கனிவான கவனம் வேண்டப்படுகிறது.

2. காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், பழையசீவரம் 'ஆ' கிராம பட்டா புல எண்கள். 76/14, 76/15A, 76/15B, 76/15C3, 76/16A, 77/5, 77/6,



77/7, 77/9 மற்றும் 77/10-ன் மொத்த பரப்பு 3.81.50 ஹெக்டேர்ஸ் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் குவாரி செய்ய தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி எண்.19(1)-ன்கீழ் பத்து ஆண்டுகளுக்கு குத்தகை உரிமம் வழங்க கோரி திரு. M. ஆண்டனி கோமஸ் த/பெ. P. மரியதாஸ் என்பவர் 15.02.2023 -நாளிட்ட விண்ணப்பத்தினை உரிய ஆவணங்களுடன் சமர்ப்பித்துள்ளார்.

3. காஞ்சிபுரம் புவியியல் மற்றும் சுரங்கத்துறை, உதவி புவியியலாளர் மற்றும் தனித்துணை வட்டாட்சியர் ஆகியோரின் புலத்தணிக்கை அறிக்கையில், விண்ணப்பதாரர் குத்தகை உரிமம் அனுமதி கோரியுள்ள காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், பழையசீவரம் ஆ கிராம புல எண். 76/14 (0.18.0)- க்கு தமிழ்நாடு சிறுகனிம சலுகை விதிகளின் படி உரிய பாதுகாப்பு இடைவெளி போக குவாரிப்பணி செய்ய போதுமான இடவசதி இல்லாத காரணத்தால் புல எண். 76/14 (0.18.0)- யை தவிர்த்து மீதமுள்ள புல எண்கள். 76/15A (0.05.0), 76/15B (0.14.0), 76/15C3 (0.34.0), 76/16A (1.15.0), 77/5 (0.22.0), 77/6 (0.35.5), 77/7 (0.67.5), 77/9 (0.38.5) மற்றும் 77/10 (0.32.0)-ன் மொத்த பரப்பு 3.63.50 ஹெக்டேர்ஸ் பரப்பில் மட்டும் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க பரிந்துரை செய்யப்பட்டுள்ளது.

4. மேற்கண்ட விண்ணப்பம் தொடர்பாக வாலாஜாபாத் வட்டாட்சியர், காஞ்சிபுரம் வருவாய் கோட்டாட்சியர் மற்றும் காஞ்சிபுரம் புவியியல் மற்றும் சுரங்கத்துறை, உதவி புவியியலாளர் மற்றும் தனித்துணை வட்டாட்சியர் ஆகியோரின் பரிந்துரையின் பேரில் காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், பழையசீவரம் 'ஆ' கிராம பட்டா புல எண்கள். 76/15A (0.05.0), 76/15B (0.14.0), 76/15C3 (0.34.0), 76/16A (1.15.0), 77/5 (0.22.0), 77/6 (0.35.5), 77/7 (0.67.5), 77/9 (0.38.5) மற்றும் 77/10 (0.32.0)-ன் மொத்த பரப்பு 3.63.50 ஹெக்டேர்ஸ் பரப்பில் மட்டும் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க திரு. M. ஆண்டனி கோமஸ் த/பெ. P. மரியதாஸ் என்பவருக்கு குவாரி உரிமம் வழங்க கீழ்க்கண்ட நிபந்தனைகளுக்குப்பட்டு அனுமதி வழங்க பரிந்துரை செய்துள்ளனர்.

1. 1959-ம் வருடத்திய தமிழ்நாடு சிறு கனிம சலுகை விதிகள், அட்டவணை II-ல் கண்டுள்ளபடி குவாரி செய்யப்படும் கனிமங்களுக்கு சீனியரேஜ் தொகை அவ்வப்போது செலுத்தி கனிமம் கொண்டு செல்லப்பட வேண்டும்.



2. விண்ணப்ப புலங்களுக்கு அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளிவிட்டு குவாரிப்பணி செய்யப்பட வேண்டும்.
3. விண்ணப்ப புலங்களுக்கு கிழக்கே புல எண்.77/8 (அனாதீனம்) மற்றும் வடமேற்கே புல எண்.76/13 (அனாதீனம்) அரசு புலங்களுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி செய்யப்பட வேண்டும்.
4. பொதுமக்களுக்கோ, பொது சொத்துக்களுக்கோ யாதொரு சேதமும் இன்றி பாதுகாப்பான முறையில் குவாரிப்பணி செய்ய வேண்டும்.
5. அனுபவம் வாய்ந்த வெடிபொருள் பயன்படுத்துவோர் மூலம் குறைந்த அளவு சக்தி கொண்ட வெடிபொருட்களை பயன்படுத்தி அருகிலுள்ள பட்டா தாரர்களுக்கு எவ்வித இடையூறுமின்றி / அருகிலுள்ள பட்டா மற்றும் அரசு புலங்களில் எவ்வித ஆக்கிரமிப்பும் இன்றி குவாரிப் பணி மேற்கொள்ள வேண்டும்.
6. விதிகளின்படி ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டத்தினை உரிய காலத்திற்குள் சமர்ப்பிக்க வேண்டும்.
7. குவாரி உரிமம் வழங்க உள்ள பகுதிக்கு சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் தடையின்மை சான்று பெற்று சமர்ப்பிக்கும் பட்சத்தில் மட்டுமே குவாரி உரிமம் வழங்கப்படும்.

5. இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, சென்னை அவர்களின் 10.08.2020 நாளிட்ட கடிதத்துடன் இணைத்து வரப்பெற்ற அரசாணை எண்.169 தொழில் துறை (எம்.எம்.சி.1) நாள். 04.08.2020-ன்படி பட்டா புலங்களில் கிராவல், சாதாரண வகை கற்கள் ஆகிய சிறுகனிம உரிமம் வழங்கும் நேர்வுகளில் நடவடிக்கை எடுக்க விதி 19(1) மற்றும் 33-ல் மாவட்ட ஆட்சியருக்கு வழங்கப்பட்ட அதிகாரம் தற்போது சம்பந்தப்பட்ட உதவி/ துணை இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை அவர்களுக்கு மாற்றி வழங்கி உத்தரவிடப்பட்டுள்ளது

6. எனவே, வாலாஜாபாத் வட்டாட்சியர், காஞ்சிபுரம் வருவாய் கோட்டாட்சியர் மற்றும் காஞ்சிபுரம் புவியியல் மற்றும் சுரங்கத்துறை, உதவி புவியியலாளர் மற்றும் தனித்துணை வட்டாட்சியர் ஆகியோரின் பரிந்துரையின் பேரில் காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், பழையசீவரம் ஆகிய கிராம புல எண்கள். 76/15A (0.05.0), 76/15B (0.14.0), 76/15C3 (0.34.0), 76/16A (1.15.0), 77/5 (0.22.0), 77/6 (0.35.5), 77/7 (0.67.5), 77/9 (0.38.5) மற்றும் 77/10 (0.32.0)-ன் மொத்த பரப்பு 3.63.50 ஹெக்டேர்ஸ் பரப்பில் 1959-ம் வருட தமிழ்நாடு சிறுகனிம



விதிகள், விதி எண்.19(1) -ன்படி மேற்கண்ட நிபந்தனைகளுக்குட்பட்டு 10 (பத்து) வருட காலத்திற்கு திரு. M. ஆண்டனி கோமஸ் த/பெ. P. மரியதாஸ் என்பவருக்கு சாதாரண கற்கள் மற்றும் கிராவல் குவாரி உரிமம் வழங்குவதற்குரிய தகுதியான நிலப்பரப்பாக கருதப்படுகிறது.

7. மேலும், தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959, விதி எண்.41-ன்படி குவாரிப்பணி மேற்கொள்வது தொடர்பாக வரைவு சுரங்கத் திட்டத்தினை 90 தினங்களுக்குள் சமர்ப்பிக்குமாறு மனுதாரரை கேட்டுக்கொள்ளப்படுகிறது. மேலும், ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டத்தின் தொடர்ச்சியாக 1959-ம் வருடத்திய தமிழ்நாடு சிறு கனிம சலுகை விதிகள் விதி எண்.42-ன் படி மாவட்ட சுற்றுச் சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மை சான்று பெற்று சமர்ப்பிக்கும் பட்சத்தில் மட்டுமே குவாரி உரிமம் வழங்கப்படும் என இதன் மூலம் தெரிவிக்கப்படுகிறது.

துணை இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
காஞ்சிபுரம்.

பெறுநர்

திரு. M. ஆண்டனி கோமஸ் த/பெ. P. மரியதாஸ்,
ஏண்.9/1, எம்.கே.ரெட்டி தெரு,
மேற்கு தாம்பரம்,
சென்னை-600 045.

நகல்:-

- 1) தலைவர், மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையம், சென்னை.
- 2) ஆணையர், புவியியல் மற்றும் சுரங்கத்துறை, கிண்டி, சென்னை 600 032.

வட்டம்: சென்னை

ANNEXURE II

வட்டம்: கந்திபுரம்

அமைப்பு

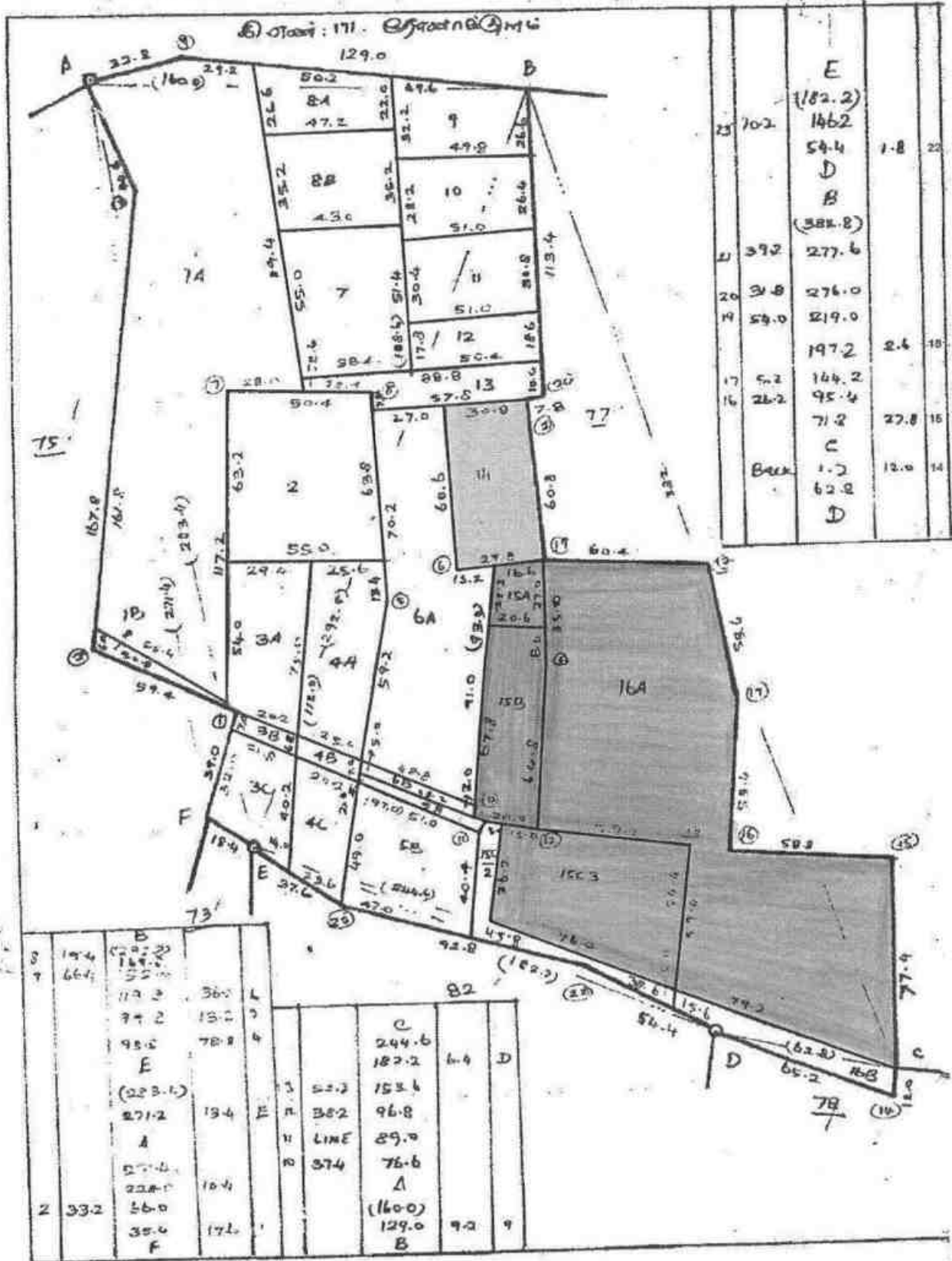
எண்: 174

பெயர்: மதுவாடிபுரம்



புல எண்: 76

பரப்பு: ஒன்றரை 5.90.5 ஏ.அ.



சென்னை
மதுவாடிபுரம்
பி.அ.

அளவு: 1: 2000

■ = APPLIED QUARRY AREA

மாவட்டம்: சிங்கப்பட்டு

எண்: 174



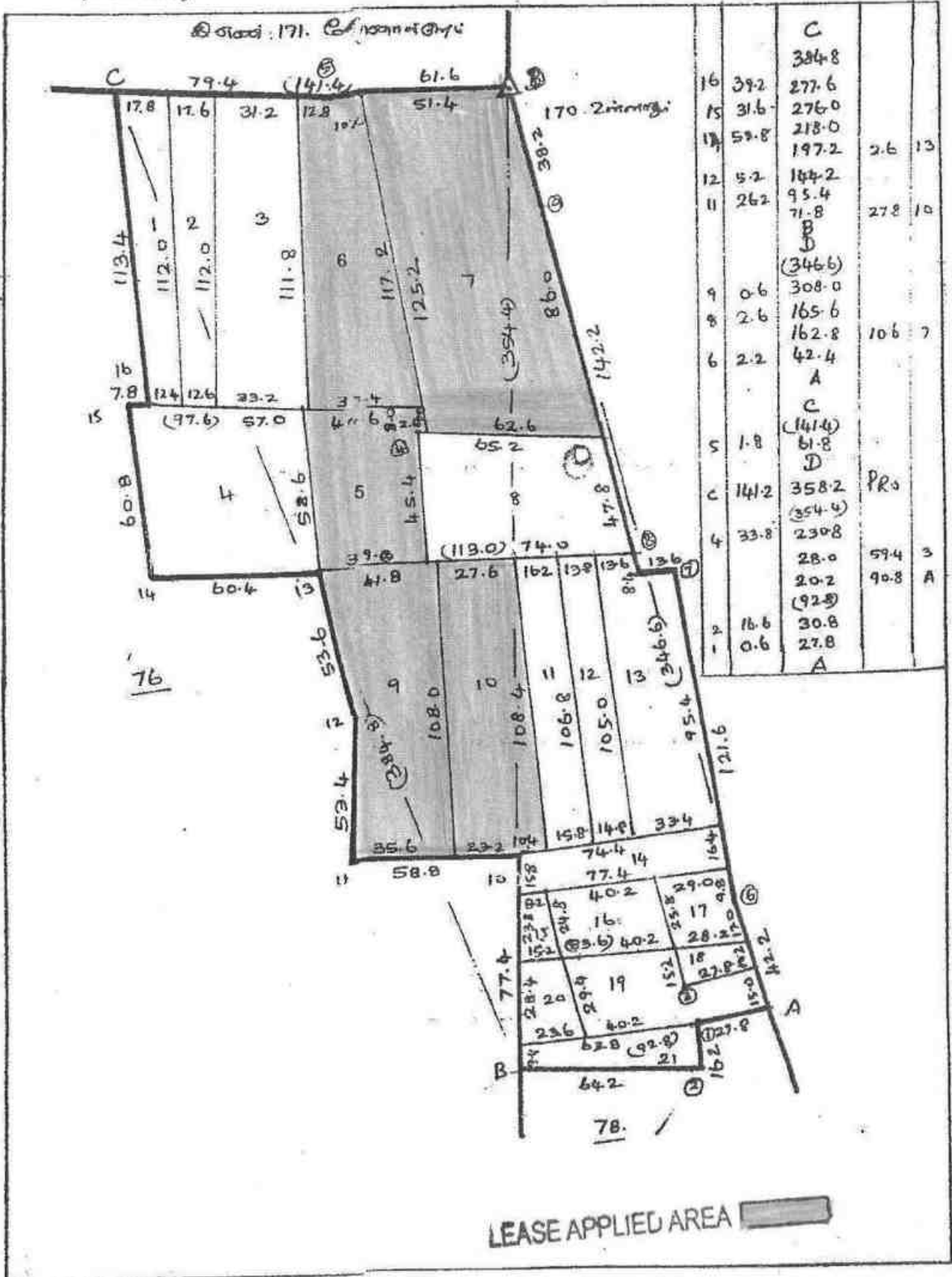
வட்டம்: கிணங்குடி

கிராமம்

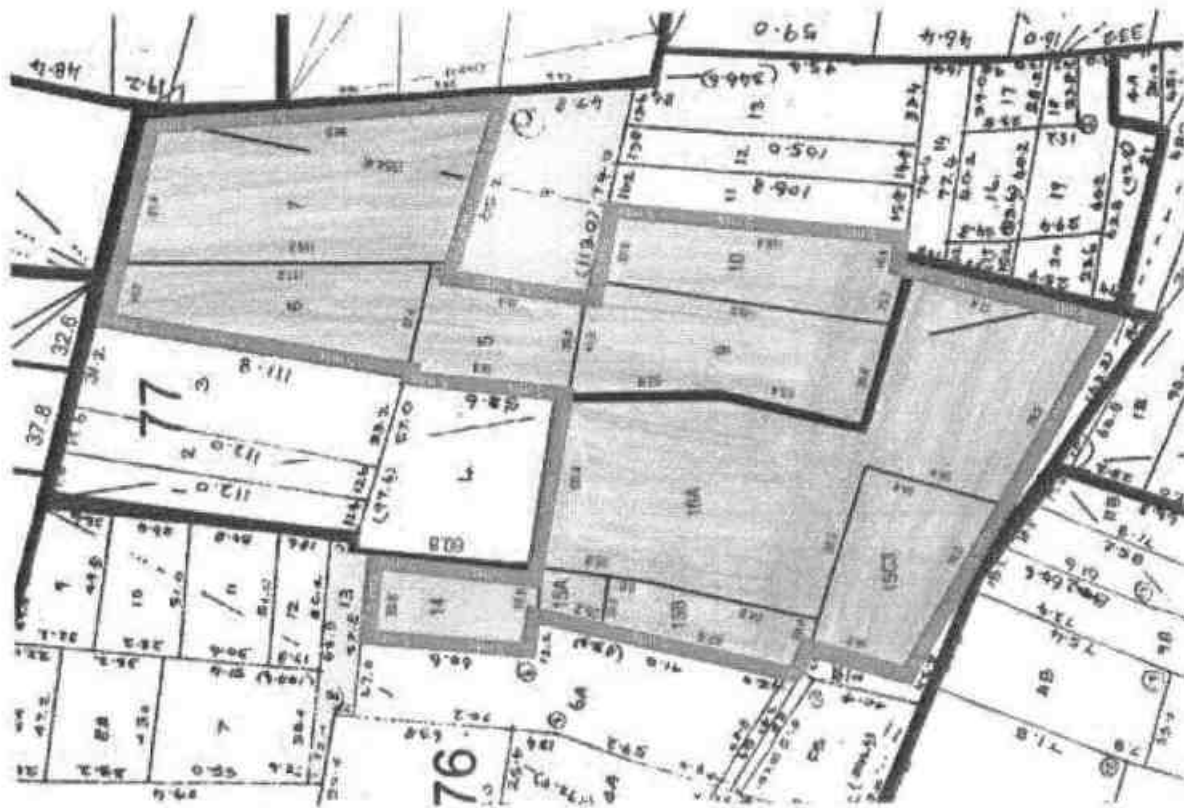
பெயர்: பழையபேரூர்

புல எண்: 77

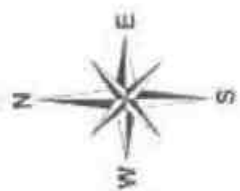
பரப்பு: ஹெக்டேர் 4 60.5 ஏ.



அளவு: 1:2000



Combined Map Showing
 S.No. 76/14, 15A, 15B, 15C3, 16A, 77/5, 6, 7, 9, 10
 Total Extent: 3.81.5 HECT (Applied Area)
 In V.No. 174, Palayaseevaram Village, Walajabad Taluk,
 Kanchipuram District



- Govt Land
- Proposed Land For Quarry Lease
- Safety Distance of 5 & 7.5 mts



LEASE APPLIED AREA

ANNEXURE III



No. 174

PALAYASIVARAM
KANCHEEPURAM TALUK
KANCHEEPURAM DISTRICT

No. 172
DEVARAHAKKAM

No. 85
MATHANALLUR

No. 121
THONAKULAM

No. 176
ULLAYOOR

No. 88
PULIARAKKAM

CHENGALPATTU TALUK

No. 175
ANGARAKKAM

No. 215
THIRUPURUKULAM

Chengal Patti Taluk

No. 211
PALLAVI

Survey No.	Name of village
1	Adichal
2	Adichal
3	Adichal
4	Adichal
5	Adichal
6	Adichal
7	Adichal
8	Adichal
9	Adichal
10	Adichal
11	Adichal
12	Adichal
13	Adichal
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100	Adichal

Survey No.	Name of village
1	Adichal
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100	Adichal



தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

ANNEXURE 1V



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

வருவாய் கிராமம் : பழையசேவரம் - ஆ

பட்டா எண் : 1323

உரிமையாளர்கள் பெயர்

1. பி. மரியதாஸ்

மகன்

எம். ஆண்டனிகோம்ஸ்



புல எண்	உட்பிரிவு	புன்செய்		நுன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
76	15C2B	0 - 3.50	0.11	--	--	--	--	2021/0103/03/216657- 2016/03/12/0001225D -- 01-06-2021
76	15C3	0 - 34.00	1.03	--	--	--	--	2021/0103/03/216657- -- 01-06-2021
78	6	0 - 43.00 (மா)	1.98	--	--	--	--	2021/0103/03/216657- -- 01-06-2021
82	10A	0 - 5.00	0.15	--	--	--	--	2021/0103/03/216658- -- 01-06-2021
82	10B	0 - 23.50	0.74	--	--	--	--	2021/0103/03/216658- -- 01-06-2021
82	12	0 - 4.50 (மா)	0.21	--	--	--	--	2021/0103/03/216657- -- 01-06-2021
82	13	0 - 3.50 (மா)	0.17	--	--	--	--	2021/0103/03/216657- -- 01-06-2021
82	14	0 - 8.50	0.06	--	--	--	--	2021/0103/03/216658- -- 01-06-2021
82	4B	0 - 26.00	0.78	--	--	--	--	2021/0103/03/216657- -- 01-06-2021
82	6	0 - 2.00	0.06	--	--	--	--	2021/0103/03/216657- -- 01-06-2021
82	7	0 - 1.50	0.06	--	--	--	--	2021/0103/03/216657- -- 01-06-2021
82	9A	0 - 5.00	0.15	--	--	--	--	2021/0103/03/216657- -- 01-06-2021
82	9B	0 - 23.50	0.73	--	--	--	--	2021/0103/03/216657- -- 01-06-2021
103	5	--	--	0 - 9.00	0.88	--	--	11581/10A--- 01-06- 1983
41	16	--	--	0 - 5.00	0.42	--	--	---- 20-10-2014
41	17A	--	--	0 - 0.60	0.54	--	--	---- 20-10-2014
41	17B	--	--	0 - 5.00	0.45	--	--	---- 20-10-2014
41	21A	--	--	0 - 10.50	0.91	--	--	---- 20-10-2014
41	21B	--	--	0 - 5.50	0.46	--	--	---- 20-10-2014
		1 - 83.50	6.23	0 - 35.60	3.66			

*மா - மானாவரி

குறிப்பு 2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிலேயே இலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 03/12/203/01323/40359 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 18-02-2023 அன்று 11:30:47 AM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.



தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

வருவாய் கிராமம் : பழையசேவரம் - ஆ

பட்டா எண் : 1436

உரிமையாளர்கள் பெயர்

1. பி. மரியதாஸ்

மகன் எம். ஆண்டனிகோமல்



புல.எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
44	29	0 - 14.50	1.26	--	--	--	--	---- -- 20-10-2014
62	3	0 - 14.00 (மா)	0.79	--	--	--	--	2020/0103/03/204916- -- -- 23-12-2020
63	13	0 - 15.00 (மா)	0.83	--	--	--	--	2020/0103/03/204916- -- -- 23-12-2020
63	15A	0 - 1.00 (மா)	0.06	--	--	--	--	2020/0103/03/204916- -- -- 23-12-2020
63	15B	0 - 6.00 (மா)	0.34	--	--	--	--	---- -- 20-10-2014
63	15C	0 - 4.50 (மா)	0.25	--	--	--	--	---- -- 20-10-2014
63	15D	0 - 15.00 (மா)	0.84	--	--	--	--	---- -- 20-10-2014
63	16	0 - 28.50 (மா)	1.60	--	--	--	--	2020/0103/03/204916- -- -- 23-12-2020
63	4A	0 - 30.00	1.64	--	--	--	--	---- -- 20-10-2014
63	4B	0 - 29.50 (மா)	1.64	--	--	--	--	---- -- 20-10-2014
63	4C	0 - 9.50 (மா)	0.53	--	--	--	--	----- 20-10-2014
63	4D	0 - 17.00 (மா)	0.94	--	--	--	--	2020/0103/03/204916- -- -- 23-12-2020
63	4E	0 - 19.00 (மா)	1.05	--	--	--	--	---- -- 20-10-2014
63	4F	0 - 18.50 (மா)	1.03	--	--	--	--	---- -- 20-10-2014
63	6A	0 - 8.00 (மா)	0.44	--	--	--	--	---- -- 20-10-2014
63	6B	0 - 8.00 (மா)	0.44	--	--	--	--	---- -- 20-10-2014
63	8A	0 - 3.00 (மா)	0.17	--	--	--	--	---- -- 20-10-2014
63	8B	0 - 2.50 (மா)	0.15	--	--	--	--	2020/0103/03/204916- -- -- 23-12-2020
64	1	0 - 15.50	0.62	--	--	--	--	2020/0103/03/204916- -- -- 23-12-2020

64	4	0 - 19.50	0.78	--	--	--	--	2020/0103/03/204916- -- -- 23-12-2020
75	13A	0 - 3.00 (மா)	0.08	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
75	9	0 - 48.50 (மா)	2.24	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
76	10	0 - 12.00	0.38	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
76	11	0 - 16.00	0.49	--	--	--	--	2019/0103/03/150504- -- -- 21-06-2019
76	12	0 - 9.00	0.28	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
76	14	0 - 18.00	0.55	--	--	--	--	2023/0103/03/273166- -- -- 11-01-2023
76	15B	0 - 14.00	0.43	--	--	--	--	2020/0103/03/204916- -- -- 23-12-2020
76	16A	1 - 15.00	3.58	--	--	--	--	2023/0103/03/273166- -- -- 11-01-2023
76	16B	0 - 6.50	0.20	--	--	--	--	2023/0103/03/273166- -- -- 11-01-2023
76	1B	0 - 2.00	0.08	--	--	--	--	2019/0103/03/150504- -- -- 21-06-2019
76	2	0 - 32.00	0.99	--	--	--	--	2020/0103/03/196271- -- -- 09-09-2020
76	6A	0 - 50.00	1.53	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
76	6B	0 - 1.50	0.06	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
76	8A	0 - 12.00	0.38	--	--	--	--	2019/0103/03/150504- -- -- 21-06-2019
76	9	0 - 13.00	0.40	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
77	1	0 - 18.50	0.58	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
77	10	0 - 32.00	0.99	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
77	13	0 - 30.00	0.93	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
77	14	0 - 12.00	0.38	--	--	--	--	2020/0103/03/204916- -- -- 23-12-2020
77	2	0 - 16.00	0.49	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
77	21	0 - 9.00	0.28	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
77	3	0 - 37.00	1.14	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
77	4	0 - 37.00	1.15	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
77	5	0 - 22.00	0.68	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
77	6	0 - 35.50	1.10	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
77	7	0 - 67.50	2.10	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
77	9	0 - 38.50	1.19	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
78	10	0 - 42.50 (மா)	1.96	--	--	--	--	2020/0103/03/204917- -- -- 31-12-2020



78	1A	0 - 1.00	0.06	--	--	--	--	2020/0103/03/204916- -- -- 23-12-2020
78	1B	0 - 20.50	0.60	--	--	--	--	2020/0103/03/204916- -- -- 23-12-2020
78	2	0 - 16.00	0.50	--	--	--	--	2020/0103/03/204916- -- -- 23-12-2020
78	4A	0 - 4.50	0.14	--	--	--	--	2020/0103/03/204916- -- -- 23-12-2020
78	4B3	0 - 31.50	0.98	--	--	--	--	2020/0103/03/204916- -- -- 23-12-2020
78	5	0 - 36.50 (மா)	1.68	--	--	--	--	2020/0103/03/204917- -- -- 31-12-2020
82	11A	0 - 5.00 (மா)	0.23	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
82	11B	0 - 12.00 (மா)	0.55	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
82	11C	0 - 11.50 (மா)	0.55	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
82	20	0 - 12.00 (மா)	0.54	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
82	22B	0 - 5.50 (மா)	0.06	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
82	8	0 - 2.00	0.06	--	--	--	--	2019/0103/03/139108- -- -- 22-03-2019
59	18	--	--	0 - 17.00	1.47	--	--	2019/0103/03/164380- -- -- 02-10-2019
59	23	--	--	0 - 4.50	0.39	--	--	2019/0103/03/164380- -- -- 02-10-2019
59	25	--	--	0 - 7.50	0.63	--	--	2019/0103/03/164380- -- -- 02-10-2019
78	8	--	--	0 - 5.50	0.46	--	--	2020/0103/03/204917- -- -- 31-12-2020
78	9	--	--	0 - 5.50	0.49	--	--	2020/0103/03/204917- -- -- 31-12-2020
		11 - 86.50	45.99	0 - 40.00	3.44			

*மா - மானாவரி

குறிப்பு 2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 03/12/203/01436/40384 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 18-02-2023 அன்று 11:28:35 AM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.



தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

வருவாய் கிராமம் : பழையசேவரம் - ஆ

பட்டா எண் : 3146

உரிமையாளர்கள் பெயர்

1. மரியதாஸ் மகன் ஆண்டனி கோம்ஸ்



புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
76	15A	0 - 5.00	0.15	--	--	--	--	2023/0103/03/277943- --- 27-02-2023
		0 - 5.00	0.15					

குறிப்பு2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 03/12/2023/03146/60384 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 28-02-2023 அன்று 03:17:57 PM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

வட்டம் 71 ஸ்ரீராமநாதபுரம்



92 A

அ-பதிவேடு விவரங்கள்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : பழையசேவரம் - ஆ

1. புல எண்	76	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	14	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-14	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 18.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.55
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1436
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.எம். ஆண்டனிகோமல்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை.
இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 100384 என்ற
குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : பழையசேவரம் - ஆ

1. புல எண்	76	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	15A	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-15A	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 5.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.15
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	3132
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.சீனிவாசன்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை.
இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 100349 என்ற
குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : பழையசேவரம் - ஆ

1. புல எண்	76	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	15B	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-15B	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 14.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.43
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1436
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.எம். ஆண்டனிகோமல்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 100384 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : பழையசேவரம் - ஆ

1. புல எண்	76	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	15C3	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-15C3	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 34.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	1.03
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1323
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.எம். ஆண்டனிகோம்ஸ்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 100359 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : பழையசேவரம் - ஆ

1. புல எண்	76	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	16A	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-16A	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	1 - 15.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	3.58
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1436
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.எம். ஆண்டனிகோமல்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை.
இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 100384 என்ற
குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : பழையசேவரம் - ஆ

1. புல எண்	77	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	10	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-10	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 32.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.99
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1436
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.எம். ஆண்டனிகோமல்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 100384 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : பழையசீவரம் - ஆ

1. புல எண்	77	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	5	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-5	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 22.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.68
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1436
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.எம். ஆண்டனிகோமல்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 100384 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : பழையசேவரம் - ஆ

1. புல எண்	77	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	6	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-6	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 35.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	1.10
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1436
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.எம். ஆண்டனிகோமல்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 100384 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : பழையசேவரம் - ஆ

1. புல எண்	77	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	7	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-7	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 67.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	2.10
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1436
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.எம். ஆண்டனிகோமல்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 100384 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : பழையசீவரம் - ஆ

1. புல எண்	77	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	9	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-9	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 38.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	1.19
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1436
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.எம். ஆண்டனிகோமல்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 100384 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.



ANNEXURE VII


இந்திய அரசாங்கம்
Government of India


ஆன்டனி மேமல் மரியதாஸ்
Antony Gomez Mariadoss
பிறந்த நாள்/ DOB: 14/01/1977
ஆண் / MALE



4143 9399 2757

எனது ஆதார், எனது அடையாளம்


Unique Identification Authority of India

முகவரி:
S/O மரியதாஸ், பழைய எண்-9/1, புதிய எண்-33, எம்.கே.ரெட்டி தெரு, மேற்கு தாம்பரம், தாம்பரம், காஞ்சிபுரம், தமிழ் நாடு - 600045

Address:
S/O Mariadoss, Old No-9/1, New No-33, M.K.Reddy Street, West Tambaram, Tambaram, Kancheeppuram, Tamil Nadu - 600045

4143 9399 2757

 1947  help@uidai.gov.in  www.ww. uidai.gov.in

आयकर विभाग
INCOME TAX DEPARTMENT

भारत सरकार
GOVT. OF INDIA

ANTONY GOMEZ MARIADOSS

MARIA DOSS PICHAYA

14/01/1977
Permanent Account Number
AANPM8577F


Signature



உதவி இலாப / ஸ்தல வரி அலுவலர், கிளை
காஞ்சிபுரம், எம்.கே.ரெட்டி தெரு, மேற்கு தாம்பரம், தாம்பரம், காஞ்சிபுரம், தமிழ் நாடு - 600045

If you need to pay / contribute to this, please send
please send to :
Income Tax PAN Services Unit, NRI,
3rd Floor, Signature Chambers,
Nair Palace, Coimbatore, Bangalore.
Phone: 944 1111

Tel: 91 20 2221 8000, Fax: 91 20 2221 8001
e-mail: nri@itd.gov.in

அண்ணாமலைப்



பல்கலைக்கழகம்

ANNAMALAI

UNIVERSITY



Reg. No. : 080752



அறிவியற்புலம்
FACULTY OF SCIENCE,

மே, 2010 இல்

பயன்பாட்டு நிலத்தியல்

பிரிவில்

நடத்திய தேர்வுகளில்

சந்தோஷ்குமார் ம/

கூடுதல்

மதிப்பிடுபுள்ளிகள் 10.00 க்கு சராசரியாக 7.04 பெற்று

முதல் வகுப்பில்

தேர்ச்சியடைந்து முறையாக அமைக்கப்பெற்ற தேர்வுக்குழுவினர் சான்றளித்தபடி.

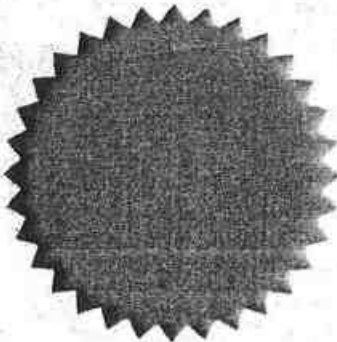
அறிவியல் நிறைஞர் பட்டம் பெறுவதற்கு உரியவர் ஆகின்றார்

என அண்ணாமலைப் பல்கலைக்கழக ஆளவை இதன்வழி அறிவிக்கின்றது.

The Senate of the ANNAMALAI UNIVERSITY hereby makes known
that SANTHOSHKUMAR M/ has been admitted to the
Degree of MASTER OF SCIENCE in APPLIED GEOLOGY,
he/she having secured OGPA of 7.04/ out of 10.00 been certified
by duly appointed Examiners at the Examination held in
MAY,2010/ to be qualified to receive the same and that
he/she was placed in FIRST CLASS.

பல்கலைக்கழக முத்திரை பெறுகின்றது

Given under the seal of the University



அண்ணாமலைநகர்
Annamalainagar

நாள்:

Dated: 06/10/2010

Senthilvel
Dy. Controller of Examinations (Academic)

துணை தேர்வாணையர் (கல்விசார்ந்து)

Dy. Controller of Examinations (Academic)

Dr. M. Rathinasabapathi
Dr. M. Rathinasabapathi

பதிவாளர்

Registrar

Dr. M. Ramanathan
Dr. M. Ramanathan

துணை வேந்தர்

Vice-Chancellor

THIRU. R. ANUPKUMAR LOHIA
K. PITCHAMPATTI MULTI COLOUR GRANITE QUARRY

EXTENT : 4.80.0 Ha
S.F. Nos. : 442/3 (Pa
VILLAGE : K. PITCHA
TALUK : KARUR
DISTRICT : KARUR

ANNEXURE NIIIA



31.07.2018

EXPERIENCE CERTIFICATE

This is to certify that **Shri. Santhosh Kumar, S/o. R. Mathiyazagan, Geologist**, has worked in our Multicolor Granite from **10.07.2012 to 31.07.2018** as our company Geologist. During his service he used to maintain all records and returns submitted to Government Departments.

His nature of work in the mines was to show the plan of working and demarcate Granite reserve areas. He was looking after production of Multicolor Granite and was maintaining quality of the Mineral as per the specifications given by the buyers.

During his tenor of his service, he was very sincere and prompt in his duties.

I wish him the best of luck in all his future endeavours.

Thanking you,

For M/s. Anupkumar Lohia,

M. S. P. S.

Manager mines,

K. Pitchampatti multicolour granite

Karur Taluk & District

MANAGER (MINES)
MULTICOLOUR GRANITE MINE
K. PITCHAMPATTI,
KARUR - TALUK & DIST.

PLATES

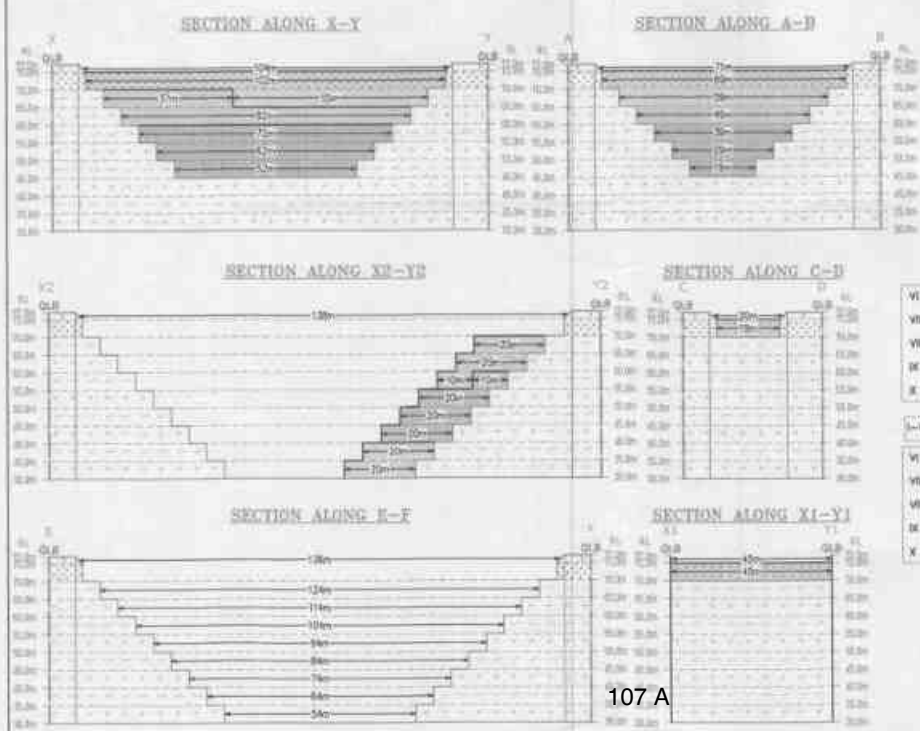
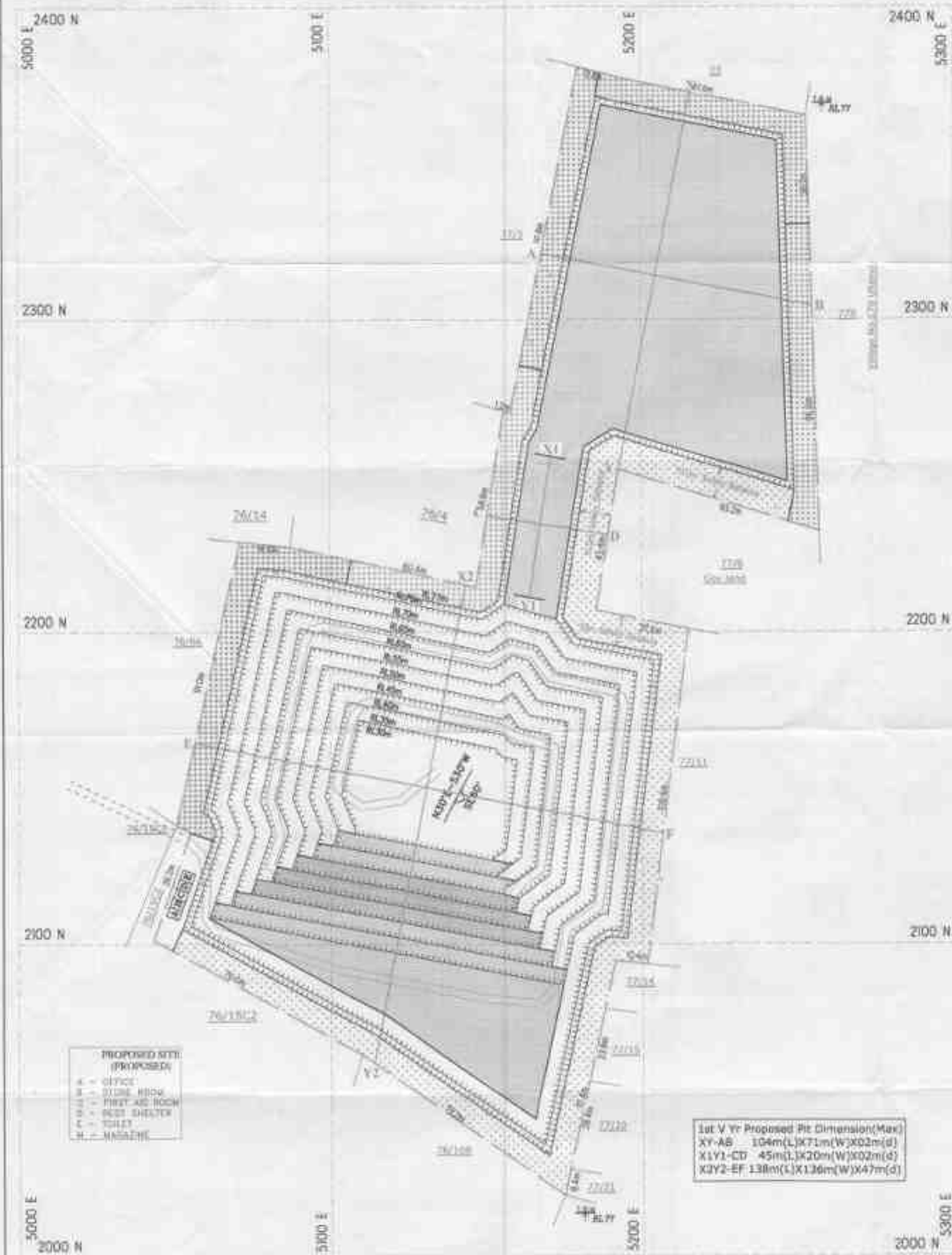


PLATE NO-III-A

DATE OF SURVEY : 17.06.2024

APPLICANT:
 Thiru. PLANTONY GOMEZ,
 S/o. P. MARJADROSS,
 No. 9/1, M.K. REDDY STREET,
 WEST TAMBARAM,
 CHENNAI - 600 045.

LOCATION OF QUARRY:
 LEASE NO. 77/15A, 15B, 15C, 15A,
 77/15A, 7.9 & 77/10

EXTENT: 3.62.50 HA.

VEILAGE: PALAYASEEVARAM

TALUK: WALALABAD

DISTRICT: KANCHIPURAM

STATE: TAMIL NADU

INDEX

QUARRY LEASE BOUNDARY	---
7.5m & 10m SAFETY DISTANCE	---
STRIKE AND CUP	---
GRAVEL	---
TEMPORARY BENCH MARK	---
APPROACH ROAD	---
ROUGH STONE	---
WEATHERED ROCK	---
QUARRY PIT	---
QUARRY ROAD	---

TOPOGRAPHY GEOLOGICAL, YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTIONS

Second 'V' Year
 SCALE 1:1000

PREPARED BY:
 M. S. Sathish

107 A

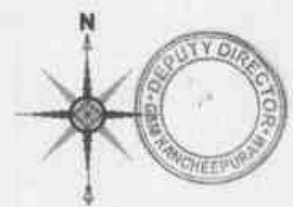
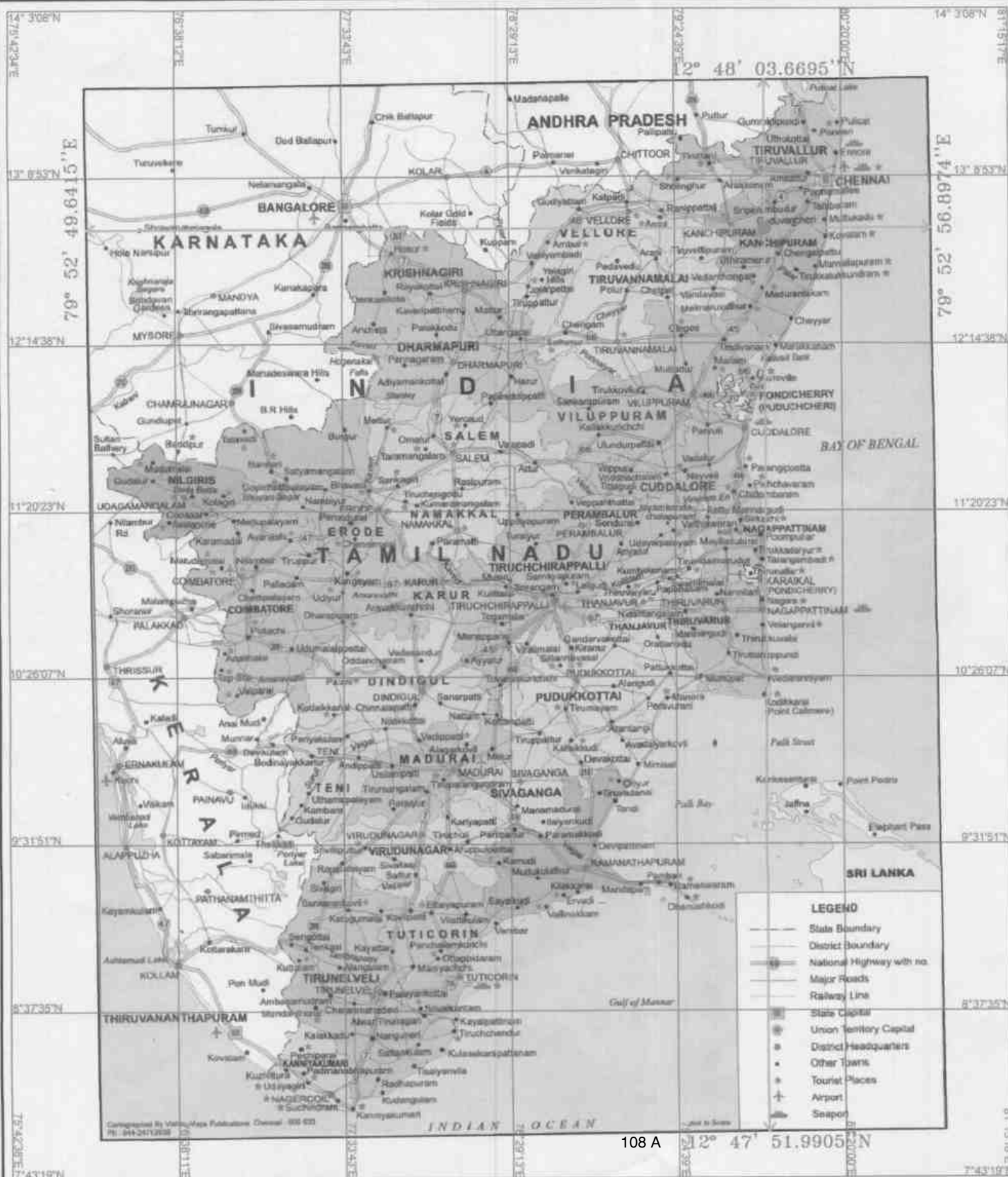


PLATE NO:1

DATE OF SURVEY : 17.08.2024

APPLICANT:

Thiru.M.ANTONY GOMEZ,
S/o. P.MARIADOSS,
No.9/1, M.K.REDDY STREET,
WEST TAMBARAM,
CHENNAI - 600 045.

**LOCATION OF QUARRY
LEASE APPLIED AREA:**

S.F.NO's : 76/15A,15B,15C,16A,
77/5,6,7,9 & 77/10
EXTENT : 3.63.50 HA.
VILLAGE : PALAYASEEVARAM.
TALUK : WALAJABAD,
DISTRICT : KANCHIPURAM,
STATE : TAMIL NADU.

INDEX

Q. L.A. AREA : ●

TOPO SHEET NO. : 57 P/13

LATITUDE : 12° 47' 51.9905"N to 12° 48' 03.6695"N

LONGITUDE : 79° 52' 49.6415"E to 79° 52' 56.8974"E

LOCATION PLAN

SCALE 1:24,00,000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE
BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP
AUTHENTICATED
BY STATE GOVERNMENT

M. Santhosh Kumar
M.SANTHOSHKUMAR,M.Sc.,
QUALIFIED PERSON

Under Rule 15(i)(a)and(b)of MCR,2016

Thiru.M.ANTONY GOMEZ,
S/o. P.MARIADOSS,
No.9/1, M.K.REDDY STREET,
WEST TAMBARAM,
CHENNAI - 600 045.



S.F.NO's : 76/15A, 15B, 15C3, 16A,
77/5, 6, 7, 9 & 77/10

EXTENT : 3.63.50 HA.
VILLAGE : PALAYASEEVARAM,
TALUK : WALAJABAD,
DISTRICT : KANCHIPURAM,
STATE : TAMIL NADU.

CONVENTIONAL SYMBOLS

CONVENTIONAL SYMBOLS			
Traffic highway with toll with bridge with distance note			
Road, indicated according to importance			
Road, double (conspicuous) according to importance			
Unimproved road, Carriageway, Road, track with grade, Foot path			
Stream, with bank in last, undisturbed, Canal			
Canal, temporary or modified, watercourse, flow			
Flow, dry, with water channel, with speed & level, Water flow			
Submerged water, Flood, flowing, flood			
Wells, lost, without, Water, well, Spring, Tanka, permanent, dry			
Unimproved road or road bank, broken ground			
Railways, telegraph, electric, single, with station, under, over			
Railways, other, groups, double, single, with distance, under, do			
Mineral pit or tunnel, Hill, Colling, with tunnel			
Contours, with sea-level, River, stream, Cuts			
Rail, Volume (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13) (14) (15) (16) (17) (18) (19) (20) (21) (22) (23) (24) (25) (26) (27) (28) (29) (30) (31) (32) (33) (34) (35) (36) (37) (38) (39) (40) (41) (42) (43) (44) (45) (46) (47) (48) (49) (50) (51) (52) (53) (54) (55) (56) (57) (58) (59) (60) (61) (62) (63) (64) (65) (66) (67) (68) (69) (70) (71) (72) (73) (74) (75) (76) (77) (78) (79) (80) (81) (82) (83) (84) (85) (86) (87) (88) (89) (90) (91) (92) (93) (94) (95) (96) (97) (98) (99) (100) (101) (102) (103) (104) (105) (106) (107) (108) (109) (110) (111) (112) (113) (114) (115) (116) (117) (118) (119) (120) (121) (122) (123) (124) (125) (126) (127) (128) (129) (130) (131) (132) (133) (134) (135) (136) (137) (138) (139) (140) (141) (142) (143) (144) (145) (146) (147) (148) (149) (150) (151) (152) (153) (154) (155) (156) (157) (158) (159) (160) (161) (162) (163) (164) (165) (166) (167) (168) (169) (170) (171) (172) (173) (174) (175) (176) (177) (178) (179) (180) (181) (182) 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TOPO SKETCH OF QUARRY
LEASE APPLIED AREA FOR
10Km RADIUS

SCALE- 1:100000

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE
BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP

AUTHENTICATED
BY STATE GOVERNMENT

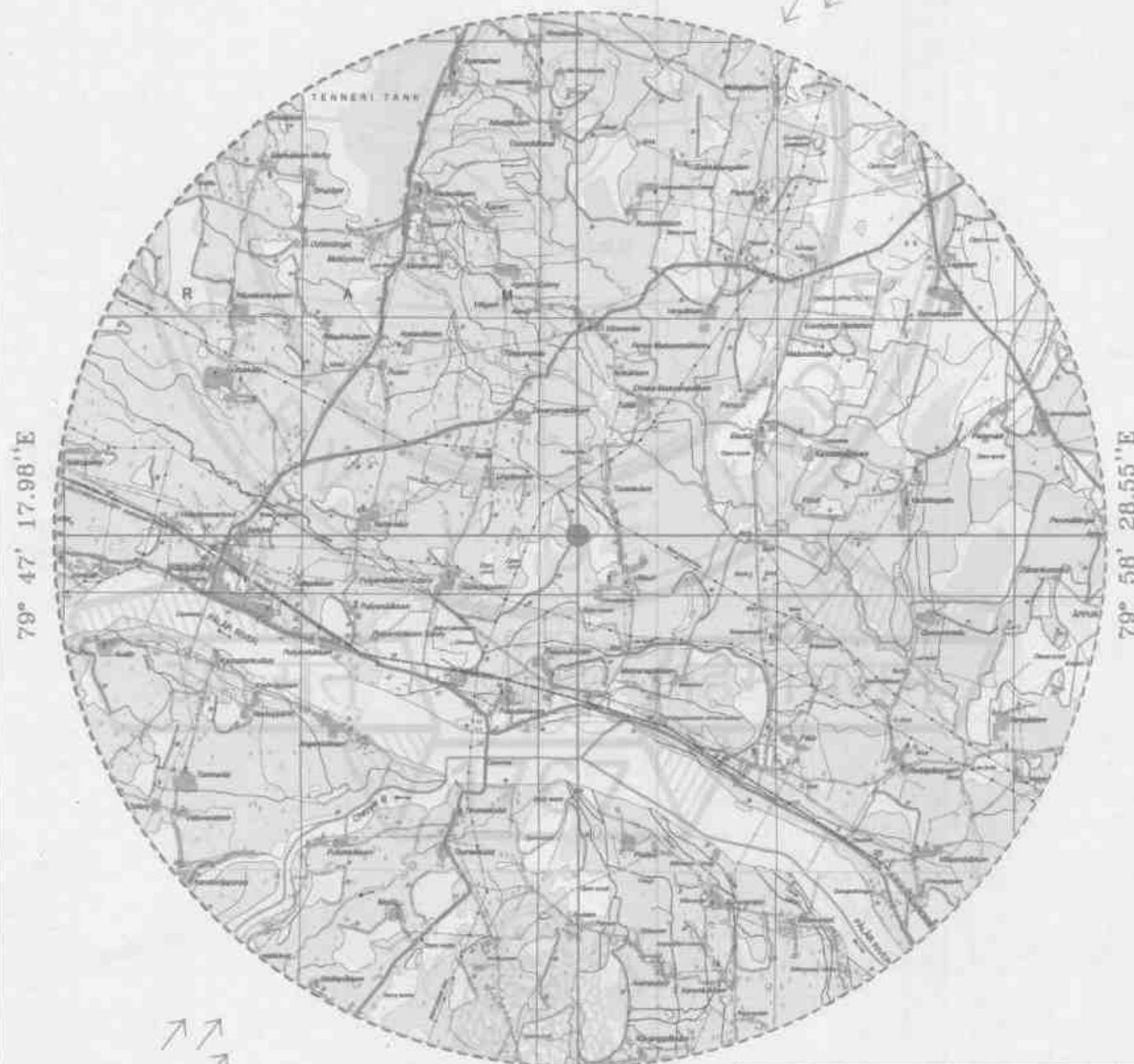
M. Santula

Under Rule 15(f)(a) and (b) of MCR, 2016



OCTOBER TO DECEMBER

12° 53' 29.15''N



JULY TO SEPTEMBER

12° 42' 26.51"N

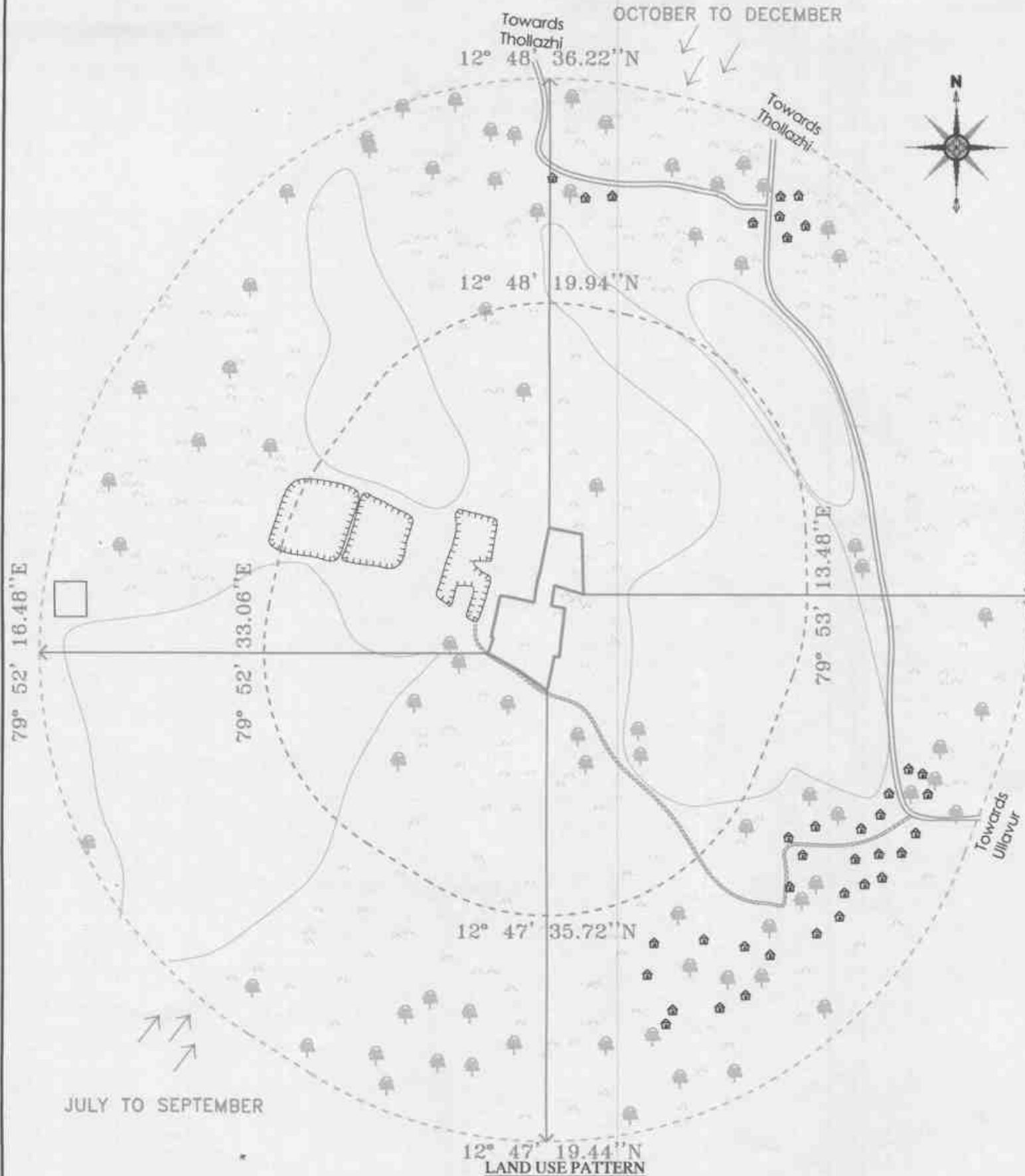
TOPO SHEET NO. : 57 P/13

LATITUDE : 12° 47' 51.9905"N to 12° 48' 03.6695"N

LONGITUDE : 79° 52' 49.6415"E to 79° 52' 56.8974"E

10KM RADIUS :

Q.L APPLIED AREA :



JULY TO SEPTEMBER

12° 47' 19.44'' N
LAND USE PATTERN

DESCRIPTION	PERCENTAGE
TREES	(15%)
SEASONAL AGRI LAND	(30%)
POND	(35%)
HABITATION	(10%)
ROADS/CRUSHER	(10%)
TOTAL	(100)

PLATE NO:I-B

DATE OF SURVEY : 17.08.2024

1Km Radius :

500m Radius :

Q.L.Applied Area :

TOPO SHEET NO. : 57 P/13

LATITUDE : 12° 47' 51.9905''N to 12° 48' 03.6695''N

LONGITUDE : 79° 52' 49.6415''E to 79° 52' 56.8974''E

APPLICANT:

Thiru.M.ANTONY GOMEZ,
S/o. P.MARIADOSS,
No.9/1, M.K.REDDY STREET,
WEST TAMBARAM,
CHENNAI - 600 045.

LOCATION OF QUARRY LEASE APPLIED AREA:

S.F.NO's : 76/15A,15B,15C3,16A,
77/5,6,7,9 & 77/10
EXTENT : 3.63.50 HA.
VILLAGE : PALAYASEEVARAM,
TALUK : WALAJABAD,
DISTRICT : KANCHIPURAM,
STATE : TAMIL NADU.

INDEX

APPROACH ROAD

VILLAGE ROAD

HABITATION

TREES

AGRICULTURAL LAND

PIT

WIND DIRECTION

POND

CRUSHER PLANT

TOPO SKETCH OF QUARRY LEASE

APPLIED AREA FOR 1KM RADIUS

SCALE- 1:10,000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE
BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP
AUTHENTICATED
BY STATE GOVERNMENT

M. Santhosh Kumar

M.SANTHOSHKUMAR,M.Sc.,
QUALIFIED PERSON

Under Rule 15(1)(a)and(b)of MCR,2016



PLATE NO:I-C

DATE OF SURVEY : 17.08.2024

APPLICANT:

Thiru.M.ANTONY GOMEZ,
S/o. P.MARIADOSS,
No.9/1, M.K.REDDY STREET,
WEST TAMBARAM,
CHENNAI - 600 045.

LOCATION OF QUARRY
LEASE APPLIED AREA:

S.F.NO's : 76/15A,15B,15C3,16A,
77/5,6,7,9 & 77/10
EXTENT : 3.63.50 HA.
VILLAGE : PALAYASEEVARAM,
TALUK : WALAJABAD,
DISTRICT : KANCHIPURAM,
STATE : TAMIL NADU.

INDEX

Q.L.APPLIED AREA



STATE HIGHWAY



VILLAGE ROAD



APPROACH ROAD



ROUTE MAP

Not To Scale

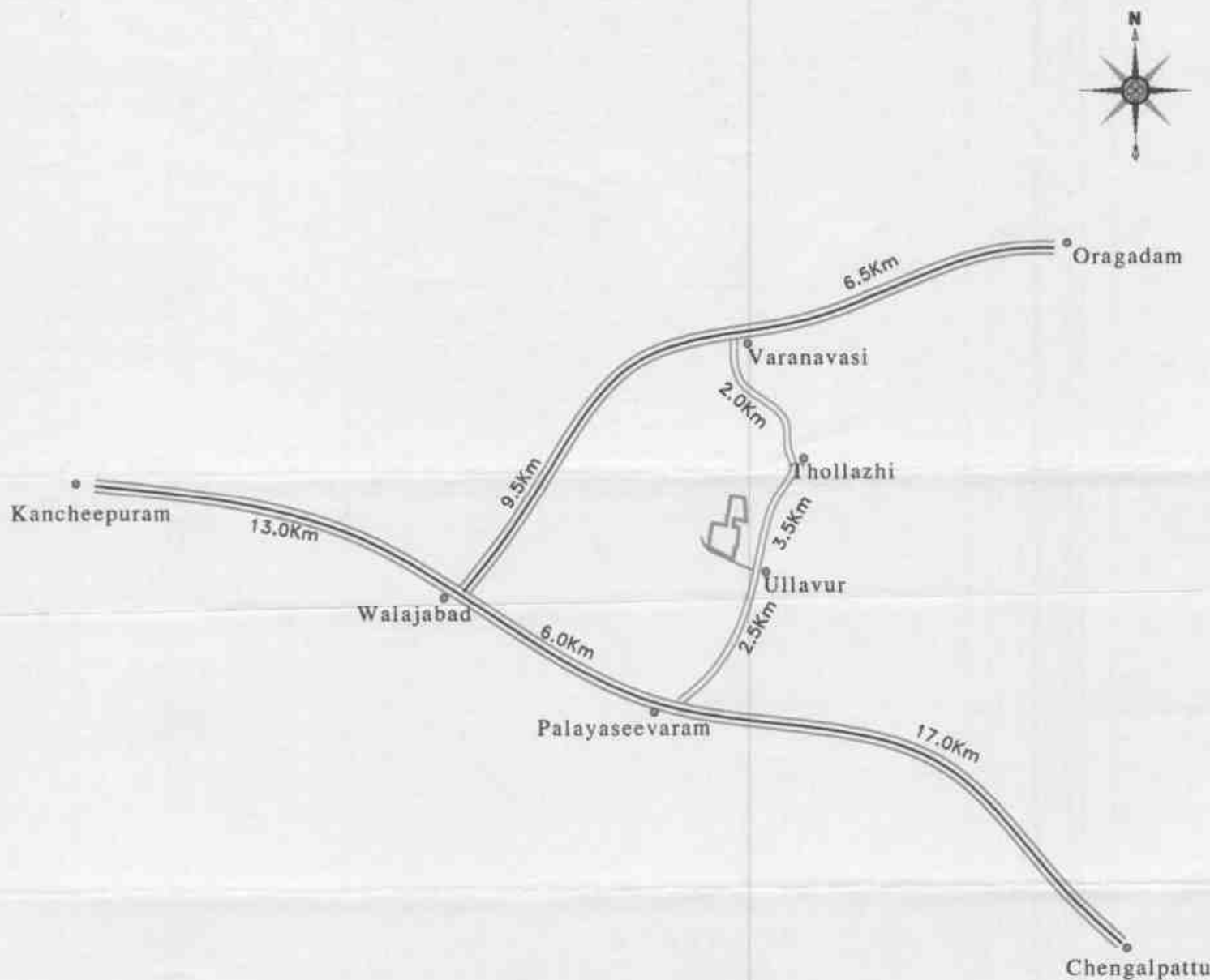
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BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP
AUTHENTICATED
BY STATE GOVERNMENT

M. Santhosh Kumar

M.SANTHOSHKUMAR,M.Sc.,
QUALIFIED PERSON

Under Rule 15(i)(a)and(b)of MCR,2016



5000 E
2400 N

5100 E

5200 E

2400 N
5300 E

2300 N

2300 N

2200 N

2200 N

2100 N

2100 N

5000 E
2000 N

5100 E

5200 E

2000 N
5300 E

BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	12° 47' 54.5397"N	79° 52' 49.6415"E
2	12° 47' 55.6685"N	79° 52' 49.9858"E
3	12° 47' 55.7446"N	79° 52' 49.8311"E
4	12° 47' 58.5533"N	79° 52' 50.7885"E
5	12° 47' 58.5559"N	79° 52' 51.2911"E
6	12° 47' 58.2177"N	79° 52' 53.2729"E
7	12° 48' 00.0610"N	79° 52' 53.4931"E
8	12° 48' 00.0436"N	79° 52' 53.5639"E
9	12° 48' 03.6695"N	79° 52' 54.1593"E
10	12° 48' 03.2605"N	79° 52' 56.5985"E
11	12° 47' 58.9311"N	79° 52' 56.8974"E
12	12° 47' 59.4926"N	79° 52' 54.7421"E
13	12° 47' 58.0213"N	79° 52' 54.5611"E
14	12° 47' 57.8698"N	79° 52' 55.5473"E
15	12° 47' 54.3541"N	79° 52' 55.2449"E
16	12° 47' 54.3731"N	79° 52' 54.9005"E
17	12° 47' 51.9905"N	79° 52' 54.0667"E
18	12° 47' 53.4628"N	79° 52' 51.9106"E

DATUM : UTM - WGS84, ZONE 44N

PLATE NO:II

DATE OF SURVEY : 17.08.2024

APPLICANT:

Thiru.M.ANTONY GOMEZ,
S/o. P.MARIADOSS,
No.9/1, M.K.REDDY STREET,
WEST TAMBARAM,
CHENNAI - 600 045.

LOCATION OF QUARRY
LEASE APPLIED AREA:

S.F.NO's : 76/15A,15B,15C3,16A,
77/5,6,7,9 & 77/10
EXTENT : 3.63.50 HA.
VILLAGE : PALAYASEEVARAM.
TALUK : WALAJABAD,
DISTRICT : KANCHIPURAM,
STATE : TAMIL NADU.

INDEX

QUARRY LEASE BOUNDARY	
7.5m & 10m SAFETY DISTANCE	
STRIKE AND DIP	
GRAVEL	
TEMPORARY BENCH MARK	
APPROACH ROAD	

QUARRY LEASE &
SURFACE PLAN
SCALE 1 : 1000

PREPARED BY :

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AUTHENTICATED
BY STATE GOVERNMENT

M. Sathish

M.SANTHOSH KUMAR, M.Sc.,
QUALIFIED PERSON
Under Rule 15(i)(a) and (b) of MCR 2016

S.No.	S.F.No.s	Extent In Ha
1	76/15A	0.05.0
2	76/15B	0.14.0
3	76/15C3	0.34.0
4	76/16A	1.15.0
5	77/5	0.22.0
6	77/6	0.35.50
7	77/7	0.67.50
8	77/9	0.38.50
9	77/10	0.32.0
Total		3.63.50

112 A

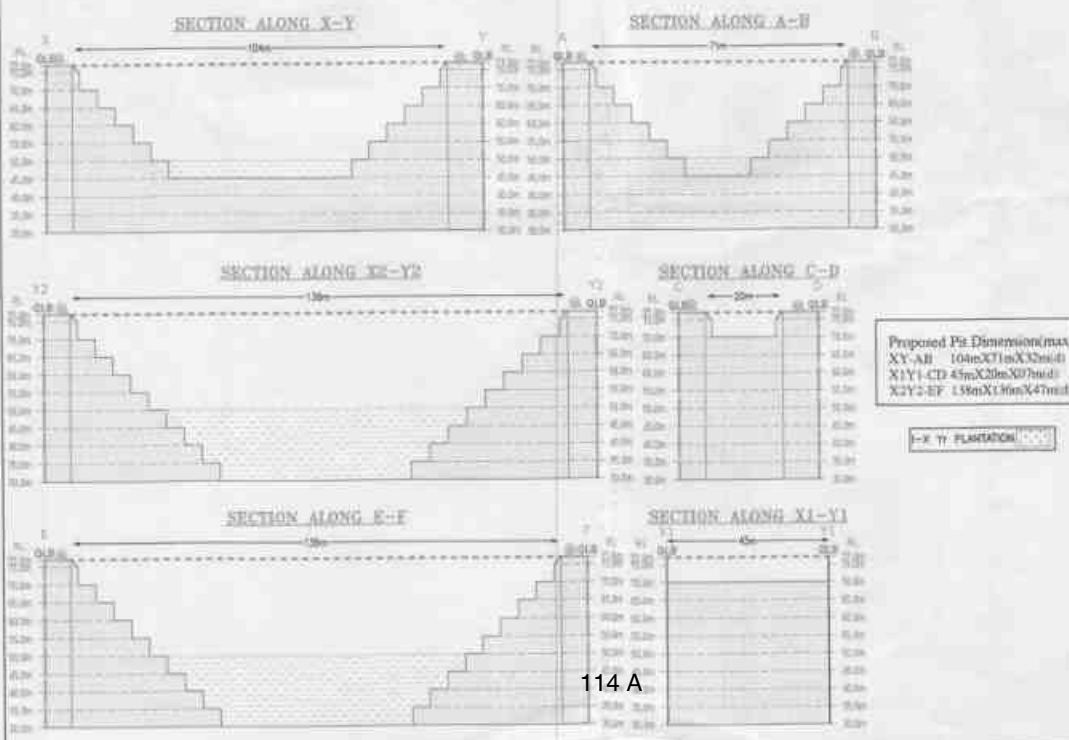
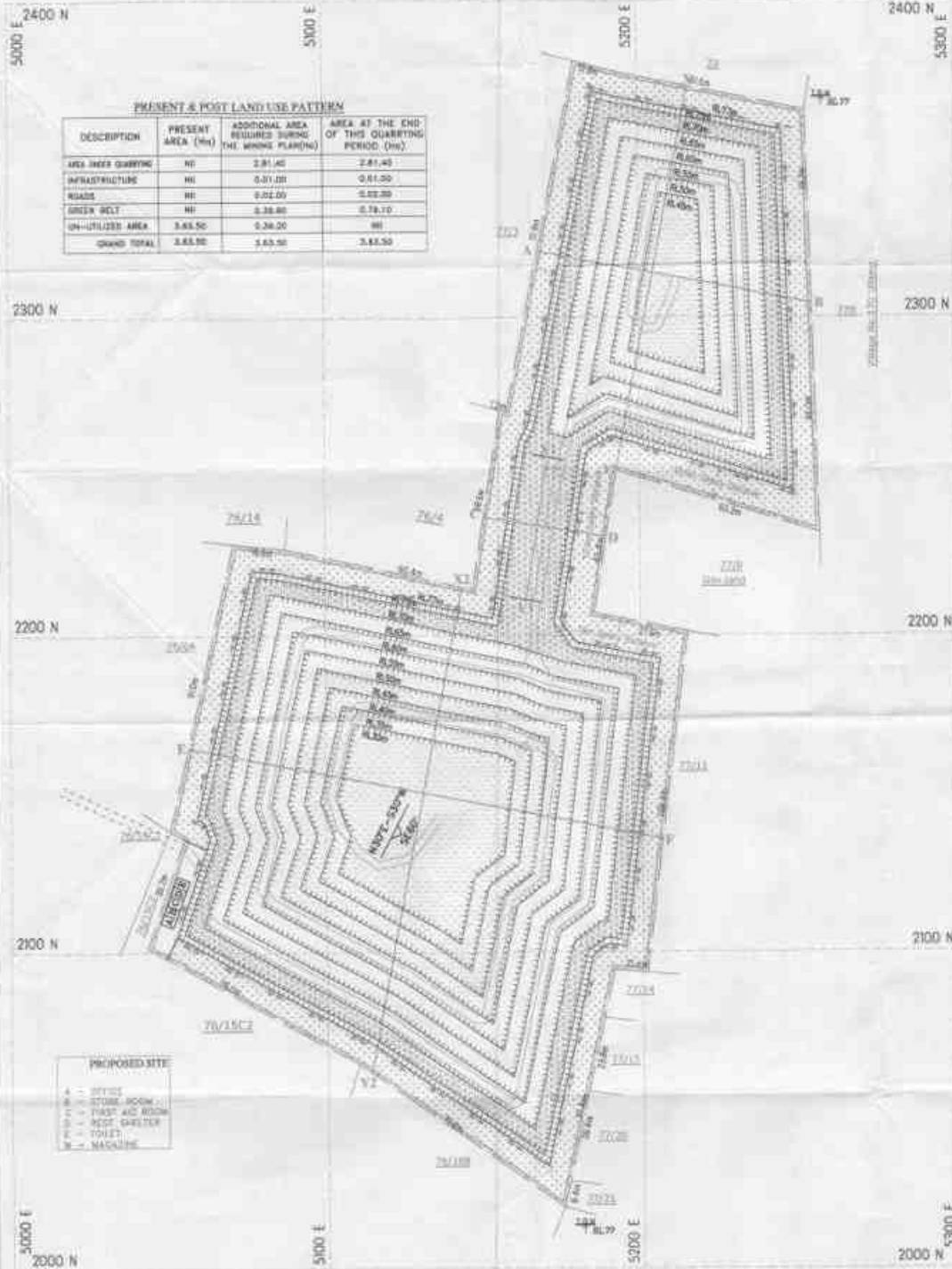


PLATE NO: IV

DATE OF SURVEY : 17.08.2024

APPLICANT:
THIRU. M. ANTONY GOMEZ,
5/9, P. MARIADOSS,
No. 6/1, M. K. REDDY STREET,
WEST TAMBARAM,
CHENNAI - 600 045.

LOCATION OF QUARRY:
LEASE APPLIED AREA

S.F. NO'S : 76/15A, 15B, 15C3, 16A,
77/2, 6.7.8 & 77/10

EXTENT : 3.63.50 HA.

VILLAGE : PALATASEEVARAM.

TALUK : WALAJABAD.

DISTRICT : KANCHIPURAM.

STATE : TAMIL NADU.

INDEX

QUARRY LEASE BOUNDARY ☐

7.5m & 10m SAFETY DISTANCE ☐

STRIKE AND DIP ☐

TEMPORARY BENCH MARK ☐

APPROACH ROAD ☐

QUARRY PIT ☐

QUARRY ROAD ☐

TREES ☐

EXISTING LANDFORM ☐

OLD SURFACE LEVEL ☐

FINISHED SURFACE LEVEL ☐

RAIN WATER STORAGE ☐

REHABILITATED LANDFORM ☐

FENCING ☐

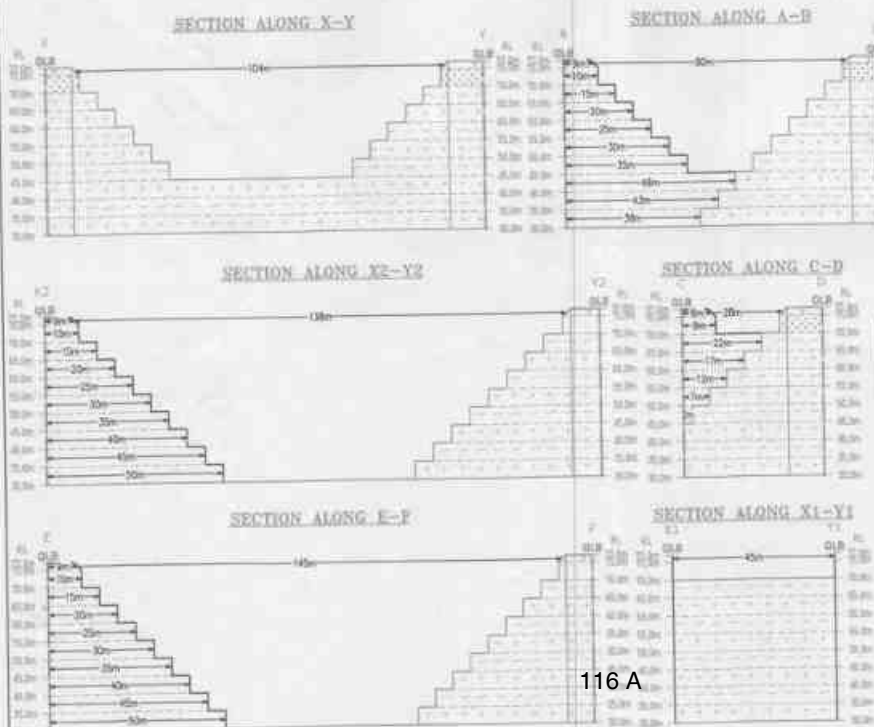
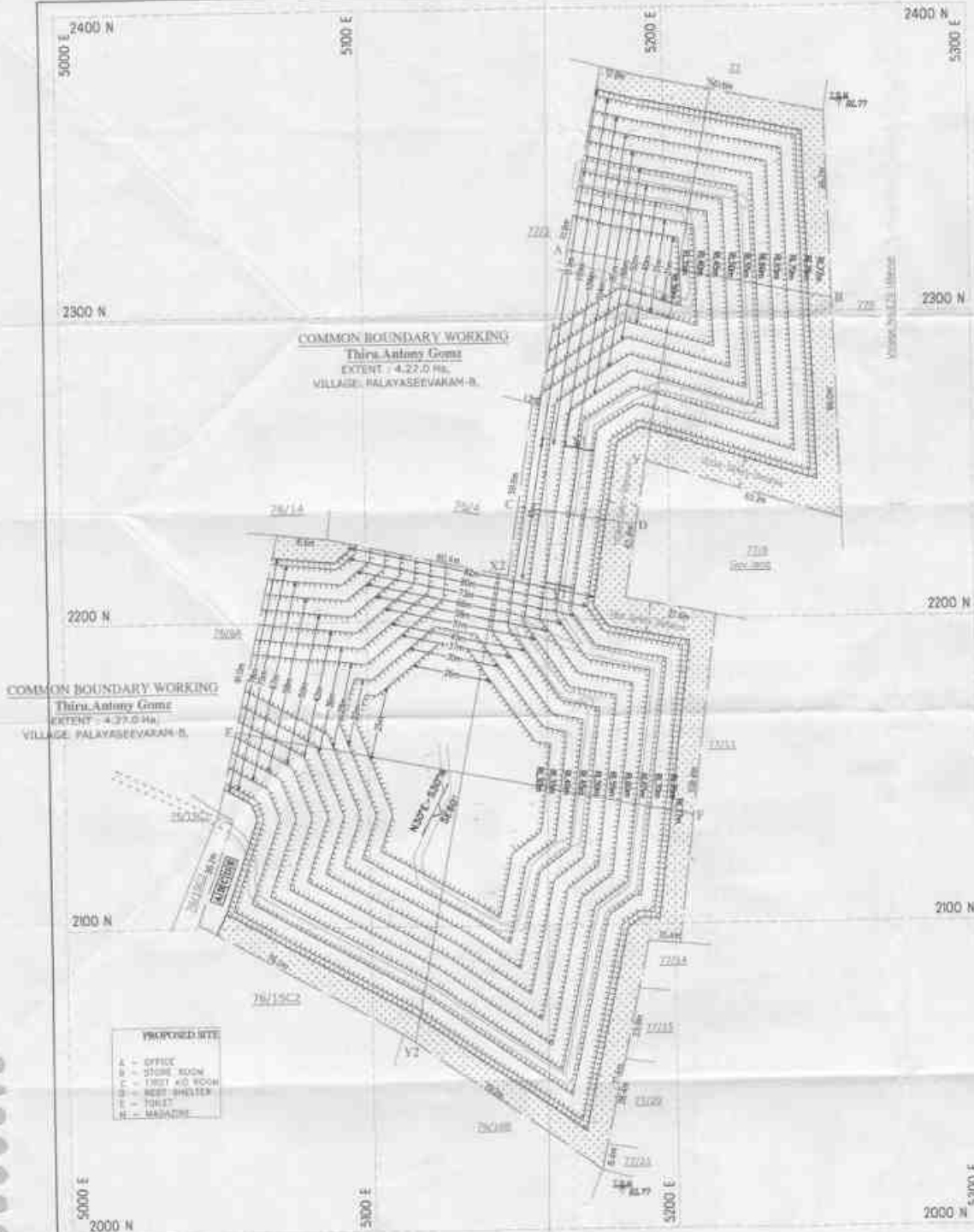
PROPOSED GARLAND DRAIN ☐

PROGRESSIVE QUARRY CLOSURE PLAN & SECTIONS
SCALE : 1 : 1000

PREPARED BY:

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLAN IS TRUE AND CORRECT TO THE
BEST OF MY KNOWLEDGE BASED UPON THE AVAILABLE
AUTHENTICATED
BY (SIGNATURE)
DATE: 17.08.2024

P. S. Sankar



Ultimate Pit Dimension(max)
 XY-AB 104mX80mX47m(d)
 X1Y1-CD 45mX28mX32m(d)
 X2Y2-EF 138mX145mX47m(d)

---X-Y PLANTATION

PLATE NO-VI

DATE OF SURVEY : 17.08.2024

APPLICANT:
 Thiru. M. ANTONY GOMEZ,
 S/o. P. MARIADROSS,
 No. 9/1, M.K. REDDY STREET,
 WEST TAMBARAM,
 CHENNAI - 600 045.

LOCATION OF QUARRY
 LEASE APPLIED AREA
 S.F. NO'S 75/15A, 15B, 15C3, 16A,
 77/5, 6, 7, 9 & 77/10
 EXTENT : 3.63.50 HA.
 VILLAGE : PALAYASEEVARAM,
 TALUK : WALAJABAD,
 DISTRICT : KANCHIPURAM,
 STATE : TAMIL NADU.

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QUARRY LEASE BOUNDARY	---
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STRIKE AND DIP	---
GRAVEL	---
TEMPORARY BENCH MARK	---
APPROACH ROAD	---
ROUGH STONE	---
WEATHERED ROCK	---
QUARRY PIT	---
QUARRY ROAD	---

CONCEPTUAL PLAN & SECTIONS

DATE OF SURVEY : 17.08.2024

SCALE : 1 : 1000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
 PLAN IS TRUE AND CORRECT TO THE
 BEST OF MY KNOWLEDGE, BASED UPON THE LEASE
 APPLICATION AND RECORDS.
 BY : *[Signature]*
 M. SANTHOSH KUMAR
 QUARRY INSPECTOR
 UNDER ACT 1303 OF 1984

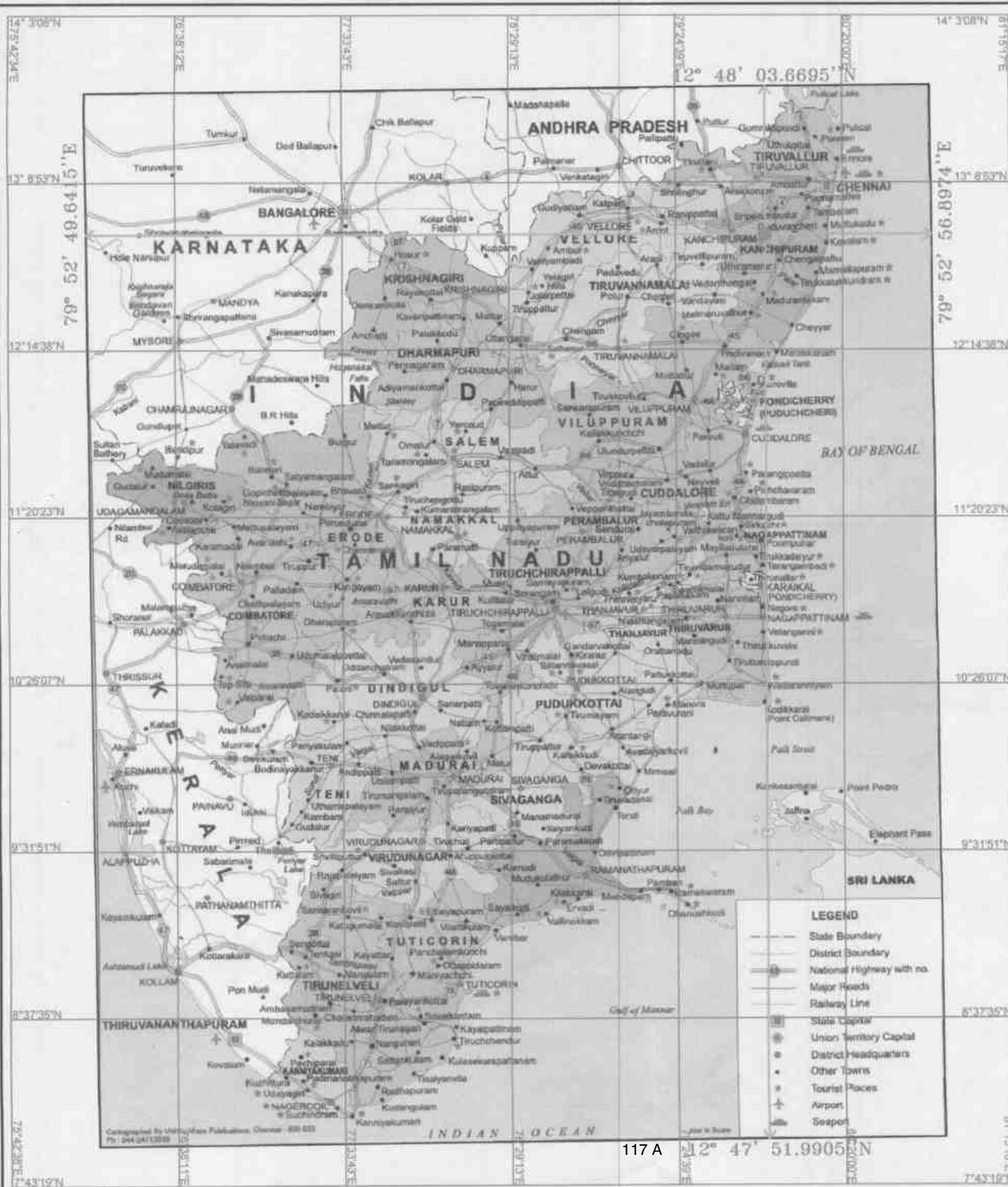


PLATE NO:1

DATE OF SURVEY : 17.08.2024

APPLICANT:

Thiru.M.ANTONY GOMEZ,
S/o. P.MARIADOSS,
No.9/1, M.K.REDDY STREET,
WEST TAMBARAM,
CHENNAI - 600 045.

**LOCATION OF QUARRY
LEASE APPLIED AREA:**

S.F.NO's : 76/15A,15B,15C3,16A,
77/5,6,7,9 & 77/10
EXTENT : 3.63.50 HA.
VILLAGE : PALAYASEEVARAM,
TALUK : WALAJABAD,
DISTRICT : KANCHIPURAM,
STATE : TAMIL NADU.

INDEX

Q. L.A. AREA : ●

TOPO SHEET NO. : 57 P/13

LATITUDE : 12° 47' 51.9905"N to 12° 48' 03.6695"N

LONGITUDE : 79° 52' 49.6415"E to 79° 52' 56.8974"E

LOCATION PLAN

SCALE 1:24,00,000

PREPARED BY :

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AUTHENTICATED
BY STATE GOVERNMENT

M. Santhosh Kumar
M.SANTHOSHKUMAR,M.Sc.,
QUALIFIED PERSON

Under Rule 15(i)(a)and(b)of MCR,2016

**TOPOGRAPHICAL VIEW OF PAZHAYASEEVARAM-B ROUGH STONE AND
GRAVEL QUARRY LEASE APPLIED AREA**



Name of the Applicant : **THIRU. M. ANTONY GOMEZ,**
S/o. Mariadoss,
Address : No. 9/1, M.K. Reddy Street,
West Tambaram,
Chennai,
Tamil Nadu State – 600 045.

Location:

S.F.Nos. : 76/15A, 15B, 15C3, 16A, 77/5, 77/6, 77/7, 77/9 and 77/10
Extent : 3.63.5Ha
Village : Pazhayaseevaram-B
Taluk : Walajabad
District : Kanchipuram

Signature of the applicant


(M. ANTONY GOMEZ)


(Village Administrative Officer)
Attestation of the Village Administrative Officer
71.08.2024
சென்னை மாநகராட்சி வட்டம்.

**ஊ.ஒ. நடுநிலை பள்ளி சங்கராபுரம் பழையசீவரம்
வாலாஜாபாத் ஒன்றியம் காஞ்சிபுரம் மாவட்டம்**

நாள்: 04.09.24

அனுப்புனர்,
தலைமையாசிரியர்,
ஊ.ஒ. நடுநிலை பள்ளி சங்கராபுரம் பழையசீவரம்,
வாலாஜாபாத் ஒன்றியம் காஞ்சிபுரம் மாவட்டம்.

பெறுநர்,
மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையம், சென்னை.

ஐயா,

காஞ்சிபுரம் மாவட்டம் வாலாஜாபாத் ஒன்றியம் வராதாபுரம் பழையசீவரம் கிராமத்தில் புல எண் 76/15A இல் இயங்கி வரும் M. ஆண்டனி கோமஸ் அவர்கள் பள்ளிக்கு தேவையான, மாணவர்கள் உணவு உன்ன மற்றும் பாடம் எடுக்க வசதியாக செட் அமைத்து மற்றும் தரை அமைத்து அதற்குரிய மின்விசிறிகள் அமைத்தல் ஆகியவற்றை செய்து தருமாறு பள்ளி தலைமையாசிரியர் கேட்டுக்கொண்டதன் பேரில் பள்ளிக்கு தேவையான மேற்கண்ட அடிப்படை வசதிகளை செய்து தருவதற்கு சம்மதம் தெரிவித்துள்ளார் என்பதை தங்களுக்கு பணிவுடன் தெரிவித்து கொள்கிறேன்.

மிக்க நன்றி .

தங்கள் உண்மையுள்ள,

இடம் : பழையசீவரம், சங்கராபுரம்

நாள்: 04.09.24



S. No: 291301080
தலைமை ஆசிரியர்
ஊ. ஒ. நடுநிலை பள்ளி
சங்கராபுரம் - 631 605

ஊ.ஒ. நடுநிலை பள்ளி சங்கராபுரம் பழையசீவரம்
வாலாஜாபாத் ஒன்றியம் காஞ்சிபுரம் மாவட்டம்

நாள்: 04.09.24

அனுப்புனர்,
தலைமையாசிரியர்,
ஊ.ஒ. நடுநிலை பள்ளி சங்கராபுரம் பழையசீவரம்,
வாலாஜாபாத் ஒன்றியம் காஞ்சிபுரம் மாவட்டம்.

பெறுநர்,
M. ஆண்டனி கோமஸ்
புல எண் 76/15A வராதாபுரம்,
வாலாஜாபாத், காஞ்சிபுரம் மாவட்டம்.

ஐயா,

வணக்கம் காஞ்சிபுரம் மாவட்டம் வாலாஜாபாத் ஒன்றியம் வராதாபுரம் பழையசீவரம் கிராமத்தில் உள்ள ஊராட்சி ஒன்றிய நடுநிலைப் பள்ளிக்கு அடிப்படைத் தேவையான, மாணவர்கள் உணவு உன்ன மற்றும் பாடம் எடுக்க வசதியாக செட் அமைத்து மற்றும் தரை அமைத்து அதற்குரிய மின்விசிறிகள் அமைத்தல் ஆகிய வசதிகளை செய்து தரும்படி கேட்டுக்கொள்கிறேன்

இப்படிக்கு,



ச. ஜெகதீசன் 419/24
S. No: 291301080
தலைமை ஆசிரியர்
ஊ. ஒ. நடுநிலைப் பள்ளி
சங்கராபுரம் - 631 605

**HYDRO - GEOLOGICAL STUDIES AT THIRU. M. ANTONY GOMEZ
ROUGH STONE AND GRAVEL QUARRY IN PAZHAYASEEVARAM-B
VILLAGE, WALAJABAD TALUK, KANCHIPURAM DISTRICT,
TAMIL NADU**

Submitted by



Geo Exploration and Mining Solutions

**Old No. 260-B, New No. 17,
Advaitha Ashram Road, Alagapuram,
Salem – 636 004,
Tamil Nadu, India.**

**Phone: 0427-2431989,
Email: ifthiahmed@gmail.com, geothangam@gmail.com**

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**HYDRO - GEOLOGICAL STUDIES AT THIRU. M. ANTONY GOMEZ
ROUGH STONE AND GRAVEL QUARRY PAZHAYASEEVARAM-B
VILLAGE, WALAJABAD TALUK, KANCHIPURAM DISTRICT,
TAMIL NADU.**

1. INTRODUCTION

Proprietor of Thiru. **M. Antony Gomez** in Gravel and Rough Stone Quarry Over an extent of **3.63.5 hectares** of patta land in S.F.No's. 76/15A, 76/15B, 76/15C3, 76/16A, 77/5, 77/6, 77/7, 77/9 and 77/10 of Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District, Tamil Nadu State on the hydrological regime of the area, The above area has been studied & investigated for finding out Ground water level and aquifer thickness and water quality in and around mine lease area. The electrical resistivity method, TEM study in Rough stone and gravel quarry and genesis rock with determine the shallow and deeper freshwater aquifer in the proposed mining area in Thiru. M. Antony Gomez, Pazhayaseevaram-B village.

1.1. Scope of Study

In this study, the primary aim is to investigate the shallow and deeper aquifers using the electrical Resistivity VES method to measure the apparent resistivity of the area. The study focuses on estimating the groundwater level in Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District, Tamil Nadu, including the proposed leasehold area and its surroundings. The study area is characterized by variations in water levels, types of sand, types of rock, and basement rock features. The main objective is to determine the water table and flow movement within the lease and its surrounding area (**Fig. 1**).

1.2. Profiles in the Study Area.

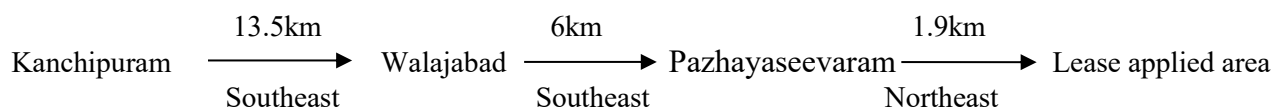
Name of the Lessee	: Thiru. M. Antony Gomez,
Survey No	: 76/15A, 76/15B, 76/15C3, 76/16A, 77/5, 77/6, 77/7, 77/9 and 77/10.
Extent	: 3.63.5 hectares.
Village	: Pazhayaseevaram-B,
Taluka	: Walajabad,
District	: Kanchipuram,
State	: Tamil Nadu

2. STUDY AREA DESCRIPTION



Figure.1. Shows proposed mine lease area

The lease applied area is located about 19.5km Southeastern side of Kanchipuram, 6.5km Northeastern side of Walajabad town and 1.9km Northeastern side of Pazhayaseevaram-B Village. The lease applied area falls in the Toposheet No: **57P/13** Latitude between: **12°47'52.0232"N to 12°48'03.5873"N** and Longitude between: **79°52'49.6671"E to 79°52'54.7677"E** on WGS datum-1984



2.1 Topography of the Lease Area and Its Surrounding Environments:

The lease applied area exhibits plain topography. The area has gentle sloping towards Eastern side and altitude of the area is 77m above from Mean Sea Level. The area is covered by 2m thickness of Gravel, 5m thickness of Weathered rock and followed by Massive Charnockite which is clearly inferred from the outcrop and nearby existing quarry.

The Water level in the surrounding area is 58m - 63m below from general ground profile which is observed from the nearby bore wells. Average annual rainfall is about 985mm.



Figure 2. Topography of the lease area

3. REGIONAL GEOLOGY OF KANCHEEPURAM DISTRICT

The Kancheepuram district is principally made up of hard rocks and sedimentary formations. These are overlain by laterites and alluvium. The study area is underlain by formations of Quarternary, Tertiary and Mesozoic ages followed by the basement complex of crystalline rocks of Archaean age.

3.1 Archaean: Hard rocks

The hard rocks spread over an area of about 60% of this district. These rocks are Granitic

gneisses. Ultra basic intrusive of Archaean age and Charnockites. They are mainly comprising of biotite and hornblende and are intrude by amphibolite, dykes of dolorite and occasionally by veins of quartz and pegmites. Charnockite are more prominent in Tambaram, Sriperumbudur and Madurantakam taluks. Gneissic rocks occur mainly in Thirukkazhukundram and in parts of Kancheepuram taluks. The dolerites, as dykes are observed both in gneisses and in charnockites. The width ranges from 20m to 40m in the strike direction NE-SW. The dykes are predominantly observed in Thiruporur and East of Chengalpattu.

3.2 Godwana

This formation comprise of clays, shales, sandstones and conglomerates. The shale and clay of gondwana age occur on the bank of Palar river and Sriperumbudur taluk inirregular shape. Oldest of these formations exposed in parts of Sriperumbudur and Kancheepuram taluks as clay and shale beds, are of upper Gondwana age. The fine grained sand is observed at Kancheepuram and uthiramerur taluks. Gravel bed of 2 to 4m thickness is observed in Abdullapuram Manapakkam Road, and the gravel thickness is ranging from 1.5 cm to 5cm in diameter and the same is over lined by sandstone is called Conjeevaram gravels which is equivalent to cuddalore and Rajmundry sand stone of Teritiary age.

3.3 Conglomerates and Laterite

Conglomerates are composed of boulders, Pebbles and mostly of quarzites are observed in uplands of Sriperumbadur Taluk. The maximum sizes of these boulders are found as capping over the upper Gondwanas. The laterites are well developed around Chemberambakkam village. These laterites are porous vermicular, clay like rocks of red, yellow, brown, grey and in mottled colours.

3.4 Alluvium

Alluvial deposits are the youngest formation consists of sands and clays and is deposited by the cheyyar, Coovam and Palar Rivers. The Adayar alluvium consists of silt, fine and coarse grained sands, gravel and pebbles. The Palar alluvium comprises of coarse sands and gravels. The average thickness of alluvium is about 10 to 30m.

3.5 Geological structure

The general trend of the gneiss is NE-SW direction and the regional trend observed is NNE-SSW to NW-SE direction. The deposition of Gondwana rocks, the sedimentary rocks, in faulted

troughs and in the rugged topography of crystalline rocks took place during Jurassic period. The insitu soils laterites and alluvial deposits were deposited along the Palar and Cheyyar rivers during the quaternary period.

Stratigraphy sequences of Kanchipuram District

Age	Formation	Lithography
Recent	Alluvium and beach sands	Sand, gravel, silt and clay
Pleistocene	Laterite, soils, talus	Laterites, sandy clay, silt
Pleistocene to upper Miocene	Conjeevaram gravels	Boulders, cobbles Pebbles and gravels chiefly of quartzites
Lower Cretaceous to Jurassic	Sandstones & Shales	Fine to medium grained sand stone with clay intercalations of greenish soft shale
	Boulder bed	Big boulders of granite gneiss with or without Matrix of clay and the sand
Unconformity		
Archaean	Crystalline formations	Mixed gneisses, charnockites, granites and associated basic and ultra basic intrusive

4. HYDROGEOLOGY

4.1 Hard Rock Formation

4.1.1 Gneissic Type

Ground water occurs mostly under water table or phreatic conditions in weathered, fractured, jointed and faulted portions of granitic rocks and under artesian conditions in fractured zones located below impervious hard rocks. The pore spaces developed in the weathered mantle acts as shallow granular aquifers and forms the potential water bearing zones. Water table is shallow in ayacut regions whereas it is relatively deeper in other regions.

4.1.2 Charnockite type

Ground water occurs in shallow depth only subject to the intensity of weathering, and its development is much less than gneissic formations.

4.2 Sedimentary formation

The most important formation that is carrying substantial amount of ground water is alluvium. Ground water occurs under water table or semi confined conditions. The alluvium

essentially composed of boulders, gravel or coarse sand with a little or no silt or clay constitutes the best aquifer. While silt or clay with a little or no boulders gravel or sand is a very poor aquifer. The thickness of these aquifers ranges from 2m to 20m. Another type of aquifer associated with alluvium contains boulders free of any cementing material. The ground water potential of such boulder beds is enormous owing to their very high permeability. One another mode of occurrence of ground water in alluvium is in the form of Perched aquifers. Ground water is met in these perched aquifers at a depth of 1 to 3m from the ground level.

4.3 Gondwana Formation

In the Gondwana formation area the ground water yield is very poor and ground water for drinking water purpose may be taken up from the sand stone of Kanchipuram taluk, Chengalpattu taluk and sriperumbudur taluk.

4.4 Coastal Aquifers

In the coastal area, the ground water is available in perched water table conditions. This is very precious one and the same may be used very conservatively. Since overlapping leads to sea water intrusion in the area. The aquifer available only from 2m to 10m BGL.

5. METHODOLOGY OF STUDY

1. Open well and bore well water level measurement, depth of water level diameter of open well, agriculture land survey.
2. Geophysical survey for deep aquifer in nearby site Rock and soil geology also collected for the aquifer characteristic study
3. Aquifer thickness and quality measurement study in nearby proposed mine site areas of the study area

5.2 Geophysical Investigation

5.2.1 Vertical Electrical resistivity sounding for aquifer study.

The electrical resistivity study is used to determine aquifer and occurred rock in the proposed site. The DDR 3 equipment was used for data collection (**Fig.3**)

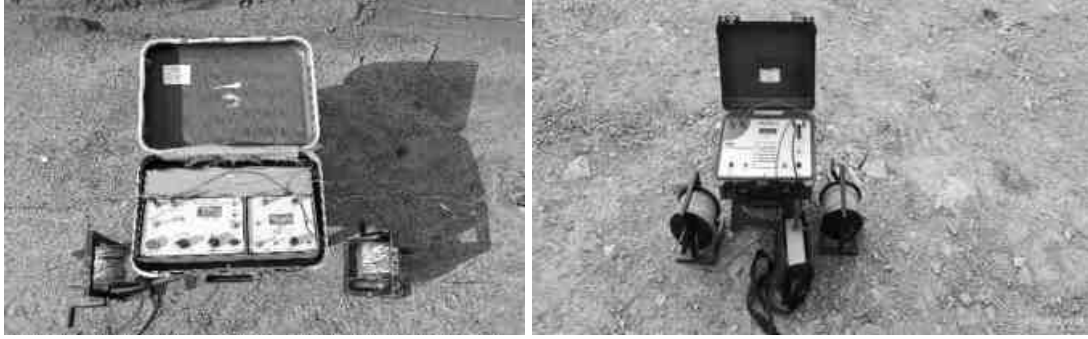


Figure 3. Electrical resistivity Instrument.

5.2.2 Basic Principles

The electrical properties of rocks in the upper part of the earth's crust are dependent upon the lithology, porosity, and the degree of pore space saturation and the salinity of the pore water. Saturated rocks have lower resistivity than unsaturated and dry rocks. The higher the porosity of the saturated rock, or the higher the salinity of the saturating fluids, the lower is the resistivity. The presence of clays and conductive minerals also reduces the resistivity of the rock.

The resistivity of earth materials can be studied by measuring the electrical potential distribution produced at the earth's surface by an electric current that is passed through the earth. Current is moved through the subsurface from one current electrode to the other and the potential difference is recorded as the current passes. From this information, resistivity values of various layers are acquired and layer thickness can be identified.

The apparent resistivity values determined are plotted as a log function versus the log of the spacing between the electrodes. These plotted curves identify thickness of layers. If there are multiple layers (more than 2), the acquired data is compared to a master curve to determine layer thickness.

This method is least influenced by lateral in-homogeneities and capable of providing higher depth of investigation.

The resistance R of a certain material is directly proportional to its length L and cross-sectional area A , expressed as:

$$R = R_s * L/A \text{ (in Ohm)}$$

Where R_s is known as the specific resistivity (characteristic of the material and independent of its shape or size)

With Ohm's Law,

$$R = dV/I \text{ (Ohm)}$$

Where dV is the potential difference across the resistor and I is the electric current through the resistor. The specific resistivity may be determined by:

$$R_s = (A/L) * (dV/I) \text{ (in Ohm m)}$$

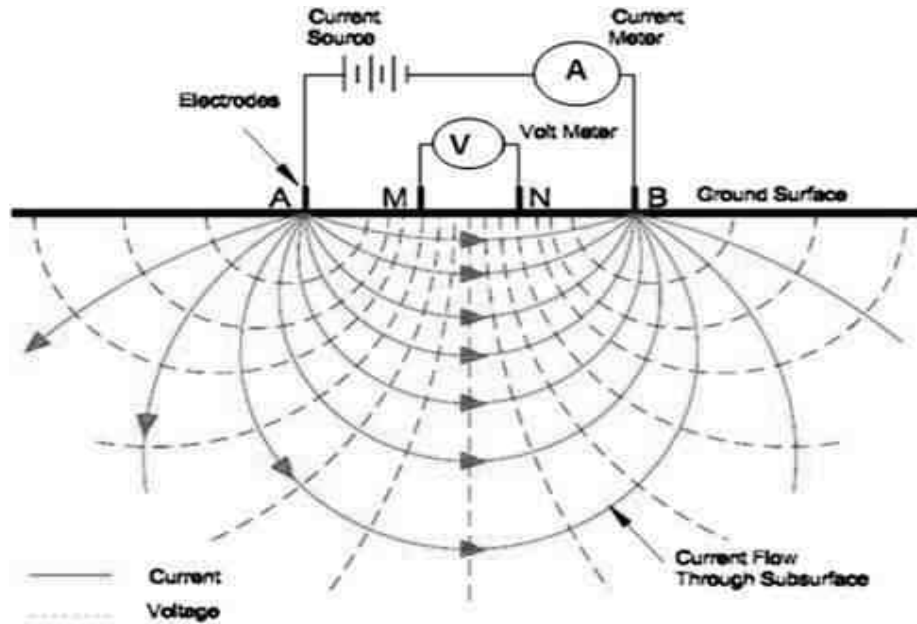


Figure 4. Schematic diagram of Electrical resistivity principle



Figure 5. Geophysical survey location in the lease area

6. GEOPHYSICAL DATA INTERPRETATION & GRAPH OF LEASE AREA

Table 1 Geophysical data of Station 1

STATION-1				
AB/2 (m)	MN/2(m)	Geometric Factor (K)	Resistance (R) Ohm	Apparent Resistivity Rho Ohm- meter
2	1	4.7	13.65	64.3
5	1	37.7	2.51	94.6
10	1	155.5	0.79	122.9
10	5	23.6	2.64	62.2
15	5	62.8	1.27	79.8
20	5	117.8	0.94	110.7
30	5	274.9	0.86	236.4
40	5	494.8	0.76	376.0
50	5	777.5	0.60	466.5
60	5	1123.1	0.46	516.6
70	5	1531.5	0.41	627.9

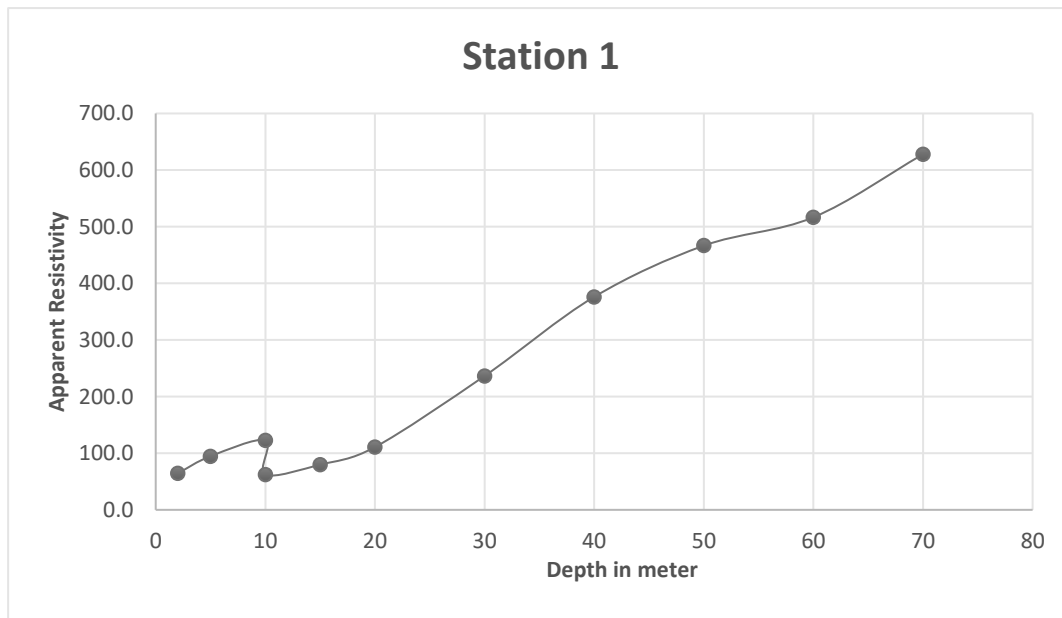


Figure 6 lithology of Geophysical data Station 1

Table 2 Geophysical data of Station 2

STATION-2				
AB/2 (m)	MN/2(m)	Geometric Factor (K)	Resistance (R) Ohm	Apparent Resistivity Rho Ohm- meter
2	1	4.7	18.61	87.7
5	1	37.7	2.30	86.7
10	1	155.5	0.93	144.6
10	5	23.6	3.86	90.9
15	5	62.8	1.78	111.8
20	5	117.8	1.37	161.4
30	5	274.9	1.15	316.1
40	5	494.8	0.84	415.6
50	5	777.5	0.67	521.0
60	5	1123.1	0.62	696.3
70	5	1531.5	0.46	704.5

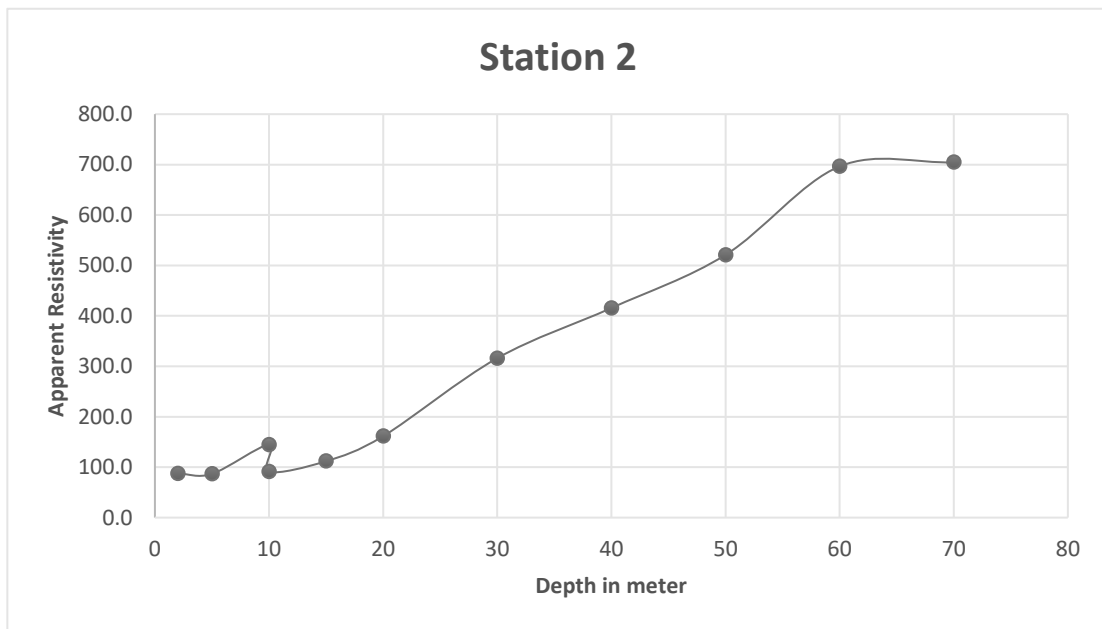


Figure 7 lithology of Geophysical data Station 2

Table 3 Geophysical data of Station 3

STATION-3				
AB/2 (m)	MN/2(m)	Geometric Factor (K)	Resistance (R) Ohm	Apparent Resistivity Rho Ohm- meter
2	1	4.7	13.21	62.3
5	1	37.7	2.35	88.6
10	1	155.5	0.95	147.7
10	5	23.6	3.26	76.8
15	5	62.8	1.76	110.6
20	5	117.8	1.41	166.1
30	5	274.9	1.06	291.4
40	5	494.8	0.75	371.1
50	5	777.5	0.68	528.7
60	5	1123.1	0.50	561.6
70	5	1531.5	0.48	735.1

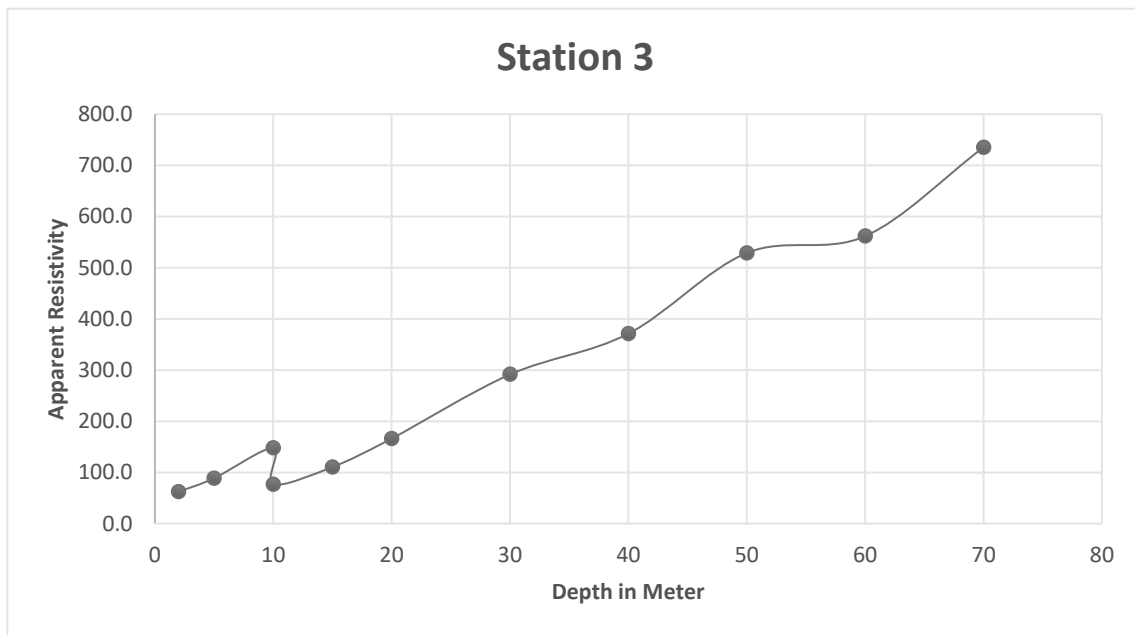


Figure 8 Lithology of Geophysical data Station 3

Table 4 Geophysical data of Station 4

STATION-4				
AB/2 (m)	MN/2(m)	Geometric Factor (K)	Resistance (R) Ohm	Apparent Resistivity Rho Ohm- meter
2	1	4.7	8.94	42.1
5	1	37.7	1.86	70.1
10	1	155.5	0.80	124.4
10	5	23.6	1.88	44.3
15	5	62.8	1.64	103.0
20	5	117.8	1.41	166.1
30	5	274.9	1.12	307.9
40	5	494.8	0.83	410.7
50	5	777.5	0.77	598.7
60	5	1123.1	0.56	628.9
70	5	1531.5	0.50	765.8

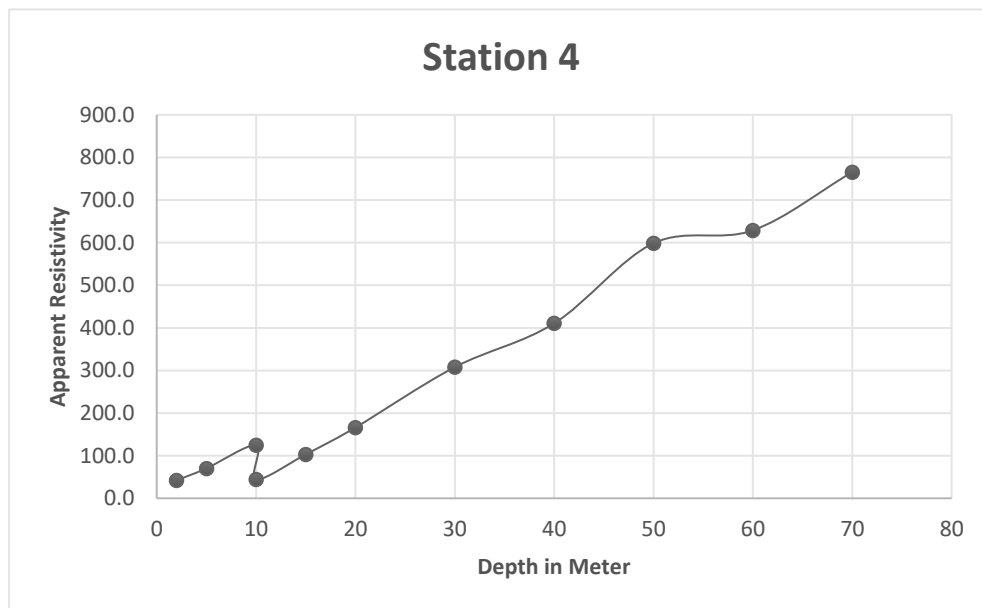


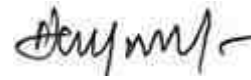
Figure 9 Lithology of Geophysical data Station 4

7.CONCLUSION

- ❖ The lease applied area is exhibits plain topography. The area has gentle sloping towards Eastern side and altitude of the area is 77m above from Mean Sea Level.
- ❖ The geological study of the given area covered by Gravel, Weathered and followed by Charnockite Rock in the entire area. The discharge of the groundwater controlled by the massive Charnockite rock
- ❖ The study area exhibit (SE60°) almost vertical dipping formation. So it act as a barrier and restrict the groundwater flow movement.
- ❖ Based on the geophysical investigation, Vertical Electrical Sounding (VES) were conducted to determine the subsurface water table and rock types up to depth of 70 m. The subsurface formation up to this depth can be categorized as follows,
 - **0m to 2m (Average) - Gravel**
 - **2m to 5m (Average) - Weathered formation**
 - **5m to 50m (Average) – Charnockite Formation (Massive Formation)**
- ❖ In this mine lease area, groundwater occurs at shallow depths, depending on the intensity of weathering and its development is much less compared to gneissic formation. The mine area such no major intersections of water table are expected up to 50m.
- ❖ The aquifer are found within the weathered / fractured metamorphic terrain. Currently the aquifers are located at **58 to 63 meters** below ground level (BGL). However, considering the approved mining plan depth, which is **47 meters** below ground level. It will not impact the groundwater table.
- ❖ To obviate the impact due to catchment of rainwater as surface runoff management, effective

measures like construction of peripheral garland drain, settling pond and ensuring water flow to the nearby downstream users are devised and will be implemented during the course of mining.

- ❖ seepage and rain water storage will be kept as temporary reservoir to charging the nearby wells and will be utilized for greenbelt development.
- ❖ From the above study it can be concluded there will be no adverse effect on the hydrological regime, water drainage, environment, and livelihood. Agricultural activity in the region.



Dr. P. Thangaraju, M.Sc., Ph.D.,

Govt. Approved Hydro Geologist

M/s. Geo Exploration and Mining Solutions,
Regd. Office: No. 17, Advaita Ashram Road,
Alagapuram, Salem – 636 004, Tamil Nadu

From
R. Perumal Raja, M.Sc.,
Assistant Director,
Geology and Mining,
Kancheepuram.

To
Thiru. M. Antony Gomez,
S/o. P. Mariadoss,
No.9/1 M.K. Reddy Street,
West Tambaram,
Chennai - 600 045.

Rc. No.279/Q3/2019,dated:21.09.2020

Sir,

Sub: Mines and Minerals – Minor Mineral – Kancheepuram District - Rough Stone & Gravel Quarry in Patta lands - S.F.Nos. 76/1A, 76/2, 76/4A, 76/6A, 76/7, 76/8A, 76/8B, 76/9, 76/10, 76/11, 76/12, 77/1, 77/2, 77/3, 77/4 - Over an Extent of 4.27.00 Hectares in Pazhayaseevaram "B" Village - Walajabad Taluk – Thiru. M. Antony Gomez S/o. P. Mariadoss Submission of Mining Plan for approval - Approved - regarding.

- Ref: 1. Application for Rough Stone/Gravel Quarry permission preferred by Thiru. M. Antony Gomez, S/o. P. Mariadoss, No.9/1 M.K. Reddy Street, West Tambaram, Chennai - 600 045 dated.18.06.2019.
2. G.O. Ms. No. 79 / Industries (MMC 1) Department, dated.06.04.2015.
3. G.O. Ms. No. 169 / Industries (MMC 1) Department, dated.04.08.2020.
4. Assistant Director, Geology and Mining, Kancheepuram, Precise area communication letter No.279/Q3/2019, dated.15.09.2020.
5. Mining Plan submitted by Thiru. M. Antony Gomez, S/o. P. Mariadoss, No.9/1 M.K. Reddy Street, West Tambaram, Chennai - 600 045 in letter dated. 21.09.2020.

In the reference 5th cited above, Thiru. M. Antony Gomez, S/o. P. Mariadoss, No.9/1 M.K. Reddy Street, West Tambaram, Chennai - 600 045 have submitted three copies of Mining Plan prepared by the RQP, for the Rough Stone & Gravel quarry in S.F. Nos.76/1A(1.18.00), 76/2 (0.32.00), 76/4A(0.18.50), 76/6A(0.50.00), 76/7(0.22.00), 76/8A(0.12.00), 76/8B(0.16.00), 76/9(0.13.00), 76/10(0.12.00), 76/11(0.16.00), 76/12(0.09.00), 77/1(0.18.50), 77/2(0.16.00), 77/3(0.37.00), 77/4(0.37.00) Over an Extent of 4.27.00 Hectares in Pazhayaseevaram "B" Village, Walajabad Taluk, Kancheepuram District and requested to approve the Mining Plan.

In the reference 4th cited, Precise Area has been Communicated for the Rough Stone & Gravel Quarry in S.F. Nos. 76/1A(1.18.00), 76/2(0.32.00), 76/4A(0.18.50), 76/6A(0.50.00), 76/7(0.22.00), 76/8A(0.12.00), 76/8B(0.16.00), 76/9(0.13.00), 76/10(0.12.00), 76/11(0.16.00), 76/12(0.09.00), 77/1(0.18.50), 77/2(0.16.00), 77/3(0.37.00), 77/4(0.37.00) Over an Extent of 4.27.00 Hectares in Pazhayaseevaram "B" Village, Walajabad Taluk, Kancheepuram District.

Now in the reference 5th cited the lessee has been submitted a Mining Plan prepared by RQP with a request to approve the same for enhanced production of Rough Stone and Gravel Quarry in S.F. Nos. 76/1A(1.18.00), 76/2(0.32.00), 76/4A(0.18.50), 76/6A(0.50.00), 76/7(0.22.00), 76/8A(0.12.00), 76/8B(0.16.00), 76/9(0.13.00), 76/10(0.12.00), 76/11(0.16.00), 76/12(0.09.00), 77/1(0.18.50), 77/2(0.16.00), 77/3(0.37.00), 77/4(0.37.00) Over an Extent of 4.27.00 Hectares in Pazhayaseevaram "B" Village, Walajabad Taluk, Kancheepuram District. The Mining Plan has been prepared for the production of 5,39,904 M³ of Roughstone and 30,170 M³ of Gravel.

The Mining Plan has been verified in detail and found that it has been prepared in accordance with the guidelines / instructions issued by the Commissioner of Geology and Mining vide letter in Rc.No.3868/LC/2012 dated 19.11.2012.

Therefore in exercise of the powers conferred under Rule 41(2) of Tamil Nadu Minor Mineral Concession Rules, 1959, read with G.O. (Ms). No.79 / Industries (MMC 1) Department dated 06.04.2015, the Mining Plan is hereby approved subject to the following conditions.

Part-I

- (i) The mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
- (ii) This approval of the mining plan does not in any way convey the approval of the Government in terms or any other provisions of the Mines and Minerals (Development and Regulation) Act, 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Explosives Act, 1884 (Central Act IV of 1884) Minor Mineral Concession and Development

- Rules, 2010 and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- (iii) The mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
 - (iv) The validity of the mining plan is co-terminus with the lease period.
 - (v) Quarrying shall be done in accordance with the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
 - (vi) If anything is found to be concealed as required by the Mines Act in the contents of the Mining Plan and the proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.
 - (vii) If any black granite deposit found in the applied area during quarry work the lease granted will be cancelled as per Rules.
 - (viii) தோனாங்குளம் கிராமம் புல எண்.21-ல் உள்ள ஆண்டிதாங்கலுக்கும் மற்றும் பழையசீவரம் கிராமம் புலஎண்.73-ல் உள்ள வரதாபுரம் ஏரிக்கும் 50 மீட்டர் பாதுகாப்பு இடைவெளிவிட்டு பராமரித்து குவாரிப்பணி செய்யப்பட வேண்டும்.
 - (ix) விண்ணப்ப புலங்களுக்களுக்கு இடையே அமைந்துள்ள அரசு புறம்போக்கு புல எண்.76/13 (அனாதீனம்) இப்புலத்தினை எவ்வித மாறுதல்கள் செய்யாமல் பூமியில் உள்ளவாறே பராமரிக்க வேண்டும். மேலும் இப்புலத்திற்கு 10 மீட்டர் பாதுகாப்பு இடைவெளிவிட்டு குவாரிப்பணி செய்யப்பட வேண்டும்.

Part-II

- (a) There are no minor mineral quarries exceeding an extent of 25.00.0 hectares in total within a radial distance of 500 meters from the periphery of the applied fields.

Encl: Two copy of Approved Mining Plan


 Assistant Director,
 Geology and Mining,
 Kancheepuram.

Copy to:

1. Thiru. A. Jagannathan, B.E., F.C.C., M.M.E.A., M.I.E.,
 Recognised Qualified person,
 No.17, Advaita Ashram Road,
 Alagapuram, Salem - 636 004.
2. The Director of Geology and Mining,
 Chennai-32. (with AMP).

TEST REPORT

Report No	EHS360/TR/2024-25/N14799	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District. Extent: 3.63.5 Ha		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/N14799
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 1 – CORE ZONE 12°13'20.40"N 79°47'15.20"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
02.03.2023	7:00-7:00	43.2	20.3	5.2	23.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.03.2023	7:15-7:15	42.1	22.1	6.3	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.03.2023	7:00-7:00	44.5	23.4	7.4	25.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.03.2023	7:15-7:15	40.6	21.0	8.2	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.03.2023	7:00-7:00	41.1	22.3	5.3	25.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.03.2023	7:15-7:15	42.2	23.4	6.0	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.03.2023	7:00-7:00	40.3	21.3	7.2	24.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.03.2023	7:15-7:15	43.4	22.0	8.0	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.03.2023	7:00-7:00	39.8	23.4	6.4	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.03.2023	7:15-7:15	44.1	21.0	7.3	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.04.2023	7:00-7:00	42.4	23.5	8.2	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.04.2023	7:15-7:15	41.6	21.3	6.1	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.04.2023	7:00-7:00	42.6	22.3	7.3	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.04.2023	7:15-7:15	43.1	23.6	8.4	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.04.2023	7:00-7:00	40.1	22.1	5.0	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.04.2023	7:15-7:15	42.7	22.7	6.8	23.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.04.2023	7:00-7:00	43.4	23.6	7.2	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.04.2023	7:15-7:15	42.0	21.0	6.0	25.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
04.05.2023	7:00-7:00	44.7	22.3	7.3	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.05.2023	7:15-7:15	42.6	23.0	8.2	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.05.2023	7:00-7:00	43.8	21.6	5.3	25.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.05.2023	7:15-7:15	44.2	22.3	6.4	23.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.05.2023	7:00-7:00	40.9	23.5	7.8	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.05.2023	7:15-7:15	41.7	21.0	7.0	25.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.05.2023	7:00-7:00	43.4	23.6	6.3	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.05.2023	7:15-7:15	40.9	22.4	5.4	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

Verified by

(Signature)
(Kesavam x)



*****End of Report*****
Page 1 of 1

Authorized Signatory

(Signature)
Santhosh Kumar .A
Managing Director

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client.
 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/N14799	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District. Extent: 3.63.5 Ha		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/N14799
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 1 – CORE ZONE 12°13'20.40"N 79°47'15.20"E		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
02.03.2023	7:00-7:00	55.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.03.2023	7:15-7:15	56.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.03.2023	7:00-7:00	58.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.03.2023	7:15-7:15	60.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.03.2023	7:00-7:00	56.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.03.2023	7:15-7:15	57.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.03.2023	7:00-7:00	58.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.03.2023	7:15-7:15	60.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.03.2023	7:00-7:00	58.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.03.2023	7:15-7:15	57.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.04.2023	7:00-7:00	55.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.04.2023	7:15-7:15	56.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.04.2023	7:00-7:00	55.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.04.2023	7:15-7:15	56.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.04.2023	7:00-7:00	57.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.04.2023	7:15-7:15	58.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.04.2023	7:00-7:00	55.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.04.2023	7:15-7:15	56.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
04.05.2023	7:00-7:00	57.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.05.2023	7:15-7:15	58.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.05.2023	7:00-7:00	59.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.05.2023	7:15-7:15	60.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.05.2023	7:00-7:00	58.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.05.2023	7:15-7:15	55.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.05.2023	7:00-7:00	57.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.05.2023	7:15-7:15	58.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<100	<60	<80	<80	<100

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

Verified by

(Signature)
(Keshavam N)



*****End of Report*****
Page 1 of 1

Authorized Signatory

(Signature)
Santhosh Kumar .A
Managing Director

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client.
 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/N14800	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/N14800
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 2 – Near Project Area- 12°47'54.64"N 79°52'49.81"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
01.10.2024	7:00-7:00	44.2	20.1	5.5	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.10.2024	7:15-7:15	42.5	21.4	5.6	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.10.2024	7:00-7:00	43.4	21.6	4.2	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.10.2024	7:15-7:15	41.3	20.5	4.4	19.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.10.2024	7:00-7:00	42.4	19.2	5.1	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.10.2024	7:15-7:15	43.3	19.3	4.2	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.10.2024	7:00-7:00	44.2	22.5	4.6	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.10.2024	7:15-7:15	44.3	21.3	5.3	20.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.10.2024	7:00-7:00	43.2	20.1	5.2	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.10.2024	7:15-7:15	45.4	20.2	5.1	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.11.2024	7:00-7:00	44.5	21.3	4.4	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.11.2024	7:15-7:15	46.3	20.4	4.2	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.11.2024	7:00-7:00	44.2	20.4	4.4	20.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.11.2024	7:15-7:15	43.3	21.3	5.0	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.11.2024	7:00-7:00	44.5	21.4	5.3	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.11.2024	7:15-7:15	44.3	20.3	6.2	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.11.2024	7:00-7:00	43.4	20.6	6.4	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.11.2024	7:15-7:15	42.3	20.7	6.6	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.12.2024	7:00-7:00	43.2	21.1	6.3	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
04.12.2024	7:15-7:15	44.5	21.3	5.5	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.12.2024	7:00-7:00	43.3	20.2	5.2	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.12.2024	7:15-7:15	44.2	21.1	6.3	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.12.2024	7:00-7:00	42.4	20.6	5.4	20.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.12.2024	7:15-7:15	43.6	21.4	4.4	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.12.2024	7:00-7:00	44.2	22.3	5.8	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.12.2024	7:15-7:15	45.2	22.2	5.6	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

Verified by

Y. Ram
(Resevoir yr)



*****End of Report*****
Page 1 of 1

Authorized Signatory

A. Santhosh Kumar .A
Managing Director

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
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TEST REPORT

Report No	EHS360/TR/2024-25/N14800	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/N14800
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 2 – Near Project Area- 12°47'54.64"N 79°52'49.81"E		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
01.10.2024	7:00-7:00	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.10.2024	7:15-7:15	69.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.10.2024	7:00-7:00	70.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.10.2024	7:15-7:15	70.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.10.2024	7:00-7:00	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.10.2024	7:15-7:15	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.10.2024	7:00-7:00	68.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.10.2024	7:15-7:15	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.10.2024	7:00-7:00	69.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.10.2024	7:15-7:15	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.11.2024	7:00-7:00	70.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.11.2024	7:15-7:15	70.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.11.2024	7:00-7:00	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.11.2024	7:15-7:15	68.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.11.2024	7:00-7:00	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.11.2024	7:15-7:15	69.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.11.2024	7:00-7:00	67.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.11.2024	7:15-7:15	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.12.2024	7:00-7:00	66.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
04.12.2024	7:15-7:15	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.12.2024	7:00-7:00	69.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.12.2024	7:15-7:15	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.12.2024	7:00-7:00	69.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.12.2024	7:15-7:15	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.12.2024	7:00-7:00	68.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.12.2024	7:15-7:15	69.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<100	<60	<80	<80	<100

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

Verified by

(Keshavam y)



*****End of Report*****
Page 1 of 1

Authorized Signatory

(Santhosh Kumar .A)
Managing Director

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report.
3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client.
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TEST REPORT

Report No	EHS360/TR/2024-25/N14801	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/N14801
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ3 –Near Project Area- 12°47'58.95"N 79°52'45.84"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
01.10.2024	7:00-7:00	44.8	18.4	6.5	19.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.10.2024	7:15-7:15	44.8	19.5	6.1	20.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.10.2024	7:00-7:00	45.6	19.3	6.6	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.10.2024	7:15-7:15	45.2	18.2	4.5	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.10.2024	7:00-7:00	44.6	19.3	4.3	20.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.10.2024	7:15-7:15	45.3	19.7	4.2	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.10.2024	7:00-7:00	44.8	18.5	4.2	20.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.10.2024	7:15-7:15	45.1	19.8	5.6	19.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.10.2024	7:00-7:00	44.7	18.9	5.4	19.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.10.2024	7:15-7:15	44.8	18.9	5.3	21.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.11.2024	7:00-7:00	46.3	18.2	4.1	20.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.11.2024	7:15-7:15	46.8	19.4	5.6	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.11.2024	7:00-7:00	46.9	19.5	5.3	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.11.2024	7:15-7:15	44.8	20.4	5.2	19.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.11.2024	7:00-7:00	45.9	20.8	5.1	20.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.11.2024	7:15-7:15	45.7	19.9	6.4	19.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.11.2024	7:00-7:00	45.6	19.3	6.1	20.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.11.2024	7:15-7:15	46.8	18.1	4.4	22.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.12.2024	7:00-7:00	45.9	18.4	5.6	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
04.12.2024	7:15-7:15	45.5	19.5	5.1	20.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.12.2024	7:00-7:00	44.4	19.4	4.4	19.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.12.2024	7:15-7:15	45.6	19.8	5.6	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.12.2024	7:00-7:00	46.9	20.5	5.4	19.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.12.2024	7:15-7:15	44.3	20.1	6.9	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.12.2024	7:00-7:00	45.4	18.4	4.8	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.12.2024	7:15-7:15	46.1	18.0	5.4	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

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*****End of Report*****
Page 1 of 1

Authorized Signatory

(Signature)
Santhosh Kumar .A
Managing Director

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client.
 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/N14801	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/N14801
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ3 –Near Project Area- 12°47'58.95"N 79°52'45.84"E		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
01.10.2024	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.10.2024	7:15-7:15	64.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.10.2024	7:00-7:00	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.10.2024	7:15-7:15	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.10.2024	7:00-7:00	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.10.2024	7:15-7:15	66.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.10.2024	7:00-7:00	64.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.10.2024	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.10.2024	7:00-7:00	63.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.10.2024	7:15-7:15	64.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.11.2024	7:00-7:00	62.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.11.2024	7:15-7:15	64.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.11.2024	7:00-7:00	66.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.11.2024	7:15-7:15	67.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.11.2024	7:00-7:00	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.11.2024	7:15-7:15	67.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.11.2024	7:00-7:00	67.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.11.2024	7:15-7:15	66.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.12.2024	7:00-7:00	67.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
04.12.2024	7:15-7:15	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.12.2024	7:00-7:00	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.12.2024	7:15-7:15	67.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.12.2024	7:00-7:00	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.12.2024	7:15-7:15	68.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.12.2024	7:00-7:00	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.12.2024	7:15-7:15	68.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<100	<60	<80	<80	<100

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

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*****End of Report*****
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Authorized Signatory

(Signature)
Santhosh Kumar A
Managing Director

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report.
3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client.
4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/N14802	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/N14802
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ4 –Ullaoor- 12°47'41.05"N 79°53'16.93"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
01.10.2024	7:00-7:00	43.7	19.7	5.3	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.10.2024	7:15-7:15	44.8	19.6	5.7	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.10.2024	7:00-7:00	44.6	18.4	5.9	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.10.2024	7:15-7:15	44.5	21.6	6.3	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.10.2024	7:00-7:00	44.9	19.6	6.8	22.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.10.2024	7:15-7:15	44.6	20.4	6.4	21.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.10.2024	7:00-7:00	44.1	21.6	6.9	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.10.2024	7:15-7:15	45.7	18.6	6.8	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.10.2024	7:00-7:00	43.5	18.5	6.7	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.10.2024	7:15-7:15	44.8	19.7	6.2	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.11.2024	7:00-7:00	43.9	20.5	4.3	21.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.11.2024	7:15-7:15	42.4	21.6	4.5	21.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.11.2024	7:00-7:00	43.6	21.8	4.6	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.11.2024	7:15-7:15	44.3	19.6	4.9	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.11.2024	7:00-7:00	46.7	19.7	5.1	20.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.11.2024	7:15-7:15	45.8	21.5	5.6	21.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.11.2024	7:00-7:00	42.2	20.4	6.8	20.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.11.2024	7:15-7:15	43.4	18.8	6.9	21.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.12.2024	7:00-7:00	43.6	19.7	6.1	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
04.12.2024	7:15-7:15	41.8	21.5	6.7	20.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.12.2024	7:00-7:00	40.7	20.9	5.9	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.12.2024	7:15-7:15	43.3	22.1	6.8	21.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.12.2024	7:00-7:00	42.7	21.7	5.3	20.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.12.2024	7:15-7:15	45.8	20.8	5.5	21.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.12.2024	7:00-7:00	45.3	19.9	5.8	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.12.2024	7:15-7:15	44.6	19.7	5.9	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

Verified by

(K. S. Kesavem)



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(Santhosh Kumar .A)
Managing Director

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
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TEST REPORT

Report No	EHS360/TR/2024-25/N14802	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/N14802
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ4 –Ullaoor- 12°47'41.05"N 79°53'16.93"E		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
01.10.2024	7:00-7:00	65.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.10.2024	7:15-7:15	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.10.2024	7:00-7:00	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.10.2024	7:15-7:15	65.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.10.2024	7:00-7:00	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.10.2024	7:15-7:15	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.10.2024	7:00-7:00	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.10.2024	7:15-7:15	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.10.2024	7:00-7:00	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.10.2024	7:15-7:15	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.11.2024	7:00-7:00	65.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.11.2024	7:15-7:15	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.11.2024	7:00-7:00	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.11.2024	7:15-7:15	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.11.2024	7:00-7:00	65.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.11.2024	7:15-7:15	63.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.11.2024	7:00-7:00	64.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.11.2024	7:15-7:15	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.12.2024	7:00-7:00	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
04.12.2024	7:15-7:15	66.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.12.2024	7:00-7:00	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.12.2024	7:15-7:15	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.12.2024	7:00-7:00	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.12.2024	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.12.2024	7:00-7:00	67.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.12.2024	7:15-7:15	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<100	<60	<80	<80	<100

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

Verified by

(Kesavam)



*****End of Report*****
Page 1 of 1

Authorized Signatory

(Santhosh Kumar A)
Managing Director

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client.
 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/N14803	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/N14803
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ5 – Palayaseevaram- 12°46'36.33"N 79°52'11.16"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
01.10.2024	7:00-7:00	44.2	18.3	5.9	20.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.10.2024	7:15-7:15	45.1	18.9	5.8	20.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.10.2024	7:00-7:00	43.9	18.1	6.3	19.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.10.2024	7:15-7:15	42.8	20.5	6.5	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.10.2024	7:00-7:00	44.5	18.9	4.7	21.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.10.2024	7:15-7:15	45.6	19.2	4.3	19.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.10.2024	7:00-7:00	42.1	19.1	6.9	19.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.10.2024	7:15-7:15	44.6	20.5	6.5	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.10.2024	7:00-7:00	44.9	20.9	6.3	20.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.10.2024	7:15-7:15	44.5	20.4	6.7	19.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.11.2024	7:00-7:00	45.9	19.8	5.4	19.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.11.2024	7:15-7:15	44.5	19.3	5.9	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.11.2024	7:00-7:00	42.7	21.5	5.3	21.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.11.2024	7:15-7:15	43.1	20.6	5.8	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.11.2024	7:00-7:00	43.8	20.1	5.2	20.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.11.2024	7:15-7:15	42.6	19.8	6.7	20.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.11.2024	7:00-7:00	42.2	19.1	6.3	20.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.11.2024	7:15-7:15	43.3	20.6	6.8	19.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.12.2024	7:00-7:00	43.1	21.3	4.3	19.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
04.12.2024	7:15-7:15	44.8	20.7	4.8	19.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.12.2024	7:00-7:00	42.2	20.4	4.4	19.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.12.2024	7:15-7:15	43.6	19.5	4.9	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.12.2024	7:00-7:00	42.8	20.3	6.4	20.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.12.2024	7:15-7:15	44.1	20.8	6.7	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.12.2024	7:00-7:00	45.5	21.3	5.9	19.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.12.2024	7:15-7:15	44.3	20.9	5.8	20.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<805	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

Verified by

(Signature)
(Kesavam y)



*****End of Report*****
Page 1 of 1

Authorized Signatory

(Signature)
Santhosh Kumar .A
Managing Director

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
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TEST REPORT

Report No	EHS360/TR/2024-25/N14803	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/N14803
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ5 – Palayaseevaram- 12°46'36.33"N 79°52'11.16"E		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
01.10.2024	7:00-7:00	69.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.10.2024	7:15-7:15	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.10.2024	7:00-7:00	68.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.10.2024	7:15-7:15	69.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.10.2024	7:00-7:00	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.10.2024	7:15-7:15	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.10.2024	7:00-7:00	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.10.2024	7:15-7:15	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.10.2024	7:00-7:00	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.10.2024	7:15-7:15	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.11.2024	7:00-7:00	66.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.11.2024	7:15-7:15	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.11.2024	7:00-7:00	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.11.2024	7:15-7:15	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.11.2024	7:00-7:00	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.11.2024	7:15-7:15	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.11.2024	7:00-7:00	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.11.2024	7:15-7:15	68.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.12.2024	7:00-7:00	69.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
04.12.2024	7:15-7:15	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.12.2024	7:00-7:00	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.12.2024	7:15-7:15	69.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.12.2024	7:00-7:00	68.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.12.2024	7:15-7:15	69.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.12.2024	7:00-7:00	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.12.2024	7:15-7:15	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<100	<60	<80	<80	<100

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

Verified by

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*****End of Report*****
Page 1 of 1

Authorized Signatory

(Signature)
Santhosh Kumar .A
Managing Director

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TEST REPORT

Report No	EHS360/TR/2024-25/N14804	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/N14804
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 6 –Mettucolony- 12°50'33.09"N 79°50'42.13"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
01.10.2024	7:00-7:00	43.2	19.7	5.3	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.10.2024	7:15-7:15	44.8	19.6	5.7	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.10.2024	7:00-7:00	44.6	18.4	5.9	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.10.2024	7:15-7:15	44.5	21.6	6.3	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.10.2024	7:00-7:00	44.9	19.6	6.8	22.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.10.2024	7:15-7:15	44.6	20.4	6.4	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.10.2024	7:00-7:00	44.1	21.6	6.9	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.10.2024	7:15-7:15	45.7	18.6	6.8	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.10.2024	7:00-7:00	43.5	18.5	6.7	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.10.2024	7:15-7:15	44.8	19.7	6.2	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.11.2024	7:00-7:00	43.9	20.5	7.3	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.11.2024	7:15-7:15	42.4	21.6	7.5	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.11.2024	7:00-7:00	43.6	21.8	5.6	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.11.2024	7:15-7:15	44.3	19.6	5.9	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.11.2024	7:00-7:00	46.7	19.7	5.1	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.11.2024	7:15-7:15	45.8	21.5	5.6	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.11.2024	7:00-7:00	42.2	20.4	6.8	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.11.2024	7:15-7:15	43.4	18.8	6.9	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.12.2024	7:00-7:00	43.6	19.7	6.1	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
04.12.2024	7:15-7:15	41.8	21.5	6.7	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.12.2024	7:00-7:00	40.7	20.9	4.9	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.12.2024	7:15-7:15	43.3	22.1	4.8	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.12.2024	7:00-7:00	42.7	21.7	4.3	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.12.2024	7:15-7:15	45.8	20.8	4.5	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.12.2024	7:00-7:00	45.3	19.9	5.8	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.12.2024	7:15-7:15	44.6	19.7	5.9	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

Verified by

(K. S. V. S. V.)
(K. S. V. S. V.)



*****End of Report*****
Page 1 of 1

Authorized Signatory

(Santhosh Kumar A.)
Santhosh Kumar A.
Managing Director

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report.
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TEST REPORT

Report No	EHS360/TR/2024-25/N14804	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/N14804
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 6 –Mettucolony- 12°50'33.09"N 79°50'42.13"E		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
01.10.2024	7:00-7:00	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.10.2024	7:15-7:15	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.10.2024	7:00-7:00	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.10.2024	7:15-7:15	65.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.10.2024	7:00-7:00	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.10.2024	7:15-7:15	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.10.2024	7:00-7:00	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.10.2024	7:15-7:15	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.10.2024	7:00-7:00	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.10.2024	7:15-7:15	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.11.2024	7:00-7:00	65.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.11.2024	7:15-7:15	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.11.2024	7:00-7:00	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.11.2024	7:15-7:15	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.11.2024	7:00-7:00	65.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.11.2024	7:15-7:15	63.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.11.2024	7:00-7:00	64.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.11.2024	7:15-7:15	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.12.2024	7:00-7:00	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
04.12.2024	7:15-7:15	66.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.12.2024	7:00-7:00	68.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.12.2024	7:15-7:15	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.12.2024	7:00-7:00	66.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.12.2024	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.12.2024	7:00-7:00	67.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.12.2024	7:15-7:15	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<100	<60	<80	<80	<100

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

Verified by

(Signature)
(Keevaram y)



*****End of Report*****
Page 1 of 1

Authorized Signatory

(Signature)
Santhosh Kumar .A
Managing Director

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client.
 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/N14805	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/N14805
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ7 –Panaiyur- 12°50'0.90"N 79°55'3.72"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
01.10.2024	7:00-7:00	43.1	20.7	6.2	22.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.10.2024	7:15-7:15	43.5	20.2	7.8	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.10.2024	7:00-7:00	44.3	18.2	6.0	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.10.2024	7:15-7:15	44.9	18.8	6.7	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.10.2024	7:00-7:00	43.2	19.3	7.4	21.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.10.2024	7:15-7:15	45.2	18.2	7.1	23.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.10.2024	7:00-7:00	45.4	19.5	8.0	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.10.2024	7:15-7:15	45.6	19.3	6.2	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.10.2024	7:00-7:00	43.2	18.1	6.6	20.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.10.2024	7:15-7:15	44.5	19.6	7.0	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.11.2024	7:00-7:00	44.7	19.6	7.9	20.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.11.2024	7:15-7:15	45.6	18.5	6.3	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.11.2024	7:00-7:00	46.4	19.5	6.8	20.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.11.2024	7:15-7:15	46.1	18.5	6.0	20.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.11.2024	7:00-7:00	44.8	19.4	7.2	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.11.2024	7:15-7:15	44.2	18.9	7.8	20.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.11.2024	7:00-7:00	43.5	19.6	6.5	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.11.2024	7:15-7:15	43.6	20.1	6.1	20.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.12.2024	7:00-7:00	43.9	21.1	7.8	21.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
04.12.2024	7:15-7:15	44.6	20.6	7.2	20.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.12.2024	7:00-7:00	46.1	20.1	6.8	20.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.12.2024	7:15-7:15	45.5	19.8	6.3	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.12.2024	7:00-7:00	45.1	18.9	7.0	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.12.2024	7:15-7:15	43.8	19.6	7.4	21.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.12.2024	7:00-7:00	43.5	19.1	7.9	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.12.2024	7:15-7:15	44.2	18.4	6.7	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

Verified by

(Signature)
(Kesavam y)



*****End of Report*****
Page 1 of 1

Authorized Signatory

(Signature)
Santhosh Kumar .A
Managing Director

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client.
4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

Report No	EHS360/TR/2024-25/N14805	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/N14805
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ7 –Panaiyur- 12°50'0.90"N 79°55'3.72"E		

Date	Period. hrs	SPM (µg/m³)	As (ng/m³)	C6H6 (µg/m³)	BaP (ng/m³)	Pb (µg/m³)	Ni (ng/m³)
01.10.2024	7:00-7:00	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.10.2024	7:15-7:15	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.10.2024	7:00-7:00	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.10.2024	7:15-7:15	68.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.10.2024	7:00-7:00	69.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.10.2024	7:15-7:15	69.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.10.2024	7:00-7:00	63.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.10.2024	7:15-7:15	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.10.2024	7:00-7:00	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.10.2024	7:15-7:15	65.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.11.2024	7:00-7:00	66.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.11.2024	7:15-7:15	67.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.11.2024	7:00-7:00	67.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.11.2024	7:15-7:15	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.11.2024	7:00-7:00	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.11.2024	7:15-7:15	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.11.2024	7:00-7:00	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.11.2024	7:15-7:15	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.12.2024	7:00-7:00	65.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
04.12.2024	7:15-7:15	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.12.2024	7:00-7:00	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.12.2024	7:15-7:15	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.12.2024	7:00-7:00	65.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.12.2024	7:15-7:15	65.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.12.2024	7:00-7:00	69.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.12.2024	7:15-7:15	69.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<100	<60	<80	<80	<100

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

Verified by

(Signature)
(Kesavam y)



*****End of Report*****
Page 1 of 1

Authorized Signatory

(Signature)
Santhosh Kumar .A
Managing Director

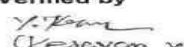
Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
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TEST REPORT

Report No	EHS360/TR/2024-25/N14806	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/N14806
Sample Description	Ambient Noise	Sample Collected Date	25-12-2024

Location	N1 – Project Area- 12°48'3.16"N 79°52'55.67"E			N2 – Near Project Area– 12°47'55.66"N 79°52'50.17"E		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	38.6	41.3	40.2	35.6	40.3	38.6
07:00-08:00	37.5	41.5	39.9	35.7	41.5	39.5
08:00-09:00	39.2	41.8	40.7	36.9	45.2	42.8
09:00-10:00	39.4	41.8	40.8	35.8	43.2	40.9
10:00-11:00	39.2	43.5	41.9	36.8	40.7	39.2
11:00-12:00	40.2	42.2	41.3	35.8	38.8	37.6
12:00-13:00	41.5	43.3	42.5	38.8	39.7	39.3
13:00-14:00	41.8	42.2	42.0	39.7	40.9	40.3
14:00-15:00	42.8	43.8	43.3	40.2	41.8	41.1
15:00-16:00	43.5	44.1	43.8	42.5	43.3	42.9
16:00-17:00	41.3	43.2	42.4	45.5	48.1	47.0
17:00-18:00	43.5	43.9	43.7	43.2	46.6	45.2
18:00-19:00	45.9	46.6	46.3	45.5	47.3	46.5
19:00-20:00	46.7	47.9	47.3	45.5	46.8	46.2
20:00-21:00	41.2	44.8	43.4	41.2	45.5	43.9
21:00-22:00	42.1	43.5	42.9	42.1	42.9	42.5
22:00-23:00	36.4	38.8	37.8	37.5	38.5	38.0
23:00-00:00	36.4	37.7	37.1	37.9	38.1	38.0
00:00-01:00	36.7	39.2	38.1	36.1	38.8	37.7
01:00-02:00	32.8	38.3	36.4	36.4	37.2	36.8
02:00-03:00	32.2	38.1	36.1	36.2	36.9	36.6
03:00-04:00	34.8	38.5	37.0	35.5	37.7	36.7
04:00-05:00	34.6	36.9	35.9	35.4	36.8	36.2
05:00-06:00	34.1	36.5	35.5	35.1	36.5	35.9
Result	Day Means		42.4	Day Means		41.8
	Night Means		36.6	Night Means		36.8

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
 The Noise level in the above location exists within the permissible limits of CPCB.

Verified by

 (K. Senthos Kumar)



*****End of Report*****
 Page 1 of 1

Authorized Signatory

 Santhosh Kumar A
 Managing Director

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report.
 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client.
 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/N14807	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/N14807
Sample Description	Ambient Noise	Sample Collected Date	25-12-2024

Location	N3 – Kolathancheri- 12°47'10.64"N 79°55'18.83"E			N4 –Ullaoor- 12°47'41.34"N 79°53'18.47"E		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	31.9	42.5	39.9	31.3	43.5	40.7
07:00-08:00	33.7	45.2	42.5	36.4	44.5	42.1
08:00-09:00	35.1	46.9	44.2	35.8	45.9	43.3
09:00-10:00	36.2	47.2	44.5	31.2	46.7	43.8
10:00-11:00	34.2	49.2	46.3	31.7	47.5	44.6
11:00-12:00	35.9	49.8	47.0	32.9	41.2	38.8
12:00-13:00	32.7	46.4	43.6	36.4	43.1	40.9
13:00-14:00	33.2	45.8	43.0	35.9	42.9	40.7
14:00-15:00	31.4	44.2	41.4	37.2	48.6	45.9
15:00-16:00	36.8	39.6	38.4	36.9	44.7	42.4
16:00-17:00	35.7	40.4	38.7	35.1	46.3	43.6
17:00-18:00	32.3	38.2	36.2	33.8	41.7	39.3
18:00-19:00	33.4	40.5	38.3	31.7	39.1	36.8
19:00-20:00	31.9	41.7	39.1	32.9	40.7	38.4
20:00-21:00	35.7	40.3	38.6	33.7	41.3	39.0
21:00-22:00	33.4	43.9	41.3	35.1	44.7	42.1
22:00-23:00	38.4	42.7	41.1	32.9	40.3	38.0
23:00-00:00	32.9	39.5	37.3	33.7	41.4	39.1
00:00-01:00	34.5	40.3	38.3	32.9	40.2	37.9
01:00-02:00	33.1	41.9	39.4	31.9	37.7	35.7
02:00-03:00	32.9	38.3	36.4	33.8	38.4	36.7
03:00-04:00	32.9	40.7	38.4	33.7	36.7	35.5
04:00-05:00	33.6	41.5	39.1	31.5	35.9	34.2
05:00-06:00	31.2	40.2	37.7	31.9	36.5	34.8
Result	Day Means		41.4	Day Means		41.2
	Night Means		38.1	Night Means		36.3
Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A) The Noise level in the above location exists within the permissible limits of CPCB.						

Verified by

(Signature)
(Resonance X)



*****End of Report*****
Page 1 of 1

Authorized Signatory

(Signature)
Senthosh Kumar .A
Managing Director

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client.
 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/N14808	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/N14808
Sample Description	Ambient Noise	Sample Collected Date	25.12.2024

Location	N5 – Palayaseevaram– 12°46'35.90"N 79°52'13.86"E			N6 – Mettucolony– 12°50'32.91"N 79°50'42.36"E		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	33.9	40.5	38.3	32.3	42.5	39.9
07:00-08:00	36.1	43.6	41.3	31.9	45.2	42.4
08:00-09:00	33.2	44.9	42.2	35.3	45.9	43.3
09:00-10:00	34.7	43.2	40.8	36.2	44.7	42.3
10:00-11:00	31.6	40.9	38.4	32.7	45.6	42.8
11:00-12:00	32.5	41.2	38.7	33.2	45.2	42.5
12:00-13:00	36.2	43.2	41.0	31.2	46.8	43.9
13:00-14:00	35.9	44.8	42.3	38.1	46.1	43.7
14:00-15:00	31.9	39.1	36.8	32.7	44.5	41.8
15:00-16:00	33.6	41.4	39.1	36.9	45.7	43.2
16:00-17:00	31.5	39.2	36.9	33.7	41.7	39.3
17:00-18:00	32.8	40.7	38.3	36.2	43.5	41.2
18:00-19:00	32.6	40.3	38.0	37.5	44.9	42.6
19:00-20:00	32.7	41.7	39.2	36.1	42.6	40.5
20:00-21:00	33.9	42.5	40.1	33.2	41.3	38.9
21:00-22:00	34.2	43.1	40.6	36.9	43.5	41.3
22:00-23:00	36.1	45.9	43.3	35.2	42.9	40.6
23:00-00:00	33.8	41.7	39.3	34.2	43.6	41.1
00:00-01:00	31.9	40.3	37.9	36.9	42.8	40.8
01:00-02:00	33.1	41.9	39.4	37.5	41.7	40.1
02:00-03:00	32.9	33.9	33.4	33.8	35.8	34.9
03:00-04:00	31.3	34.8	33.4	31.6	36.6	34.8
04:00-05:00	33.8	36.5	35.4	33.7	37.7	36.1
05:00-06:00	31.9	38.5	36.3	31.4	39.7	37.3
Result	Day Means		39.7	Day Means		41.8
	Night Means		36.5	Night Means		37.9
Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A) The Noise level in the above location exists within the permissible limits of CPCB.						

Verified by

(Signature)
(Kesavam V)



*****End of Report*****
Page 1 of 1

Authorized Signatory

(Signature)
Santhosh Kumar .A
Managing Director

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TEST REPORT

Report No	EHS360/TR/2024-25/N14809	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/N14809
Sample Description	Ambient Noise	Sample Collected Date	25-12-2024

Location	N7 - Panaiyur- 12°49'59.69"N 79°55'6.55"E		
Parameter	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)
06:00-07:00	32.9	35.5	34.4
07:00-08:00	31.3	39.7	37.3
08:00-09:00	32.6	41.6	39.1
09:00-10:00	33.7	42.8	40.3
10:00-11:00	34.6	44.6	42.0
11:00-12:00	36.2	45.8	43.2
12:00-13:00	38.2	46.2	43.8
13:00-14:00	36.4	45.1	42.6
14:00-15:00	36.9	43.4	41.3
15:00-16:00	34.6	42.9	40.5
16:00-17:00	32.7	40.7	38.3
17:00-18:00	36.9	43.2	41.1
18:00-19:00	32.1	40.6	38.2
19:00-20:00	34.9	43.2	40.8
20:00-21:00	32.6	40.7	38.3
21:00-22:00	33.7	41.3	39.0
22:00-23:00	34.3	36.4	35.5
23:00-00:00	32.6	42.8	40.2
00:00-01:00	35.8	40.2	38.5
01:00-02:00	33.6	38.8	36.9
02:00-03:00	31.2	37.1	35.1
03:00-04:00	32.4	35.7	34.4
04:00-05:00	31.6	39.5	37.1
05:00-06:00	33.9	36.6	35.5
Result	Day Means		39.7
	Night Means		36.8
Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A) The Noise level in the above location exists within the permissible limits of CPCB.			

Verified by

(K. S. Venkatesh)



*****End of Report*****
Page 1 of 1

Authorized Signatory

(Santhosh Kumar A.)
Santhosh Kumar A.
Managing Director

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report.
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TEST REPORT

Report No	EHS360/TR/2024-25/N14810	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/N14810
Sample Description	Soil 1	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 KG	Sample Received On	25-12-2024
Sample Condition	Good	Test Commenced On	25-12-2024
Sampling Location	Project Area		

S.No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.41
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	420 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	48.8 %
04	Bulk Density	By Cylindrical Method	1.02 g/cm ³
05	Porosity	By Gravimetric Method	48.5 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	12.6 mg/kg
07	Magnesium as Mg		6.78 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	31.5 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0020 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	4.15 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	452.6 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.31 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.76 %

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(Resavan Y)

Continued.....
Page 1 of 2

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A. J.
Santhosh Kumar .A
Managing Director

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/N14810	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/N14810
Sample Description	Soil 1	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 KG	Sample Received On	25-12-2024
Sample Condition	Good	Test Commenced On	25-12-2024
Sampling Location	Project Area		

S.No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	27.5 %
	Sand		30.1 %
	Silt		42.4 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	14.53 mg/kg
16	Zinc as Zn		1.17 mg/kg
17	Boron as B		2.13 mg/kg
18	Potassium as K		25.5 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		2.15
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		1.14 mg/kg
23	Iron as Fe		7.56 mg/kg
24	Cation Exchange Capacity	USEPA 9080 – 1986	41.2 meq/100g of soil

Verified by

(Signature)
(Keeravani Y)



*****End of Report*****
Page 2 of 2

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(Signature)
Santhosh Kumar .A
Managing Director

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TEST REPORT

Report No	EHS360/TR/2024-25/N14811	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/N14811
Sample Description	Soil 2	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 KG	Sample Received On	25-12-2024
Sample Condition	Good	Test Commenced On	25-12-2024
Sampling Location	Ullaoor		

S.N o	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.04
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	525 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	48.6 %
04	Bulk Density	By Cylindrical Method	1.07 g/cm ³
05	Porosity	By Gravimetric Method	49.1 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	25.3 mg/kg
07	Magnesium as Mg		17.2 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	21.5 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0017 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	3.75 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	380.4 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.10 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.22 %

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(Resavan Y)

Continued.....
Page 1 of 2

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A.S.
Santhosh Kumar .A
Managing Director

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TEST REPORT

Report No	EHS360/TR/2024-25/N14811	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/N14811
Sample Description	Soil 2	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 KG	Sample Received On	25-12-2024
Sample Condition	Good	Test Commenced On	25-12-2024
Sampling Location	Ullaoor		

S.No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	24.3 %
	Sand		32.0 %
	Silt		43.7 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	15.1 mg/kg
16	Zinc as Zn		5.25 mg/kg
17	Boron as B		4.13 mg/kg
18	Potassium as K		27.4 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		2.12
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		1.17 mg/kg
23	Iron as Fe		2.85 mg/kg
24	Cation Exchange Capacity	USEPA 9080 – 1986	45.5 meq/100g of soil

Verified by

(Signature)
(Keeavan Y)



*****End of Report*****
Page 2 of 2

Authorized Signatory

(Signature)
Santhosh Kumar .A
Managing Director

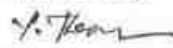
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TEST REPORT

Report No	EHS360/TR/2024-25/N14812	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/N14812
Sample Description	Soil 3	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 KG	Sample Received On	25-12-2024
Sample Condition	Good	Test Commenced On	25-12-2024
Sampling Location	Kolathancheri		

S.No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.49
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	416 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	48.5 %
04	Bulk Density	By Cylindrical Method	1.01 g/cm ³
05	Porosity	By Gravimetric Method	46.11 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	25.5 mg/kg
07	Magnesium as Mg		18.8 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	21.3 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0025 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	4.12 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	470 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.79 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.04 %

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 (Resavan Y)


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 Page 1 of 2

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 Santhosh Kumar A
 Managing Director

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TEST REPORT

Report No	EHS360/TR/2024-25/N14812	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/N14812
Sample Description	Soil 3	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 KG	Sample Received On	25-12-2024
Sample Condition	Good	Test Commenced On	25-12-2024
Sampling Location	Kolathancheri		

S.No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	22.1 %
	Sand		28.5 %
	Silt		49.4 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	29.5 mg/kg
16	Zinc as Zn		2.26 mg/kg
17	Boron as B		4.13 mg/kg
18	Potassium as K		22.0 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		2.15
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		2.69 mg/kg
23	Iron as Fe		1.05 mg/kg
24	Cation Exchange Capacity	USEPA 9080 – 1986	45.4 meq/100g of soil

Verified by

(Signature)
(Keavan Y)



*****End of Report*****
Page 2 of 2

Authorized Signatory

(Signature)
Santhosh Kumar .A
Managing Director

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TEST REPORT

Report No	EHS360/TR/2024-25/N14813	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/N14813
Sample Description	Soil 4	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 KG	Sample Received On	25-12-2024
Sample Condition	Good	Test Commenced On	25-12-2024
Sampling Location	Palayaseevaram		

S.No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.08
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	511 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	49.1. %
04	Bulk Density	By Cylindrical Method	1.01 g/cm ³
05	Porosity	By Gravimetric Method	47.9 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	17.5 mg/kg
07	Magnesium as Mg		8.98 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	21.4 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0012 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	8.64 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	490 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.91 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.11 %

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(Resavan Y)

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Page 1 of 2

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A. J.
Santhosh Kumar A
Managing Director

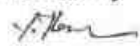
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TEST REPORT

Report No	EHS360/TR/2024-25/N14813	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/N14813
Sample Description	Soil 4	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 KG	Sample Received On	25-12-2024
Sample Condition	Good	Test Commenced On	25-12-2024
Sampling Location	Palayaseevaram		

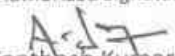
S.No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	31.0 %
	Sand		32.5 %
	Silt		36.5 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	4.16 mg/kg
16	Zinc as Zn		6.55 mg/kg
17	Boron as B		11 mg/kg
18	Potassium as K		13.4 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		3.04
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		2.63 mg/kg
23	Iron as Fe		5.77 mg/kg
24	Cation Exchange Capacity	USEPA 9080 – 1986	40.6 meq/100g of soil

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 (Keeavan Y)


End of Report
 Page 2 of 2

Authorized Signatory


Santhosh Kumar .A
 Managing Director

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report.
 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client.
 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/N14814	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360N14814
Sample Description	Soil 5	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 KG	Sample Received On	25-12-2024
Sample Condition	Good	Test Commenced On	25-12-2024
Sampling Location	Mettucolony		

S.No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.62
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	388 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	47.5 %
04	Bulk Density	By Cylindrical Method	1.05 g/cm ³
05	Porosity	By Gravimetric Method	46.8 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	43.2 mg/kg
07	Magnesium as Mg		21.1 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	21.5 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0007 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	4.16 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	412 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.05 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.19 %

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(Resavan Y)

Continued.....
Page 1 of 2

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A. J.
Santhosh Kumar .A
Managing Director

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/N14814	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/N14814
Sample Description	Soil 5	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 KG	Sample Received On	25-12-2024
Sample Condition	Good	Test Commenced On	25-12-2024
Sampling Location	Mettucolony		

S.No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	27.2 %
	Sand		31.8 %
	Silt		41.0 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C – 2000	19.8 mg/kg
16	Zinc as Zn		5.43 mg/kg
17	Boron as B		5.97 mg/kg
18	Potassium as K		11.4 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		3.88
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		2.17 mg/kg
23	Iron as Fe		8.89 mg/kg
24	Cation Exchange Capacity	USEPA 9080 – 1986	36.54 meq/100g of soil

Verified by

(Signature)
(Keevan Y)



*****End of Report*****
Page 2 of 2

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(Signature)
Santhosh Kumar .A
Managing Director

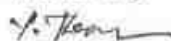
Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client.
 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/N14815	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/N14815
Sample Description	Soil 6	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 KG	Sample Received On	25-12-2024
Sample Condition	Good	Test Commenced On	25-12-2024
Sampling Location	Panaiyur		

S.No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.11
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	586 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	48.7 %
04	Bulk Density	By Cylindrical Method	1.06 g/cm ³
05	Porosity	By Gravimetric Method	47.2 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	37.8 mg/kg
07	Magnesium as Mg		18.1 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	45.4 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0025 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	6.86 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	480.1 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.41 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.82 %

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(Resavan Y)

Continued.....

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Santhosh Kumar :A
Managing Director

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report.
3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client.
4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/N14815	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/N14815
Sample Description	Soil 6	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 KG	Sample Received On	25-12-2024
Sample Condition	Good	Test Commenced On	25-12-2024
Sampling Location	Panaiyur		

S.No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	32.2 %
	Sand		31.8 %
	Silt		36.0 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C – 2000	11.05 mg/kg
16	Zinc as Zn		3.83 mg/kg
17	Boron as B		1.66 mg/kg
18	Potassium as K		17.2 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		1.01
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		1.67 mg/kg
23	Iron as Fe		2.03 mg/kg
24	Cation Exchange Capacity	USEPA 9080 – 1986	37.1 meq/100g of soil

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J. K.
(Keevan Y)



*****End of Report*****
Page 2 of 2

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A-17
Santhosh Kumar .A
Managing Director

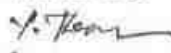
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TEST REPORT

Report No	EHS360/TR/2024-25/N14816	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/N14816
Sample Description	Surface Water (SW-1)	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 Litres	Sample Received On	25-12-2024
Sample Condition	Fit for Analysis	Test Commenced On	25-12-2024
Sampling Location	Varadapuram Eri		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical		
1	Colour	IS 3025 Part 4:1983	5 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.71
4	Conductivity @ 25°C	IS 3025 Part 14:2013	864 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	4.5 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	510 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	155.24 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	25.8 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	22.1 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	156 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	122 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	65 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.21 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.27 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	10.7 mg/l

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 (Resavan Y)


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 Page 1 of 2

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 Santhosh Kumar A
 Managing Director

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report.
 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client.
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TEST REPORT

Report No	EHS360/TR/2024-25/N14816	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/N14816
Sample Description	Surface Water (SW-1)	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 Litres	Sample Received On	25-12-2024
Sample Condition	Fit for Analysis	Test Commenced On	25-12-2024
Sampling Location	Varadapuram Eri		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	BOD @ 27°C for 3 days	IS 3025 Part 44:1993 (Reaff:2019)	12.4 mg/l
32	Chemical Oxygen Demand	IS 3025 Part 58:2006 (Reaff:2017)	40 mg/l
33	Dissolved Oxygen	IS 3025 Part 38:1989 (Reaff:2019)	5.1 mg/l
34	Barium as Ba	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL:0.05 mg/l)
35	Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Reaff. 2019)	1.75 mg/l
36	Sulphide as H ₂ S	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:0.01 mg/l)
37	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
38	Total Arsenic as As	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
39	Total Suspended Solids	IS 3025 Part 17 -1984 (Reaff:2017)	18.5 mg/l
Discipline: Biological		Group: Water	
40	Total Coliform	APHA 23rd Edn. 2017:9221B	550 MPN/100ml
41	Escherichia coli	APHA 23rd Edn. 2017:9221F	100 MPN/100ml

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(Keavan Y)



*****End of Report*****
Page 2 of 2

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A. J. Santhosh Kumar
Santhosh Kumar .A
Managing Director

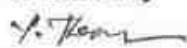
Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report.
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TEST REPORT

Report No	EHS360/TR/2024-25/N14817	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/N14817
Sample Description	Surface Water (SW-2)	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 Litres	Sample Received On	25-12-2024
Sample Condition	Fit for Analysis	Test Commenced On	25-12-2024
Sampling Location	Palar River		

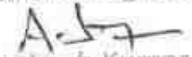
S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical		
1	Colour	IS 3025 Part 4:1983	10 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.28
4	Conductivity @ 25°C	IS 3025 Part 14:2013	796 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	2.9 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	469 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	170.35 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	32.81 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	21.52 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	144.5 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	95.5 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	64.3 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.11 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.26 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	9.05 mg/l

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 (Resavan Y)


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 Page 1 of 2

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 Santhosh Kumar A.
 Managing Director

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report.
 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client.
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TEST REPORT

Report No	EHS360/TR/2024-25/N14817	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/N14817
Sample Description	Surface Water (SW-2)	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 Litres	Sample Received On	25-12-2024
Sample Condition	Fit for Analysis	Test Commenced On	25-12-2024
Sampling Location	Palar River		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	BOD @ 27°C for 3 days	IS 3025 Part 44:1993 (Reaff:2019)	8.55 mg/l
32	Chemical Oxygen Demand	IS 3025 Part 58:2006 (Reaff:2017)	30 mg/l
33	Dissolved Oxygen	IS 3025 Part 38:1989 (Reaff:2019)	5.4 mg/l
34	Barium as Ba	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL:0.05 mg/l)
35	Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Reaff. 2019)	1.44 mg/l
36	Sulphide as H ₂ S	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:0.01 mg/l)
37	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
38	Total Arsenic as As	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
39	Total Suspended Solids	IS 3025 Part 17 -1984 (Reaff:2017)	20.1 mg/l
Discipline: Biological		Group: Water	
40	Total Coliform	APHA 23 rd Edn. 2017:9221B	490 MPN/100ml
41	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	130 MPN/100ml

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(Keevan Y)



*****End of Report*****
Page 2 of 2

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A. J.
Santhosh Kumar .A
Managing Director

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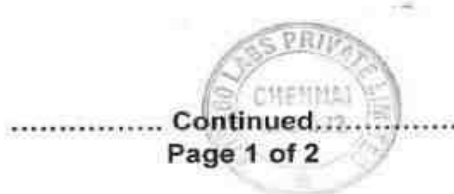
TEST REPORT

Report No	EHS360/TR/2024-25/N14818	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/N14818
Sample Description	Ground Water (WW-1)	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 Litres	Sample Received On	25-12-2024
Sample Condition	Fit for Analysis	Test Commenced On	25-12-2024
Near Project Area	Near Project Area		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical	Group: Water	
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.74
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	932 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	1.1 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	550 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	187.6 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	35.5 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	24.1 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	199.5 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	111.2 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	81.5 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.19 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.27 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	5.12 mg/l

Verified by

(Resavan Y)



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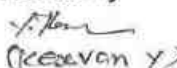
A. J. A.
 Santhosh Kumar A.
 Managing Director

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report.
 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client.
 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

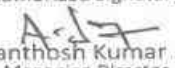
TEST REPORT

Report No	EHS360/TR/2024-25/N14818	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/N14818
Sample Description	Ground Water (WW-1)	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 Litres	Sample Received On	25-12-2024
Sample Condition	Fit for Analysis	Test Commenced On	25-12-2024
Sampling Location	Near Project Area		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
Discipline: Biological		Group: Water	
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	180 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

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 (Keeavan Y)


 *****End of Report*****
 Page 2 of 2

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 Santhosh Kumar .A
 Managing Director

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

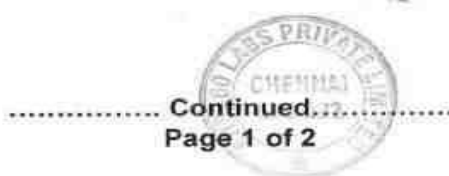
TEST REPORT

Report No	EHS360/TR/2024-25/N14819	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/N14819
Sample Description	Ground Water (WW-2)	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 Litres	Sample Received On	25-12-2024
Sample Condition	Fit for Analysis	Test Commenced On	25-12-2024
Sampling Location	Kolathancheri		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical	Group: Water	
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.77
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	888 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	1.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	524 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	177.17 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	34.1 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	22.4 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	150.3 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	121 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	88.62 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.24 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.18 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	6.7 mg/l

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(Resavan Y)



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A.S.
 Santhosh Kumar .A
 Managing Director

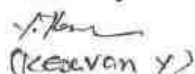
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TEST REPORT

Report No	EHS360/TR/2024-25/N14819	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/N14819
Sample Description	Ground Water (WW-2)	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 Litres	Sample Received On	25-12-2024
Sample Condition	Fit for Analysis	Test Commenced On	25-12-2024
Sampling Location	Kolathancheri		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
Discipline: Biological		Group: Water	
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	80 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

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(Keavan Y)


*****End of Report*****
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Santhosh Kumar A.
Managing Director

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TEST REPORT

Report No	EHS360/TR/2024-25/N14820	Report Date	31-12-2024
Site Location	S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/N14820
Sample Description	Ground Water (BW-1)	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 Litres	Sample Received On	25-12-2024
Sample Condition	Fit for Analysis	Test Commenced On	25-12-2024
Sampling Location	Mettucolony		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical	Group: Water	
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	6.99
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	886 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	1.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	523 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	167.87 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	30.2 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	22.5 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	180 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	120.2 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	61 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.27 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.34 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	7.23 mg/l

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A. Kumar
(Resavan Y)Continued.....
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A. Kumar
Santhosh Kumar A
Managing Director

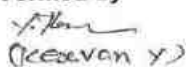
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TEST REPORT

Report No	EHS360/TR/2024-25/N14820	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 & 10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/N14820
Sample Description	Ground Water (BW-1)	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 Litres	Sample Received On	25-12-2024
Sample Condition	Fit for Analysis	Test Commenced On	25-12-2024
Sampling Location	Mettucolony		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	Group: Water	
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	112 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

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***** End of Report *****
Page 2 of 2

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Santhosh Kumar .A
Managing Director

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TEST REPORT

Report No	EHS360/TR/2024-25/N14821	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/N14821
Sample Description	Ground Water (BW-2)	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 Litres	Sample Received On	25-12-2024
Sample Condition	Fit for Analysis	Test Commenced On	25-12-2024
Sampling Location	Panaiyur		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical	Group: Water	
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.43
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	1011 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	1 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	597 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	198.73 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	34.5 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	27.4 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	184 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	155 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	71.2 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.26 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.29 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	6.15 mg/l

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 (Resavan Y)


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 Page 1 of 2

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 Santhosh Kumar A.
 Managing Director

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TEST REPORT

Report No	EHS360/TR/2024-25/N14821	Report Date	31-12-2024
Site Location	M/s Thiru.M.Antony Gomez S/o. Mariadoss S.F.Nos. 76/15A,15B,15C3,16A,77/5,6,7,9 &10 Pazhayaseevaram-B Village, Walajabad Taluk, Kanchipuram District Extent: 3.63.5 Ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/N14821
Sample Description	Ground Water (BW-2)	Sample Collected Date	25-12-2024
Qty. of Sample Received	2 Litres	Sample Received On	25-12-2024
Sample Condition	Fit for Analysis	Test Commenced On	25-12-2024
Sampling Location	Panaiyur		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	Group: Water	
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	170 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

Verified by

J. K. (Kevin Y.)



*End of Report
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Authorized Signatory

A-17
Santhosh Kumar .A
Managing Director

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.



QUALITY COUNCIL
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National Accreditation Board for Education and Training



Certificate of Accreditation

Geo Exploration & Mining Solutions, Salem

No. 17, Advaitha Ashram Road, Fairlands, Salem – 636 004, Tamilnadu, India.

The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –

S.No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals opencast only	1	1 (a) (i)	A
2	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes	31	7 (c)	B
3	Building and construction projects	38	8(a)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated Jan 06, 2023 and posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/23/2684 dated Feb 20, 2023. The accreditation needs to be renewed before the expiry date by Geo Exploration & Mining Solutions, Salem following due process of assessment.

Sr. Director, NABET
Dated: Feb 20, 2023

Certificate No.
NABET/EIA/2225/RA 0276

Valid up to
August 06, 2025

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to the QCI-NABET website.

