

ANNEXURE

SRIMOOLAKARAI ROUGH STONE AND GRAVEL QUARRIES

Srimoolakarai Village, Srivaikuntam Taluk, Thoothukudi
District, Tamil Nadu State

ToR obtained vide

Lr.No. SEIAA-TN.F.No.9287/SEAC/ToR-1236/2022 Dated 29.08.2022

EXTENT = 2.99.0ha

Project Proponent

S.Nos	Name of Proposed Proponent	S.F. Nos & Village Extent
1	Thiru. Sri Nainar Balaji, S/o. Nainar Nagenthran, No. 18A, 23rd Cross Street, Maharajanagar, Palayamkottai, Tirunelveli District – 627 011.	213 (P) & 214 (P) Srimoolakarai 2.99.0ha

LIST OF ANNEXURES

Annexure No	DESCRIPTION	PAGE NO
I	COPY OF TERMS OF REFERENCE	1 - 22
II	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	23-25
III	COPY OF MINE PLAN APPROVED LETTER	26-28
IV	COPY OF APPROVED MINING PLAN	29-107
V	COPY OF BASE LINE MONITORING DATA	108-137
VI	COPY OF NABET CERTIFICATE	138



THIRU.DEEPAK S.BILGI, I.F.S.
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY-TAMILNADU

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TERMS OF REFERENCE (ToR)

Lr No.SEIAA-TN/F.No.9287/SEAC/ToR-1236/2022 Dated:29.08.2022

To

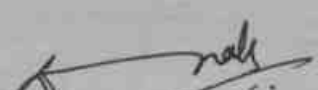
Thiru. Sri Nainar Balaji
S/o. Nainar Nagentharan
No. 18A, 23rd Cross Street
Maharajanagar
Palayamkottai
Tirunelveli – 627011

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for the Proposed Rough Stone & Gravel quarry Lease over an extent of 2.99.0 Ha at S.F.No. 213(P) & 214(P) in Srimalakur Village, Srivaikuntam Taluk, Thoothukudi District, Tamil Nadu by. Thiru. Sri Nainar Balaji - 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/77512/2022 dated.31.05.2022.
 2. Your application submitted for Terms of Reference dated: 02.06.2022
 3. Minutes of the 301st Meeting of SEAC held on 06.08.2022
 4. Minutes of the 546th meeting of Authority held on 29.08.2022.

Kindly refer to your proposal submitted to the State Level Impact Assessment Authority for Terms of Reference.


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The proponent, Thiru. Sri Nainar Balaji has submitted application for ToR, in Form-I, Pre-Feasibility report for the proposed Rough Stone & Gravel quarry lease over an extent of 2.99.0 Ha at S.F.Nos. 213(P) & 214(P), Srimoolakarai Village, Srivaikuntam Taluk, Thoothukudi District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

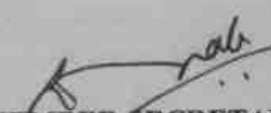
The proposal was placed in 301st SEAC Meeting held on 06.08.2022.

The SEAC noted the following:

1. The project proponent, Thiru. Sri Nainar Balaji has applied for Terms of Reference for the proposed Rough stone & Gravel quarry lease over an extent of 2.99.0 at S.F.Nos. 213(P) & 214(P) of Srimoolakarai Village, Srivaikuntam Taluk, Thoothukudi District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) "Mining of Minerals Projects" of the Schedule to the EIA Notification, 2006.
3. As per the mining plan, the lease period is for 5 years. The mining plan is for 5 years. The production for 5 years not to exceed 5,50,220 cu.m of rough stone and 50,498 cu.m of gravel with an ultimate depth of 43m below ground level.

Based on the presentation made by the proponent, SEAC recommended to grant of Terms of Reference (TOR) with Public Hearing subject to the following TORs, in addition to the standard terms of reference for EIA study for non-coal mining projects and details issued by the MOEF & CC to be included in EIA/EMP Report:

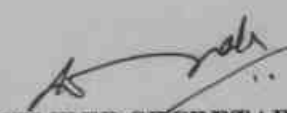
1. The PP shall furnish the letter received from DFO concerned stating the proximity details of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site
2. The proposed site is located within 5km from Vallanadu Reserve Forest/ Wild Life Sanctuary, hence the PP shall prepare appropriate conservation measures at a cost of Rs. 10 lakh in consultation with the DFO, Vallanadu, as a part of EIA report.
3. Detailed survey of temples situated in the vicinity of the project site.
4. The PP shall carry out Bio diversity study through reputed institution and the same shall be included in EIA Report.


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5. Detailed survey of permanent structures located within 2 Km from the project site shall be included in the EIA report.
6. 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 prepare and submit an 'Action Plan' for carrying out the realignment of the benches in the proposed quarry lease after it is approved by the concerned Asst. Director of Geology and Mining during the time of appraisal for obtaining the EC.
7. The Proponent shall submit a conceptual 'Slope Stability Assessment' 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.
8. 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.
9. 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.
10. 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.
11. 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,
 - a. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
 - b. Quantity of minerals mined out.
 - c. Highest production achieved in any one year
 - d. Detail of approved depth of mining.
 - e. Actual depth of the mining achieved earlier.
 - f. Name of the person already mined in that leases area.
 - g. If EC and CTO already obtained, the copy of the same shall be submitted.


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- h. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
12. 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).
13. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,
14. 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.
15. 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.
16. 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 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.
17. The Project Proponent shall conduct the 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) 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.
18. 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.
19. The Proponent shall carry out the Cumulative impact study due to mining operations carried


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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.

20. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
21. 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.
22. 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.
23. 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.
24. 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.
25. Impact on local transport infrastructure due to the Project should be indicated.
26. 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.
27. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
28. Public Hearing points raised and commitments of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be

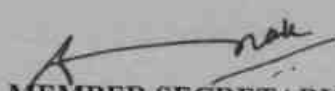

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- provided and also incorporated in the final EIA/EMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.
29. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.
30. The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.
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 eco-friendly 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.


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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.


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Appendix -I
List of Native Trees Suggested for Planting

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Aegle marmelos</i>	Vilvam	விலவம்
2	<i>Adenanthera pavonina</i>	Manjadi	மஞ்சாடி, ஆனைக்குன்றிமணி
3	<i>Albizia lebbek</i>	Vaagai	வாகை
4	<i>Albizia amara</i>	Usil	உசில்
5	<i>Bauhinia purpurea</i>	Mantharai	மந்தாரை
6	<i>Bauhinia racemosa</i>	Aathi	ஆத்தி
7	<i>Bauhinia tomentosa</i>	Iruvathi	இருவாத்தி
8	<i>Buchanania axillaris</i>	Kattuma	காட்டுமா
9	<i>Borassus flabellifer</i>	Panai	பனை
10	<i>Butea monosperma</i>	Murukkamaram	முருக்கமரம்
11	<i>Bobax ceiba</i>	Ilavu, Sevilavu	இலவு
12	<i>Calophyllum inophyllum</i>	Punnai	புன்னை
13	<i>Cassia fistula</i>	Sarakondrai	சரக்கொன்றை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கொன்றை
15	<i>Chloroxylon sweetenia</i>	Purasamaram	புரசு மரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Manjallavu	கோங்கு, மஞ்சள் இலவு
17	<i>Cordia dichotoma</i>	Naruvuli	நருவூலி
18	<i>Creteva adansonii</i>	Mavalingum	மாவிளங்கம்
19	<i>Dillenia indica</i>	Uva, Uzha	உசா
20	<i>Dillenia pentagyna</i>	SiruUva, Sitruzha	சிறு உசா
21	<i>Diospyro ebenum</i>	Karungali	கருங்காலி
22	<i>Diospyro schloroxylon</i>	Vaganai	வாகனை
23	<i>Ficus amplissima</i>	Kallitchi	கல் இச்சி
24	<i>Hibiscus tiliaceou</i>	Aatrupoovarasu	ஆற்றுப்பூவரசு
25	<i>Hardwickia binata</i>	Aacha	ஆச்சா
26	<i>Holoptelia integrifolia</i>	Aayili	ஆயில் மரம், ஆயில்
27	<i>Lannea coromandelica</i>	Odhiam	ஒதியம்
28	<i>Lagerstroemia speciosa</i>	Poo Marudhu	பூ மருது
29	<i>Lepisanthus tetraphylla</i>	Neikottaimaram	நெய் கொட்டை மரம்
30	<i>Limonia acidissima</i>	Vila maram	விலை மரம்
31	<i>Litsea glutinos</i>	Pisinattai	அரம்பா, பிசினட்டை
32	<i>Madhuca longifolia</i>	Illuppai	இலுப்பை
33	<i>Manilkara hexandra</i>	UlakkaiPaalai	உலக்கை பாலை
34	<i>Mimusops elengi</i>	Magizhamaram	மகிழ்மரம்
35	<i>Mitragyna parvifolia</i>	Kadambu	கடம்பு
36	<i>Morinda pubescens</i>	Nuna	நுணா
37	<i>Morinda citrifolia</i>	Vellai Nuna	வெள்ளை நுணா
38	<i>Phoenix sylvestre</i>	Eachai	எச்சமரம்
39	<i>Pongamia pinnat</i>	Pungam	புங்கம்

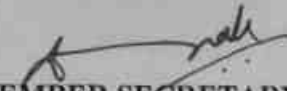

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40	<i>Premna mollissima</i>	Muravai	முல்லை
41	<i>Premna serratifolia</i>	Narumunai	நறு முல்லை
42	<i>Premna tomentosa</i>	Malipoovarasu	மலை புலக
43	<i>Prosopis cinerea</i>	Vanni maram	வண்ணி மரம்
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Vennangu, Tada	வெண்ணங்கு
46	<i>Pterospermum xylocarpum</i>	Polavu	புலவு
47	<i>Putranjiva roxburghii</i>	Karpala	கற்பலா
48	<i>Salvadora persica</i>	Ugai Maram	உகை மரம்
49	<i>Sapindus emarginatus</i>	Manipungam, Soopukai	மணிபுங்கம் சோபுகை
50	<i>Saraca asoca</i>	Asoca	அசோகா
51	<i>Strobilus asper</i>	Piray maram	பிராய் மரம்
52	<i>Strychnos nuxvomica</i>	Yetti	யெட்டி
53	<i>Strychnos potatorum</i>	Therthang Kottai	தேத்தாங் கொட்டை
54	<i>Syzygium cumini</i>	Naval	நாவல்
55	<i>Terminalia belleric</i>	Thandri	தாண்டரி
56	<i>Terminalia arjuna</i>	Ven marudhu	வெண் மருது
57	<i>Toona ciliata</i>	Sandhara vembu	சத்தாங் வேம்பு
58	<i>Thespesia populnea</i>	Puvarasu	புவரசு
59	<i>Walsuratrifoliata</i>	valsura	வால்சுரா
60	<i>Wrightia tinctoria</i>	Veppalai	வேப்பலை
61	<i>Pithecellobium dulce</i>	Kodukkapuli	கொடுக்காப்பூர்

Discussion by SEIAA and the Remarks:-

The subject was placed in 546th authority meeting held on 29.08.2022. The authority noted that the subject was appraised in 301st SEAC meeting held on 06.08.2022. 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 in addition to the following conditions:

1. 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.
2. 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.


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3. 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.
4. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.
5. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
6. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
7. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
8. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
9. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
10. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.
11. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.
12. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.
13. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.
14. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.
15. The project proponent shall study and furnish the details on potential fragmentation impact of natural environment, by the activities.


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16. 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.
17. 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.
18. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
19. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
 - a) Soil health & bio-diversity.
 - b) Climate change leading to Droughts, Floods etc.
 - c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
 - d) Possibilities of water contamination and impact on aquatic ecosystem health.
 - e) Agriculture, Forestry & Traditional practices.
 - f) Hydrothermal/Geothermal effect due to destruction in the Environment.
 - g) Bio-geochemical processes and its foot prints including environmental stress.
 - h) Sediment geochemistry in the surface streams.
20. 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.
21. 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 &


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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.

22. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.

23. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.

24. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.

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.


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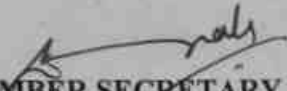
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation 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.


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- 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.


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- 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.


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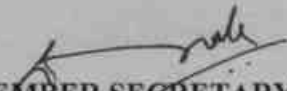


- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
- 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water 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


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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


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SEIAA-TN



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.

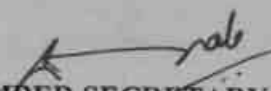

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- j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly 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.


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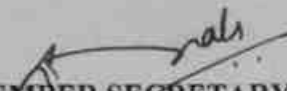
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of is acquisition, nearby (in 2-3 km.) water body, population, with in 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.


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In this connection, the project proponent has to furnish the action plan.

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

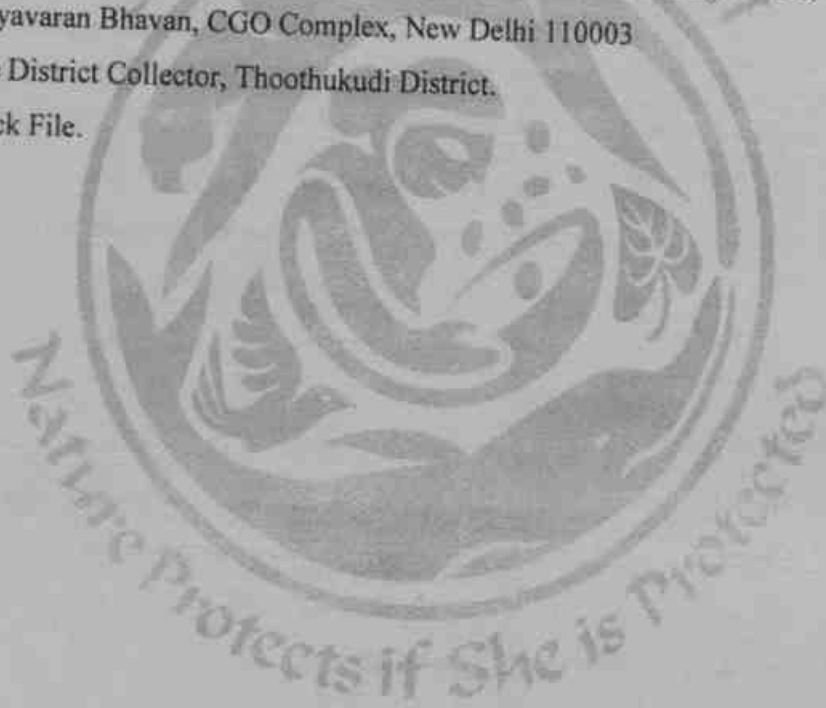
- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, 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.


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Copy to:

1. The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
4. The APCCF (C), Regional Office, MoEF& CC (SZ), 34, HEPC Building, 1st& 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai -34.
5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi 110003
6. The District Collector, Thoothukudi District.
7. Stock File.



Department of Geology and Mining

From

Dr. S. Suhatharahima, M.Sc., Ph.D.,
Assistant Geologist/
Assistant Director, (i/c)
Dept.of Geology and Mining,
Thoothukudi

To

Thiru. Nainar Balaji,
S/o. Nainar Nagenthiran,
No.18A, 23rd Cross Street,
Maharajanagar, Palayamkottai,
Tirunelveli 627 011.

Roc.No. G.M.1/17/2021 Dated: .03.2022

Sub: Mines and Minerals – Minor Minerals – Roughstone and Gravel – Thoothukudi District - Srivaikundam Taluk - Srimoolakarai Village - SF.Nos. 213(P) & 214 (P) over an extent of 2.99.0 Hects out of 5.96.0 Hects – Quarry lease application preferred by Thiru. Nainar Balaji –Mining Plan approved – Details of quarries situated within 500mts radial distance furnished - Regarding.

Ref: 1. Application of Thiru. Nainar Balaji dated 18.01.2021
2. This office Precise area communication letter Roc. No.G.M.1/17/2021 dated 16.02.2022
3. The applicant letter dated 24.02.2022.
4. The Village Administrative Officer, Srimoolakarai, letter dated 07.03.2022.

In the reference 1st cited above one Thiru. Nainar Balaji, S/o. Nainar Nagenthiran, No.18A, 23rd Cross Street, Maharajanagar, Palayamkottai, Tirunelveli has applied for grant of quarry lease for quarrying 'Rough stone and Gravel' over an extent of 2.99.0 Hects out of 5.96.0 Hects of patta land in SF.Nos. 213(P) & 214 (P) of Srimoolakarai Village, Srivaikundam Taluk under Rule of 19 of Tamil Nadu Minor mineral concession Rules,1959.

The District Collector, Thoothukudi has granted precise area communication for quarrying Rough Stone and Gravel over an extent of 2.99.0 Hects out of 5.96.0 Hects of patta land in SF.Nos. 213(P) & 214 (P) of Srimoolakarai Village, Srivaikundam Taluk for a period of five years vide reference 2nd cited.

In the reference 3rd cited, the applicant has requested the details of existing, abandoned and proposed quarries situated within 500mts from the applied area and the details are furnished below.

Existing quarries

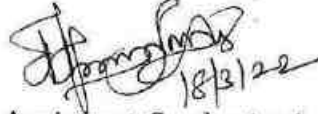
Sl. No	Name and address of the Lessee	Quarry location	Extent in Hect.	File No & Lease period
1.	Thiru.K. Kathir Kamaraj, M/s. Tamraparani enterprises & Realty Pvt. Ltd.,	Srimoolakarai Village, Srivaikundam Taluk	4.91.0	G.M.1/10/2013 Date : 08.02.2021 15.02.2021 to 14.02.2027

Abandoned quarries

S.No	Name and address of the lessee	Quarry location	Extent in Hect.	File No & Lease period
-NIL-				

Proposed quarries

S.No	Name and address of the lessee	Quarry location	Extent in Hectare
1.	Thiru. Nainar Balaji, S/o. Nainar Nagenthiran, No.18A, 23 rd Cross Street, Maharajanagar, Palayamkottai, Tirunelveli 627 011.	Srimoolakarai Village, Srivaikundam Taluk SF.Nos. 213(P) & 214 (P)	2.99.0


Assistant Geologist/
Assistant Director, (i/c)
Dept.of Geology and Mining,
Thoothukudi

From

Dr. S. Suhatha Rahima, M.Sc., PhD.,
Assistant Geologist/
Assistant Director (i/c),
Dept. of Geology and Mining,
Thoothukudi.

To

Thiru. Sri Nainar Balaji,
S/o. Nainar Nagendran,
18A, 23rd Cross Street,
Maharaja Nagar, Palayamkottai,
Tirunelveli District - 627 011.

Roc. No. G.M.1/17/2021 dated: 02.03.2022

Sir,

Sub: Mines and Minerals - Minor Mineral - Rough Stone and Gravel - Thoothukudi District - Srivaikundam Taluk - Srimoolakkarai Village - Patta land over an extent of 2.99.00 Hects bearing S.F.Nos. 213(P) & 214(P) - Quarry lease application preferred by Thiru. Sri Nainar Balaji - Precise area communicated - Draft Mining plan submitted - Approval accorded - Regarding.

- Ref: 1. Quarry lease application of Thiru. Sri Nainar Balaji dated : 18.01.2021
2. District Collector, Thoothukudi letter Rc.No. G.M.1/17/2021, dated: 16.02.2022.
3. Letter dated 24.02.2022 received from Thiru. Sri Nainar Balaji along with draft mining plan.

Thiru. Sri Nainar Balaji, S/o. Nainar Nagendran, Door No. 18A, 23rd Cross Street, Maharaja Nagar, Palayamkottai, Tirunelveli District - 627 011 has preferred an application dated: 18.01.2021 for the grant of quarry lease to quarry Rough Stone and Gravel in S.F.Nos. 213(P) & 214(P) of over an extent of 2.99.00 Hects of Srimoolakkarai village, Srivaikundam Taluk under Rule 19 of Tamil Nadu Minor Mineral Concession Rules, 1959.

2) Based on reports and recommendations of the Sub Collector, Thoothukudi and Assistant Geologist / Assistant Director (i/c) (Mines), Thoothukudi precise area was communicated by the District Collector to the applicant with a direction to submit mining plan as stipulated in rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959.

3) In the reference third cited, the applicant has submitted three copies of draft Mining plan prepared by the qualified person for approval. The draft Mining plan has been examined and verified with reference to the provisions laid down in Rule 36 and 41 of Tamil Nadu Minor Mineral concession Rules and the guidelines issued by the Commissioner of Geology and Mining vide letter Rc.No. 3868/LC/2012 dated. 19.11.2012 & 07.11.2014.

4) The scrutiny remarks on the draft Mining Plan are furnished below.

- a. The Rough Stone and Gravel quarry has been proposed to be operated for a period of five years.
- b. The Geological reserve in the subject area is assessed as 11,96,000 cubic meter of Rough Stone, 29,900 cubic meter of Weathered formation and 59,800 cubic meter of Gravel formation for the period of five years.
- c. The production of Mineable reserve is estimated as 5,50,220 cubic meter of Rough Stone, 23,350 cubic meter of Weathered formation and 50,498 cubic meter of Gravel with no Mining loss or reject materials for the period of five years.
- d. The depth of quarrying is proposed up to a depth 43m (2m Gravel + 1m Weathered formation + 40m Rough stone) for a period of five years below the ground level.
- e. Machineries like tractor mounted compressor attached with jack hammers, excavators are proposed for quarrying operation.
- f. No Archaeological / historical monuments with in a radial distance of 10 KM are reported.
- g. As per the Rule 111 of Metelliferous Mining Regulations 1961, the boundary barrier Zone of 7.5 meters is ear-marked as neutral zone.
- h. The plates including Mining lease plan (1:1,000), Surface cum Geological plan (1:1,000), Geological Section (1:1,000) Year wise Development & Production plan (1:1,000), Year wise Development & Production Sections (1:1,000) Conceptual/Progressive mine closure plan (1:1000), Environmental plan (1:10,000) & Mine layout plan and land use pattern (1:1,000) were verified with reference to the field evidences.

78

- i. The stipulations made in rule 36 of the Tamil Nadu Minor Mineral Concession Rules, 1959 are adhered in the draft Mining plan.
- j. The draft Mining plan is submitted within the prescribed time limit of 90 days from the date of receipt of the precise area communication letter.

In view of the above, as per the powers laid down in rule 41 of the Tamil Nadu Minor Mineral Concession Rules, 1959, the draft mining plan submitted by the applicant Thiru. Sri Nainar Balaji; in respect of proposed Rough Stone and Gravel quarry (Minor Mineral) for quarrying and transportation in S.F.Nos. 213(P) & 214(P) of over an extent of 2.99.00 Hects of Srimoolakkarai village, Srivaikundam Taluk is hereby approved subject to the following conditions and stipulations made in the governing Act and Rules.

- i) The Mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time.
- ii) The approval of the Mining plan does not in any way imply the approval of the Government in terms of any other provisions of the Tamil Nadu Minor Mineral Concession Rules, 1959.
- iii) The Mining plan is approved without prejudice to any of the orders or directions from any legal forums.
- iv) Quarrying shall be carried out scrupulously as per the Approved Mining plan.

Encl: 2 copies of Approved Mining Plan



Assistant Geologist/
Assistant Director (i/c),
Geology and Mining,
Thoothukudi



MINING PLAN AND PROGRESSIVE QUARRY CLOSURE PLAN FOR SRIMOOLAKARAI ROUGH STONE AND GRAVEL QUARRY

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

Patta Lands / Lease Period = Five Years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT : 2.99.0ha ✓
S.F.NOS : 213 (P) & 214 (P) ✓
VILLAGE : SRIMOOLAKARAI ✓
TALUK : SRIVAIKUNTAM ✓
DISTRICT : THOOTHUKUDI ✓
STATE : TAMIL NADU ✓

FOR

APPLICANT

Thiru. Sri Nainar Balaji, ✓

S/o. Nainar Nagenthiran, ✓
No.18A, 23rd Cross Street, ✓
Maharajanagar, Palayamkottai, ✓
Tirunelveli District - 627 011, ✓
Tamil Nadu State. ✓

PREPARED BY

P. Viswanathan, M.Sc.,

Qualified Person

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Alagapuram, Salem District - 636 004.
Cell: +91 94422 78601 & 94433 56539.
E-mail: infogeoexploration@gmail.com



Sri Nainar Balaji,

S/o. Nainar Nagenthiran,

No.18A, 23rd Cross Street,

Maharajanagar, Palayamkottai,

Tirunelveli District – 627 011,

Tamil Nadu State.

CONSENT LETTER FROM APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Srimoolakarai Rough stone & Gravel Quarry in S.F.Nos.213 (P) & 214 (P) over an extent of 2.99.0ha of Patta lands in Srimoolakarai Village, Srivaikuntam Taluk, Thoothukudi District, Tamil Nadu State has been prepared by

P. Viswanathan, M.Sc.,

Qualified Person

I request to the Deputy Director / Assistant Director (i/c), Department of Geology and Mining, Thoothukudi District to make further correspondence regarding the modification of the Mining Plan with the said Qualified Person at his following address.

P. Viswanathan, M.Sc.,

Regd. Off. No. 17,

Advaita Ashram Road,

Alagapuram, Salem District – 636 004.

Cell: +91 94422 78601 & 94433 56539.

I hereby undertake that all the modifications, if any 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.

Signature of the Applicant

Sri Nainar Balaji

Place: Tirunelveli

Date: 17.02.2022



Sri Nainar Balaji,

S/o. Nainar Nagenthiran,

No.18A, 23rd Cross Street,

Maharajanagar, Palayamkottai,

Tirunelveli District – 627 011,

Tamil Nadu State.

DECLARATION OF THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Srimoolakarai Rough stone & Gravel Quarry in S.F.Nos.213 (P) & 214 (P) over an extent of 2.99.0ha of Patta lands in Srimoolakarai Village, Srivaikuntam Taluk, Thoothukudi District, Tamil Nadu State has been prepared in full consultation with me.

I have understood its contents and agree to implement the same in accordance with Laws, Rules and Act applicable to Quarry.

Signature of the Applicant

Sri Nainar Balaji

Place: Tirunelveli

Date: 17.02.2022



CERTIFICATE

Certified that I am, **P. Viswanathan, M.Sc.**, having an office at Regd. Off. No. 17, Advaita Ashram Road, Alagapuram, Salem District – 636 004, holding a Post Graduate Degree in Geology (M.Sc. Geology) from Periyar University, Salem and I worked in the field of Geology 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 am preparing this Mining Plan and Progressive Quarry Closure Plan in Respect of Srimoolakarai Rough stone & Gravel Quarry in S.F.Nos.213 (P) & 214 (P) over an extent of 2.99.0ha of Patta lands in Srimoolakarai Village, Srivaikuntam Taluk, Thoothukudi District, Tamil Nadu State for **Thiru. Sri Nainar Balaji**, S/o. Nainar Nagenthiran, No.18A, 23rd Cross Street, Maharajanagar, Palayamkottai, Tirunelveli District – 627 011, Tamil Nadu State. 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

P. Viswanathan, M.Sc.,

Place: Salem

Date: 19.02.2022



P. Viswanathan, M.Sc.,

Regd. Off. No. 17,

Advaita Ashram Road,

Alagapuram, Salem District – 636 004.

Cell: +91 94422 78601 & 94433 56539.

CERTIFICATE FROM THE QUALIFIED PERSON

This is to certify that the Provisions of under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Srimoolakarai Rough stone & Gravel Quarry in S.F.Nos.213 (P) & 214 (P) over an extent of 2.99.0ha of Patta lands in Srimoolakarai Village, Srivaikuntam Taluk, Thoothukudi District, Tamil Nadu State has been prepared for

Thiru. Sri Nainar Balaji,

S/o. Nainar Nagenthran,

No.18A, 23rd Cross Street,

Maharajanagar, Palayamkottai,

Tirunelveli District – 627 011,

Tamil Nadu State.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of the Deputy Director / Assistant Director (i/c), Department of Geology and Mining, Thoothukudi 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

P. Viswanathan, M.Sc.,

Place: Salem

Date: 19.02.2022



P. Viswanathan, M.Sc.,

Regd. Off. No. 17,

Advaita Ashram Road,

Alagapuram, Salem District – 636 004.

Cell: +91 94422 78601 & 94433 56539.

CERTIFICATE FROM THE QUALIFIED PERSON

Certified that the Provisions of Mines Act, Rules and Regulations and Orders made there under have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Srimoolakarai Rough stone & Gravel Quarry in S.F.Nos.213 (P) & 214 (P) over an extent of 2.99.0ha of Patta lands in Srimoolakarai Village, Srivaikuntam Taluk, Thoothukudi District, Tamil Nadu State has been prepared for

Thiru. Sri Nainar Balaji,

S/o. Nainar Nagenthiran,

No.18A, 23rd Cross Street,

Maharajanagar, Palayamkottai,

Tirunelveli District – 627 011,

Tamil Nadu State.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of Director General of Mines Safety (DGMS), 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

P. Viswanathan, M.Sc.,

Place: Salem

Date: 19.02.2022



LIST OF CONTENTS

S. No.	Description	Page No.
1.0	Introduction and Executive Summary	1
2.0	General Information	5
3.0	Location	6
	<u>PART-A</u>	
4.0	Geology and Mineral Reserves	8
5.0	Mining	11
6.0	Blasting	16
7.0	Mine Drainage	18
8.0	Other Permanent Structures	19
9.0	Employment Potential & Welfare Measures	21
	<u>PART-B</u>	
10.0	Environment Management Plan	23
11.0	Progressive Quarry Closure Plan	31
12.0	Any Other Details Intend to Furnish by the Applicant	38



LIST OF ANNEXURES

S. No.	Description	Annex. No.
1.	Copy of Precise Area Communication	I
2.	Copy of FMB	II
3.	Copy of Village Map	III
4.	Copy of Patta	IV
5.	Copy of Adangal	V
6.	Copy of A-Register	VI
7.	Copy of Consent from the Pattadar	VII
8.	Copy of ID Proof	VIII
9.	Copy of Educational Certificate of Qualified Person	IX
10.	Copy of Experience Certificate of Qualified Person	X



LIST OF PLATES

S. No.	Description	Plate No.
1.	Location Plan	I
2.	Topo sketch of Quarry Lease Applied Area for 10km Radius	I-A
3.	Environmental & Land use Plan	I-B
4.	Route Map	I-C
5.	Quarry Lease Plan & Surface Plan	II
6.	Topography, Geological Plan, Year wise Development & Production Plan & Sections	III
7.	Progressive Quarry Closure Plan & Sections	IV
8.	Conceptual Plan & Sections	V



**MINING PLAN AND PROGRESSIVE QUARRY CLOSURE PLAN FOR
SRIMOOLAKARAI ROUGH STONE AND GRAVEL QUARRY OVER AN
EXTENT OF 2.99.0ha IN SRIMOOLAKARAI VILLAGE, SRIVAIKUNTAM
TALUK, THOOTHUKUDI DISTRICT, TAMIL NADU STATE.**

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

1.0 INTRODUCTION AND EXECUTIVE SUMMARY

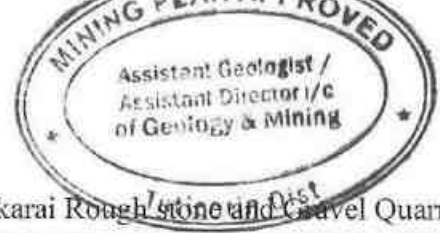
This Mining Plan and Environment Management Plan are prepared for **Thiru. Sri Nainar Balaji**, S/o. Nainar Nagenthiran, residing at No.18A, 23rd Cross Street, Maharajanagar, Palayamkottai, Tirunelveli District – 627 011, Tamil Nadu State.

The applicant applied for Rough stone and Gravel quarry over an extent of 2.99.0ha of Patta lands in S.F.Nos.213 (P) & 214 (P) of Srimoolakarai Village, Srivaiikuntam Taluk, Thoothukudi District, Tamil Nadu State under Rules 19 & 20 of Tamil Nadu Minor Mineral Concession Rules, 1959.

The application was processed by the Deputy Director / Assistant Director (i/c), Department of Geology and Mining, Thoothukudi District and passed a Precise Area Communication letter vide **Rc.No.G.M.1/17/2021, Dated: 16.02.2022** to submit Mining Plan for the approval in Department of Geology and Mining, Thoothukudi District and obtain Environmental Clearance from the SEIAA, Chennai, Tamil Nadu State, with the conditions to provide:

1. Quarrying should be left a safety distance of 7.5m to the adjacent Patta lands.
2. Adequate safety distance should be provided for nearby quarries.
3. Quarry waste should be stored within the lease area.
4. Explosives must be used in accordance with the rules so as not to cause harm.
5. Proof of mining and environmental clearance certificate must be submitted prior to the issuance of the lease license.

(Please refer Annexure No. I).



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 irrespective of sizes of the lease would hence forth require prior environmental clearance mining project within the lease applied area up to less than 100ha including projects or minor mineral with lease applied area less then 5ha would be treated as category B as defined in the EIA notification 2006 and will be considered by the state notified by MoEF as prescribed procedure under EIA notification 2006.

In the above circumstances the applicant through his consultant is hereby preparing the Mining Plan, Environmental Management Plan and Progressive Quarry Closure Plan for approval and subsequent submission of Form-I, Form-IM and Pre feasibility report to obtain environmental clearance from the SELAA, Chennai, Tamil Nadu State, Rough stone and Gravel quarry. This mining plan is prepared by considering the Rules 41 & 42 as Amended in Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the EIA Notification 2006 and its subsequent Amendment and judgments till 24.01.2019.

Short Notes of Mining Plan:

- a. Village Panchayat - Srimoolakarai
- b. Panchayat Union - Srivaikuntam
- c. The Geological Resources are $11,96,000\text{m}^3$ of Rough stone, $29,900\text{m}^3$ of Weathered formation and $59,800\text{m}^3$ of Gravel formation in the entire area.
- d. The Total Mineable Reserves are $5,50,220\text{m}^3$ of Rough stone, $23,350\text{m}^3$ of Weathered formation and $50,498\text{m}^3$ of Gravel in the entire area.
- e. The proposed quantity of reserves/ (level of production) to be mined are $5,50,220\text{m}^3$ of Rough stone for five years and $23,350\text{m}^3$ of Weathered formation and $50,498\text{m}^3$ of Gravel for three years in the entire area.
- f. Total extent of the lease applied area = 2.99.0ha
- g. Topography of the area = The area exhibits plain topography
- h. Proposed Depth of mining = 43m (2m Gravel + 1m Weathered formation + 40m Rough stone) below ground level
- i. Mining Plan Period = Five years
- j. It is a fresh lease application.



- k. Method of mining / level of mechanization.
Opencast mechanized method, the quarry operation involves shallow Jack hammer drilling, slurry blasting.
- l. Type of machineries proposed in the quarrying operation is given below:
Excavators attached with rock breaker (Rental Basis).
Jack hammer, Compressor (Diesel drive) (4 Jack hammer capacity) (Rental Basis).
- m. No trees will be uprooted due to this quarrying operation.
- n. The approach road from the main road to quarry road will be constructed and maintained in a good condition for the haulage of Rough stone and Gravel.
- o. There is No Export of this Rough stone and Gravel.
- p. 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, places of worships is marked and enclosed as Plate Nos. IA & IB.
- q. The lease applied area is about 2.99.0ha bounded by seven corners; the corners are designated as 1-7 Clockwise from the Western corner the Co – ordinates for the all the corners are clearly marked in the Quarry Lease and Surface Plan enclosed as Plate No. II.
- r. 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 and IV.
- s. General conditions will not be applicable for the proposed area. The area applied for lease is 10Km away from the,
- i) *Interstate Boundary,*
 - ii) *Critically polluted areas as identified by CPCB,*
 - iii) *Notified Eco sensitive areas.*
- t. Vallanadu Black Buck is situated about 5m on the Northwestern side of the lease applied area.
- u. There is no waste anticipated during this quarry operation, hence waste dump is not proposed in the lease applied area.
- v. Around 63 employees are deploying in the quarrying operation.
- w. Total Cost of the project is about **Rs.86,65,000/-**.



Mining Plan and PQCP

Srimoolakarai Rough stone and Gravel Quarry

x. Infrastructures around the lease applied area given below in the table:

TABLE-1

Particulars	Location	Approximate aerial distance and direction from lease applied area
Nearest Post Office	Patemangaram	2km – Southeast
Nearest School	Patemangaram	2km – Southeast
Nearest Dispensary	Srivaikuntam	5km – Southwest
Nearest Town	Srivaikuntam	5km – Southwest
Nearest Police Station	Srivaikuntam	5km – Southwest
Nearest Hospital	Srivaikuntam	5km – Southwest
Nearest D.S.P. Office	Srivaikuntam	5km – Southwest
Nearest Railway Station	Srivaikuntam	5km – Southwest
Nearest Airport	Thiruvananthapuram	111km – Southwest
Nearest Seaport	Thoothukudi	24km – Northeast
District Head quarters	Thoothukudi	24km – Northeast

**2.0 GENERAL INFORMATION**

2.1 a) Name of the Applicant : Thiru. Sri Nainar Balaji,
S/o. Nainar Nagenthiran,

b) Address of the Applicant (With Phone No and Aadhaar No)

Address : No.18A, 23rd Cross Street,
Maharajanagar, Palayamkottai,
Tirunelveli District.

Pin Code : 627 011

Mobile No : +91 94898 94444

Aadhaar No : 5125 9795 7709 (Annexure No. VIII)

Email ID : srinainarbalaji@gmail.com

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

The applicant is an Individual.

2.2 a) Mineral which the Applicant intends to mine:

The Applicant intends to quarry Rough stone and Gravel only.

b) Precise area communication letter details received from the Competent Authority of the Government:

The precise area communication letter was received from the Deputy Director / Assistant Director (i/c), Department of Geology and Mining, Thoothukudi District vide **Re.No.G.M.1/17/2021, Dated: 16.02.2022** to submit approved mining plan and to obtain Environmental Clearance from the SEIAA, Chennai, Tamil Nadu State.

c) Period of permission / lease to be granted:

Five Years.

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

Name : **P. Viswanathan, M.Sc.,**
Qualified Person

Address : Regd. Off. No. 17,
Advaita Ashram Road,
Alagapuram, Salem District – 636 004.

Telephone : 0427- 2431989 (Office)

Cell No : +91 94422 78601 & 94433 56539

Email : infogeoexploration@gmail.com

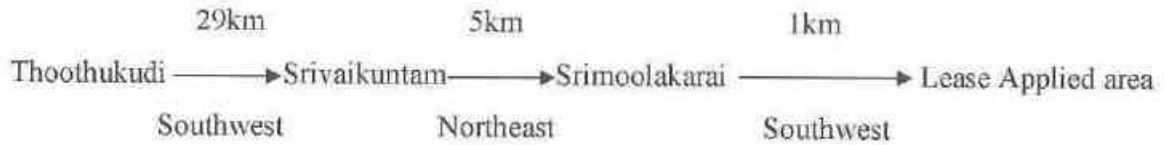
(Refer Annexure Nos. IX and X).



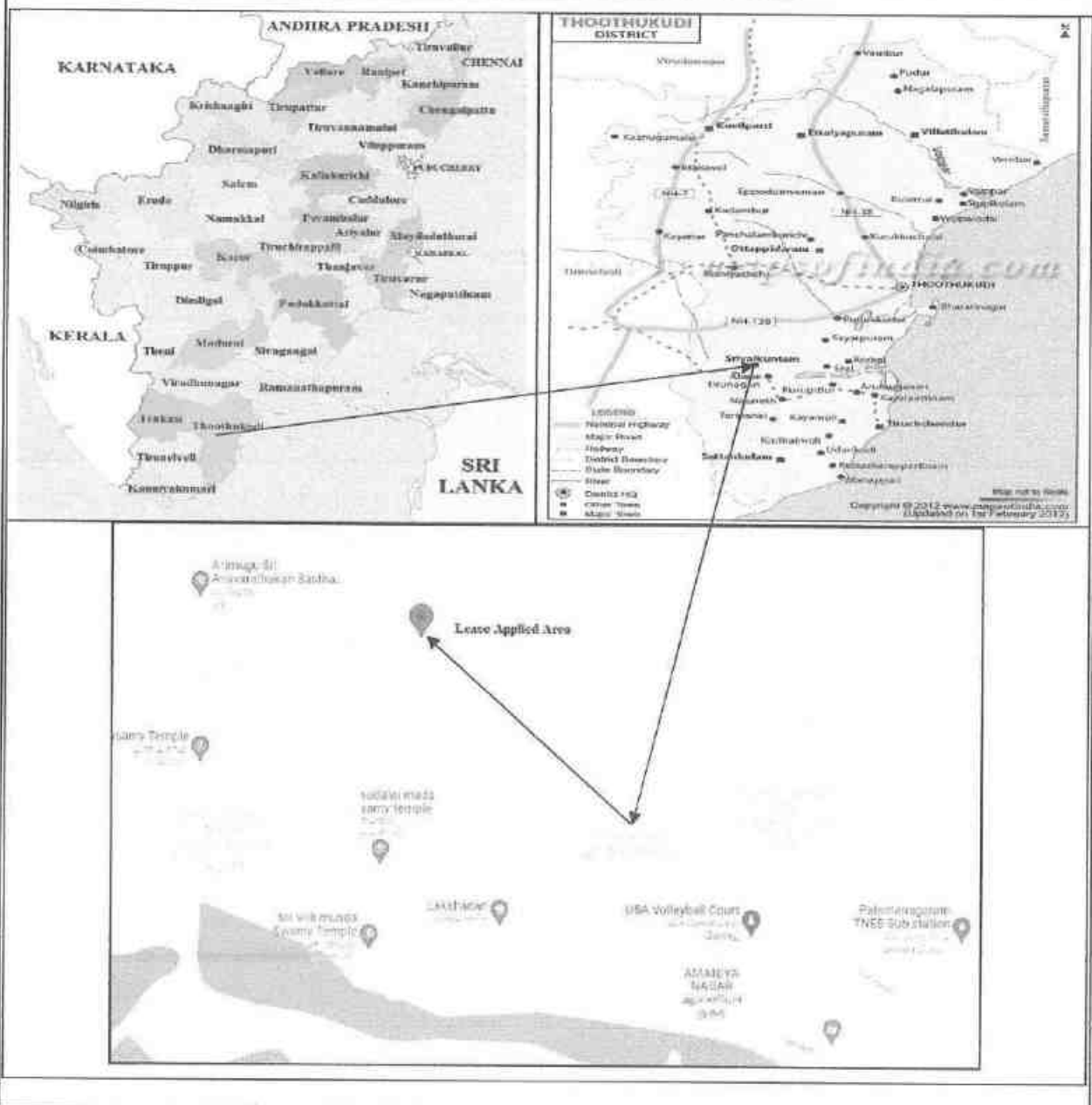
3.0 LOCATION

a) Details of the area with location map:

The lease applied area is about 24km Southwestern side of Thoothukudi town and 5km Northeastern side of Srivaikuntam town, the lease applied area located along Srimoolakarai Village at a distance of 1km Northwestern side.



Location Map of the Lease Applied Area



94



TABLE-2

District	Taluk	Village	S.F. Nos.	Lease Applied Area in ha.	Patta No.
Thoothukudi	Srivaikuntam	Srimoolakarai	213 (P)	0.57.0	781
			214 (P)	2.42.0	
Total Extent				2.99.0	

b) **Classification of the area (Ryotwari/ Poramboke / others):**

It is a Patta lands (Barren land) which is not fit for vegetation/ Cultivation.

c) **Ownership / Occupancy of the applied area (surface right):**

It is a Patta lands, Registered in the name of Thiru. T. Aravinthkumar, vide Patta No. 781. The applicant has obtained consent from the joint pattadars. Refer Annexure Nos. IV & VII.

d) **Topo sheet No. with latitude and longitude:**

The lease applied area falls in the Topo sheet No: **58 - H/14** Latitude between: **08° 39' 55.95"N to 08° 40' 02.67"N** and Longitude between: **77° 56' 16.81"E to 77° 56' 24.93"E** on WGS datum-1984. Please refer the Plate Nos. I to II.

e) **Existence of public road / Railway line, if any nearby and approximate distance:**

The approach (metal) road is situated on the Northern side which connects the Petmanagaram – Vagaikulam Road (MD-358) at a distance 1km from the Southeastern side of the lease applied area.

Multiple road access is available from the quarry to state highways and National Highway, no villages are enrooted hence the traffic density is not much more due to the transportation of Rough stone.

The approach road from the quarry is constructed and the same will be utilized for haulage and maintained during the entire lease period, tree sapling will be planted on the either side of the road to prevent dust and noise propagation to the nearby areas.

The Nearest Railway line is Tirunelveli – Thoothukudi which is about 6km on the Southwestern side of the lease applied area.



PART - A

4.0 GEOLOGY AND MINERAL RESERVES

4.1 Brief description of the Topography and general Geology of the area (with plans):

The lease applied area exhibits plain topography. The area has gentle sloping towards Southeastern side. The altitude of the area is 100m (max) above Mean Sea level. The area is covered by 2m thickness of Gravel and 1m of Weathered formation. Massive Charnockite is found after 3m (2m Gravel + 1m Weathered formation) which is clearly inferred from the nearby existing quarry pits.

The Water table is found at a depth of 70m in summer and at 65m in rainy seasons. Average annual rainfall is about 656mm.

Topographical View of lease applied area



Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale of the Charnockite body is N30°W – S30°E with dipping towards NE50°.

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

AGE	FORMATION
Recent	- Quaternary Formation (Gravel + Weathered)
-----Unconformity-----	
Archaean	- Charnockite
	Peninsular Gneiss complex

**4.2 Details of exploration already carried out if any:**

State Geology and Mining Dept, 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 Thoothukudi District. Besides, the Qualified Person and his team members made a detailed geological study of the proposed area. The Rough stone formation is clearly inferred from the nearby existing quarry pit.

4.3 Estimation of Reserves:**a) Geological reserves 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 and commercial aspects etc.,

Totally three sections have been drawn, one section is drawn Length wise as (X-Y) and other two cross sections are drawn Width wise as (A-B) & (C-D) to cover the maximum area considered for lease.

The Topographical, Geological Plan and Sections demarcated the commercial marketable Rough stone (Charnockite) deposit has been prepared in 1:1000 scale (please refer the Geological Plan and Sections Plate No. III). As the sale of Rough stone is in terms of cubic meters (Volume) only and not in terms of tonnage.

Geological Resources (Plate No. III):

The Geological Resources of Rough stone and Gravel are calculated up to a maximum depth of 43m (2m Gravel + 1m Weathered formation + 40m Rough stone) below ground level. **The total Geological resources are calculated by area method.** The total geological resources are given below:



Mining Plan and PQCP

Srimoolakalai Rough stone and Gravel Quarry

Total Extent of the area	=	2.99.0ha
Area in square meter	=	2.99.0 X 10,000 = 29900sq.m
Gravel formation	=	2m below ground level
	=	29900sq.m X 2m Depth
	=	59,800m ³ of Gravel formation
Weathered formation	=	1m below ground level
	=	29900sq.m X 1m Depth
	=	29,900m ³ of Weathered formation
Rough Stone	=	40m below ground level
	=	29900sq.m X 40m Depth
	=	11,96,000m ³ of Rough stone

Total Geological Resources of Gravel formation : 59,800m³

Total Geological Resources of Weathered formation : 29,900m³

Total Geological Resources of Rough stone : 11,96,000m³

Mineable Reserves:

The Mineable reserves are calculated after leaving the safety distance and bench loss to a maximum depth of 43m below ground level.

TABLE-3

MINEABLE RESERVES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Mineable Reserves in Rough stone (m ³)	Weathered Formation (m ³)	Gravel (m ³)
XY-AB	I	72	156	2	-	-	22464
	II	69	150	1	-	10350	-
	III	68	148	5	50320	-	-
	IV	63	138	5	43470	-	-
	V	58	128	5	37120	-	-
	VI	53	118	5	31270	-	-
	VII	48	108	5	25920	-	-
	VIII	43	98	5	21070	-	-
	IX	38	88	5	16720	-	-
	X	33	78	5	12870	-	-
Total					238760	10350	22464



XY-CD	I	107	131	2	-	TutiCorin D	508034
	II	104	125	1	-	13000	-
	III	103	123	5	63345	-	-
	IV	98	113	5	55370	-	-
	V	93	103	5	47895	-	-
	VI	88	93	5	40920	-	-
	VII	83	83	5	34445	-	-
	VIII	78	73	5	28470	-	-
	IX	73	63	5	22995	-	-
	X	68	53	5	18020	-	-
	Total				311460	13000	28034
Grand Total				550220	23350	50498	

The mineable reserves have been computed as **5,50,220m³** of Rough stone, **23,350m³** of Weathered formation and **50,498m³** of Gravel at the rate of 100% recovery upto a maximum depth of 43m below ground level for a period of five years.

5.0 MINING

5.1 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) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety for which necessary provision is available with the Regulation 106 (2) (b) of MMR-1961, under Mine Act - 1952.

5.2 Mode of working (mechanized, semi mechanized, manual):

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

The quarry operation involves shallow Jack hammer drilling, slurry explosives in blasting, 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 of considerable volume from the parent rock mass by jackhammer drilling and slurry explosives blasting, hydraulic excavators are used for loading the Rough stone from pithead to the needy crushers.

Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting. 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.

5.3 Proposed Bench Height and Width:

The Charnockite is hard and compact rock, the bench height is proposed 5.0 meter vertical bench the width of the bench is not less than the Height.

5.4 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 formation, the Gravel and Weathered formation will be directly loaded into Tipper 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 Tipper to the needy customers. The Composite year wise Development and production plan and sections indicating the Pit lay out, Green belt development are shown in Plate No. III.



Year wise development and Production

TABLE-4

YEARWISE PRODUCTION DETAILS									
Years	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Recoverable Reserves in Rough stone (m³)	Weathered Formation (m³)	Gravel (m³)	
I	XY-AB	I	72	156	2	-	-	22464	
		II	69	150	1	-	10350	-	
		III	68	148	5	50320	-	-	
		IV	63	138	5	43470	-	-	
		Total				93790	10350	22464	
II	XY-CD	I	74	131	2	-	-	19388	
		II	71	125	1	-	8875	-	
		III	70	123	5	43050	-	-	
		IV	65	113	5	36725	-	-	
		V	60	103	5	30900	-	-	
		Total				110675	8875	19388	
III	XY-CD	I	33	131	2	-	-	8646	
		II	33	125	1	-	4125	-	
		III	33	123	5	20295	-	-	
		IV	33	113	5	18645	-	-	
		V	33	103	5	16995	-	-	
	XY-AB	V	58	128	5	37120	-	-	
		VI	30	118	5	17700	-	-	
		Total				110755	4125	8646	
IV	XY-CD	VI	23	118	5	13570	-	-	
		VII	48	108	5	25920	-	-	
		Total				114855	-	-	
	V	XY-CD	VI	88	93	5	40920	-	-
			VII	83	83	5	34445	-	-
Total				114855	-	-			
XY-AB		VIII	78	73	5	28470	-	-	
		IX	73	63	5	22995	-	-	
		X	68	53	5	18020	-	-	
	XY-AB	VIII	43	98	5	21070	-	-	
		IX	38	88	5	16720	-	-	
X		33	78	5	12870	-	-		
Total				120145	-	-			
Grand Total						550220	23350	50498	

The Recoverable reserves have been computed as 5,50,220m³ of Rough stone for five years, 23,350m³ of Weathered formation and 50,498m³ of Gravel for three years of 100% recovery upto depth of 43m below ground level for a mining period.



Mining Plan and PQCP

Srimoolakara Rough Stone and Gravel Quarry

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 General of Mine Safety, Chennai** region by submitting relevant documents, appropriate safety plans and its Mitigation measures.

One lorry load	=	6m ³ (approx.)
Total No of Working days	=	300 Days per year
Total quantity to be removed in this five years plan period	=	5,50,220m ³
Hence total lorry loads per day	=	5,50,220m ³ /6m ³
	=	91703 lorry loads
	=	91703/5 years
	=	18341/300 Days
Rough stone	=	61 lorry loads per day
Total quantity to be removed in this three years plan period	=	73,848m ³
Hence total lorry loads per day	=	73,848m ³ /6m ³
	=	12308 lorry loads
	=	12308/3 years
	=	4103/300 Days
Gravel & Weathered formation	=	13-14 lorry loads per day
Working hours = 8.30 am to 5.30 pm (with 12.30-1.30 pm lunch break)		

**5.5 Machineries to be used:****For Mining:**

The following machineries are utilized on rental basis 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	Jack hammer	13	30-35	1.2m to 2.0m	Compressed air
2	Compressor	3	-	400 psi	Diesel Drive

II. EXCAVATION & LOADING EQUIPMENT:

S. No.	Type	Nos	Capacity	Motive Power
1	Excavator with Bucket and Rock Breaker	3	300	Diesel Drive

III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT:

S. No.	Type	Nos	Capacity	Motive Power
1	Tippers	8	20 tonnes	Diesel Drive

5.6 Disposal of Overburden/Waste:

The overburden in the form of Gravel and Weathered formation, the Gravel and Weathered formation will be directly loaded into Tipper for the filling and levelling of low lying areas. The excavated Rough stone (100%) will be directly loaded into Tipper to the needy customers. There is no Waste anticipated during this plan period hence, disposal of waste does not arise.

5.7 Brief note on conceptual mining plan for the entire lease period base on the geological, mining and Environment 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 applied quarry lease for five years, the ultimate pit limit (dimension) at the end of this mining plan period is given below:

UD3



TABLE-6

Length (m) (max)	Width (m) (max)	Depth (m) (max)
181	158	43m below ground level

Greenbelt has proposed on the safety zone by planting Neem, Pongamia Pinnata, Casuarina, etc., trees of native species. 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.

It is propose to engage any local institution to monitor the EIA and EMP during the course of quarrying operation after the grant of quarry lease.

There is no waste anticipated during the entire life of quarry. Hence, backfilling is not possible in this quarry. After completion of quarry operation, the quarry pit will be allowed to collect the seepage and rainwater, the water storage will be kept as temporary reservoir for charging the nearby wells and the storage water will be used for afforestation purpose. The quarry pit will be fenced with barbed wire fencing to prevent inadvertent entry of public and cattle (Refer Plate No. IV).

6.0 BLASTING

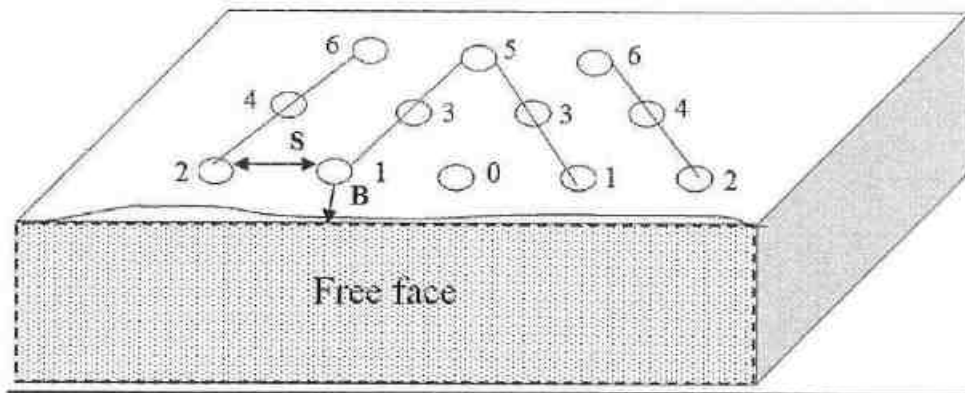
6.1 Blasting pattern:

The quarrying operation is proposed to carried out by Mechanized Opencast Method in conjunction with conventional method of mining using Jack hammer drilling and slurry blasting of shattering effect for loosen the Rough stone.

Drilling and blasting parameters are as follows:

Depth of Each hole	:	1.5m
Diameter of hole	:	30-32mm
Spacing between holes	:	1.2m
Burden for hole	:	1.0m
Pattern of hole	:	Zigzag – Multi-rows
Inclination of holes	:	80° from horizontal
Use of delay detonators	:	25millisecond relays
Detonating fuse	:	“Detonating” Cord

BLASTING PATTERN DRAWING



Staggered "V" Pattern of Blasting Design

Spacing	=	1.2m
Burden	=	1.0m
Depth of the hole	=	1.5m
No of holes proposed per day	=	318 Holes

6.2 Type of explosives to be used:

Small Dia. 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 primary blasting is proposed.

6.3 Measures proposed to minimize ground vibration due to blasting:

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

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

Delay detonators:

Delay blasting (millisecond delays) permits to divide the shot in to smaller charges, which are detonated in a predetermined millisecond sequence at specific time intervals.

The major advantages of delay 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:**

No of Holes	= 318 Holes
Yield	= 954 Tons
Powder factor	= 6 Tons/Kg of explosives
Total explosive required	= 159 Kg-Slurry explosives
Charge/ hole	= 0.5 Kg
Blasting at day time only	= 12.00 – 12.30p.m (whenever required)

6.4 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 have the valid Blaster certificate. He will blast holes in the quarry site. After the completion of Blasting the Explosives Agencies will take it out back the remaining quantity of Explosives. The magazine is available at the quarry site to temporarily store the explosives.

7.0 MINE DRAINAGE**7.1 Depth of water table (based on nearby wells and water bodies):**

The Water Table in the area is 70m in summer season and 65m in rainy season which is observed from the nearby bore wells and the data obtained from existing private boreholes. The lease area is fully covered by Massive Charnockite formation. Hence the Ground Water problem will not arise. If water seepage may occur due to the fracture, the same will be used for Greenbelt.

TABLE-7

Type	Distance & Direction	Location
Bore Well	510m Southwestern side	08°39'42.41"N 77°56'11.28"E

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

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

**8.0 OTHER PERMANENT STRUCTURES (also shown in the map)****8.1 Habitations/ Villages natham:**

There is no approved habitation within 300m radius from the lease applied area.

8.2 Power Lines (HT/LT):

There is no Housing area, EB line (HT & LT Line) within the radius of 50m from the lease applied area.

8.3 Water bodies (river, ponds, lake, odai, canal, etc.):

There is no River, Pond, Lake, Odai, Canal located within 50m radius of the lease applied area.

8.4 Archaeological / historical monuments:

There is no Archaeological / historical monuments within 500m radius from the lease applied area.

8.5 Road (NH, SH, others):

The Nearest National Highway (NH-138) Tirunelveli – Thoothukudi is situated about 8km on the Northern side of the lease applied area.

The State Highway (SH-40) Tiruchendur – Tenkasi is situated about 6km on the Southwestern side of the lease applied area.

The Major District (MD-358) Petmanagaram – Vagaikulam Road is situated about 1km on the Eastern side of the lease applied area.

8.6 Places of worships:

There is no place of worships within the radius of 500m from the lease applied area.

8.7 Reserved forest / forest / social forest / wild life sanctuary etc.,:

There is no reserved forest / forest / social forest / wild life sanctuary etc., within radius of 1km of the lease applied area.

**SALIENT FEATURES****TABLE-8**

S. No.	Salient Features Present around site	Prescribed safety distance	If any present within Prescribed distance it's actual distance and direction from the area															
1.	Railways, Highways, Reservoirs or Canal	50m	None of the above situated within 50m radius.															
2.	Village Road	10m	No Village Road is passing within 10m radius of the lease applied area.															
3.	Habitation / Village	300m	There is no approved habitation within 300m radius from the lease applied area (Refer Plate No I-B).															
4.	Adjacent Patta land / Govt. Land	7.5m/50m	<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>East</td><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	Patta land	7.5m	South	Patta land	7.5m	West	Patta land	7.5m
Direction	Classification	Safety Distance																
North	Patta land	7.5m																
East	Patta land	7.5m																
South	Patta land	7.5m																
West	Patta land	7.5m																
5.	Housing area, EB line (HT & LT Line)	50m	There is no Housing area, EB line (HT & LT Line) within the radius of 50m from the lease applied area.															
6.	Boundaries of the permitted area	7.5m/50m	The boundaries of the permitted areas is as follows: North – S.F.Nos.213 (P) & 601 East – S.F.Nos.601 & 215 South – S.F.Nos.222, 221 & 214 (P) West – S.F.No.213 (P) (Refer Plate No. II).															
7.	Reserve forest	1km	There is no reserved forest located within the radius of 1km from the lease applied area. (Refer Plate No. IA and IB).															
8.	Protected area / ECO sensitive area/Wild Life Sanctuary	10km	Vallanadu Black Buck is situated about 5m on the Northwestern side of the lease applied area. There is no other ECO sensitive Zone/ Critically Polluted Area/ HACA/ CRZ located within 10km radius of the area. (Refer Plate No. IA).															

108

**9.0 EMPLOYMENT POTENTIAL & WELFARE MEASURES****9.1 Employment potential (skilled, semi skilled, un skilled):**

The following manpower's are proposed in the mining plan to carry out the day-to-day quarrying activities, the same employment is maintaining aimed at the proposed production target and also to comply with the statutory provisions of the Metalliferous Mines Regulations, 1961.

a. Skilled labour:

Mine Foreman	:	1
Blaster/mate	:	1
Excavator – Operator & Driver	:	11
Jack hammer operator	:	26

b. Semi-skilled:

Security	:	2
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c. Unskilled:

Labour & Helper	:	8
Co-operator and Cleaner	:	14
Total	:	63

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.

9.2 Welfare Measures:**a. Drinking Water:**

Packaged drinking water is available from the nearby approved water vendors in Patemangaram which is about 2km on the Southeastern side of the lease applied area.

b. Sanitary Facilities:

Hygienic modern Sanitary Facilities will be constructed as semi permanent structure and it will be maintained periodically as hygienic.

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 vehicle. Hospital is available in Srivaikuntam located at a distance of 5km on the Southwestern side.

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

All personnel protective devices 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.

**PART – B****10.0 ENVIRONMENT MANAGEMENT PLAN****10.1 Existing Land use pattern:**

The quarry lease applied area exhibits plain topography. The area is a dry barren land devoid of Agriculture and Habitations. The lease applied area has utilized only for quarry operation in earlier.

LAND USE TABLE-9

Description	Present area in (ha)	Area at the end of this quarrying period (ha)
Quarrying Pit	Nil	2.49.8
Infrastructure	Nil	0.01.0
Roads	Nil	0.02.0
Green Belt	Nil	0.13.0
Unutilized Area	2.99.0	0.33.2
Grand Total	2.99.0	2.99.0

10.2 Water Regime:

It is a simple opencast quarry operation. The quality of water will not be affected due to this quarrying operation. However, mitigation measures will be carried out like Garland drains constructed on all sides of quarry pit to avoid surface run-off rain water entering into the pit.

The waste water discharged to water bodies will be met the standard prescribed under the Environment (Protection) Act – 1986 by The Ministry of Environment, Forest and Climate change.

10.3 Flora and Fauna:

TABLE-10

S.No.	Name of the plant (Scientific)	Family Name	Common Name	Habit	Picture
1.	<i>Aegle marmelos (L.) correa</i>	<i>Rutaceae</i>	Vilam Palam	Tree	
2.	<i>Ficus racemosa</i>	<i>Moraceae</i>	Atthi	Tree	
3.	<i>Ficus benghalensis</i>	<i>Banyan</i>	Alamaram	Tree	
4.	<i>Zizyphus oenoplia</i>	<i>Rhamnaceae</i>	Soorai	shrub	
5.	<i>Argemone Mexicana</i>	<i>Papaveraceae</i>	Prickly poppy, kudiyotti	Shurb	

List of Fauna

S.No.	Scientific Name	Common Name	Picture
1.	<i>Bandicota indica</i>	Bandicoot	
2.	<i>Vipera russeli</i>	Viper	
3.	<i>Cypsiurus parvus</i>	Palm swift	
4.	<i>Bubalus bubalis</i>	Buffalo	
5.	<i>Saurialacertidae</i>	Lizard	
6.	<i>Junonia atlites</i>	Grey pansy	

**10.4 Climatic Conditions:**

The area receives rainfall of about 656mm/annum and the rainy season is mainly from Oct - Dec during monsoon. The summer is hot with maximum temperature of 43°C and winter encounters a minimum temperature of 22°C.

10.5 Human settlement:

There are few villages located in this area within 5km radius; the approximate distance and population are given below:

TABLE - 11

S. No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Tannuthu	4km – Northeast	700
2.	Srimoolakarai	1km – Southeast	4,500
3.	Thirupuliyangudi	3km – Southwest	1,200

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres etc., are available at Srivaikuntam located at a distance of 12km on the Southwestern side of the area.

10.6 Plan for air, dust suppression:

The air quality will be affected by the Suspended Particulate Matter (SPM) generated by the slurry blasting, Jack hammer drilling, loading and unloading during the Rough stone quarry operation.

The following Mitigations measures will be carried out:

- Mist Water spraying will be carried out by means of water sprinklers to suppress the dust emission in the Haul roads.
- Vegetations will be formed on the non quarrying area.
- Avoiding spillages during the transportation.

Air quality will be monitored periodically as per Norms and Mitigative measures carried out to prevent dust and Air propagation in to air. The estimated budget for dust suppression would be around **Rs.52,000/year**.

**10.7 Plan for Noise level control:**

The noise level increased due to the Drilling, Blasting, Excavation and Transportation.

Engineering Noise control:

Noise will be created due to the usage of Machineries and Vehicles. The Noise will be controlled in the following manner.

- Selection of new low – noise equipment's is proposed to be deployed for the Rough stone quarry operation.
- Modifications of older equipments.
- Implementation of effective preventive maintenance which reduces noise more than 50%.
- Developing Green belts which act as Acoustic barrier, pollution absorbent and noise controller.
- The drivers will be strictly instructed to move the vehicle during the transportation not exceed 40km per hour.
- Sentries with flags & whistle will posted in village road junction and populated area to control and regulate traffic.

Shallow holes of 32mm diameter and maximum depth of 1.5m will be drilled and conventional low power explosives such as slurry explosives, ordinary safety fuse will be used for Rough stone. Hence, ground vibration and noise pollution i.e., minimal and restricted within the quarry working area.

Noise level monitoring and other Mitigation measures will be carried out to reduce Noise and Vibration. The estimated budget for Noise level monitoring would be around **Rs.2,000/Year**.

10.8 Environment impact assessment statement describing impact of mining on the five years:

In the mining plan proposed for a production of Rough stone 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 Environment impact studies will be conducted as per EIA notification issued by MoEF&CC. It is B2 Category mine. The estimated budget would be around **Rs.3,80,000/-**.

10.9 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%).



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

In the mining plan proposed only to a maximum depth of 43m below ground level has been envisaged as workable depth for safe & economic mining during entire lease applied area. There is no waste generated hence, backfilling is not possible. Hence, 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. The barbed wire fencing cost would be around **Rs.2,01,000/-**.

10.11 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. Appropriate native species of Neem, Pongamia Pinnata, Casuarina, etc., trees will be planted in a phased manner as described below.

TABLE-12

Years	No. of trees proposed to be planted	Survival %	Area to be covered sq.m	Name of the species	No. of trees expected to be grown
I	30	80	260	Neem, Pongamia Pinnata, Casuarina, etc.,	24
II	30	80	260		24
III	30	80	260		24
IV	30	80	260		24
V	30	80	260		24

Nearly 1,300m² area is proposed to use under Greenbelt by planting 30 Number of tree saplings during every year with an anticipated survival rate of 80% (Please refer Plate No. III). The estimated budget for plantation and maintenance of Greenbelt development would be around **Rs.15,000/-** for the period of five years.

The Greenbelt Development will be formed in around the quarried out top benches in the applied area and approach road. The cost would be around **Rs.45,000/-**.

**10.12 Proposed financial estimate / budget for (EMP) environment management:**

Budget Provision for the entire quarrying period:

TABLE-13

S. No	Monitory and Analysis Description	Rate per location	No. of location	Total Charges/ six months	Total Charges/ year
1	Ambient air quality monitoring	6500	4	26000	52000
2	Noise level monitoring	250	4	1000	2000
3	Ground vibration monitoring	1000	2	2000	4000
4	Water sampling and analysis	9000	1	9000	18000
Total EMP Cost/ year					76,000

The EMP cost would be around **Rs.3,80,000/-** for the period of five years.**A. Project / investment / Operational cost:**

i)	Land cost	The Land value as per the Government Guideline land cost is about, Rs.3,01,500/ha, hence the total land cost is calculated about 2.99.0ha X Rs.3,01,500/- = Rs.9,01,485/- i.e., Rs.9,02,000/- (source : https://tnreginet.gov.in/portal/)	= Rs.9,02,000/-
ii)	Machinery to be used	The following machineries are proposed to meet out the productions. Excavator attached with rock breaker, Tippers, Tractor mounted compressor with Jack hammer and loose tools (Rental Basis)	= Rs.55,00,000/-
iii)	Refilling/ Fencing	Fencing will be constructed around the quarry pit to prevent the inadvertent entry of public and cattles cost would be around	= Rs.2,01,000/-
iv)	Labourers shed	Labour sheds will be constructed as semi permanent structure. The cost would be around	= Rs.1,65,000/-
v)	Sanitary facility	Adequate latrine and urinal accommodation shall be provided at conveniently accessible places the cost would be around	= Rs.1,50,000/-
vi)	Others items	First aid room & accessories	= Rs.1,00,000/-



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	= Rs.2,70,000/-
viii) Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around	= Rs.1,20,000/-
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	= Rs.1,50,000/-
x) Water sprinkling	Water will be sprinkled in the haul roads by water sprinklers the cost would be around	= Rs.3,20,000/-
xi) Garland drains Construction	Construction of garland drains to divert surface run-off from virgin area away from mining area	= Rs.1,77,000/-
xii) Greenbelt etc.	Greenbelt program will be carried out in the boundary barriers the cost would be around	= Rs.15,000/-
	Greenbelt program will be carried out in the quarried out top benches in the applied area and approach road	= Rs.45,000/-
	Total Operational Cost	= Rs.81,15,000/-



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 five years period is Rs.3,80,000/-	
Description	Amount (Rs.)
A. Operational Cost	81,15,000
B. EMP Cost	3,80,000
Total Project Cost (A+ B)	84,95,000
The applicant indents to involve corporate environment responsibilities (CER) activity like Solar Light, Water Purifier, Sanitary and Cot & Bed Facilities to the Srivaikuntam Dispensary and Table & Book Facilities to the nearby Govt. School at 2.0% from the total project cost. The Cost would be around Rs.1,70,000/- .	1,70,000
Total Cost	86,65,000
The Total cost would be around eighty six lakhs and sixty five thousand only.	

**11.0 PROGRESSIVE QUARRY CLOSURE PLAN****11.1 Introduction:**

The Progressive Quarry Closure Plan for Rough stone and Gravel quarry over an extent of 2.99.0ha of Patta land in S.F.Nos.213 (P) & 214 (P) of Srimoolakarai Village, Srivaikuntam Taluk, Thoothukudi District, Tamil Nadu State has been prepared for **Thiru. Sri Nainar Balaji**, S/o. Nainar Nagenthiran, residing at No.18A, 23rd Cross Street, Maharajanagar, Palayamkottai, Tirunelveli District – 627 011, Tamil Nadu State.

11.2 Present Land use pattern:**LAND USE TABLE-14**

Description	Present area in (ha)
Quarrying Pit	Nil
Infrastructure	Nil
Roads	Nil
Green Belt	Nil
Unutilized Area	2.99.0
Grand Total	2.99.0

11.3 Method of Mining:

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 for Rough stone.

However, as far as the quarrying of Rough stone is concerned, observance of the provisions of Regulation 106 (2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety for which necessary provision is available with the Regulation 106 (2) (b) of MMR-1961, under Mine Act – 1952.

11.4 Mineral Processing Operations:

The quarried out Rough stone will be transported by the 20tons capacity Tipper to the needy crushers. Splitting of rock mass of considerable volume from the parent rock mass by Jack hammer drilling and blasting, hydraulic excavators are used for loading the Rough stone from pithead to the needy crushers.

**11.5 Reasons for closure:**

As the mineral is not going to be exhausted during the proposed plan period no immediate closure is planned and sufficient reserves are available to carry on the activities. The reason for closure will be discussed in the ensuing mining plan.

11.6 Statutory obligations:

The applicant ensures to comply all the conditions were imposed while granting the precise area communication letter before the execution of lease deed and during the course of quarry operations.

11.7 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	:	P. Viswanathan, M.Sc. Qualified Person
Address	:	Reg. No.17, Advaita Ashram Road, Alagapuram, Salem District – 636 004.
Telephone	:	0427- 2431989 (Office)
Cell No	:	+91 94422 78601 & 94433 56539

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

11.8 Review of Implementation of Mining Plan including Progressive Closure Plan upto the Final Closure Plan:

Mining Plan and Progressive quarry closure plan are being submitted for the first time. It will be reviewed after five years and review of implementation will be given with next review of mining plan.



11.9 Closure Plan:

(i) Mined Out Land:

At the end of mining plan period, about 2.49.8ha of area will be quarried out. Land use at various stages is given in the table below.

LAND USE TABLE-15

Description	Present area in (ha)	Area at the end of this quarrying period (ha)
Quarrying Pit	Nil	2.49.8
Infrastructure	Nil	0.01.0
Roads	Nil	0.02.0
Green Belt	Nil	0.13.0
Unutilized Area	2.99.0	0.33.2
Grand Total	2.99.0	2.99.0

The Greenbelt Development will be formed in around the quarried out top benches in the applied area and approach road.

(ii) Water quality management:

Following control measures will be adopted for controlling water pollution:

- Construction of garland drains to divert surface run-off from virgin area away from mining area.
- Construction of check dams / gully plugs at strategic places to arrest silt wash off from broken up area.
- Collection of surface run-off from broken up area in mine pits for settling and only properly settled excess water from mine pit will be discharged to nearby users. The storm water/ mine water will be used for dust suppression, greenbelt development, etc.
- Periodic analysis of mine pit water and ground water quality in nearby villages.
- The quarried out pit will be allowed to collect rain and seepage water which will act as a reservoir for storage. This water storage will enhance the static level and ground water recharge of nearby wells and it will be used for agriculture purpose to the nearby agriculture land.
- Domestic sewage from site office & urinals/latrines provided in QL is discharged in septic tank followed by soak pits.

**(iii) Air Quality Management:**

The proposed mining method is not likely to produce much of dust and fugitive emissions to cause damage to ambient air quality of the area. Workers will be provided with personnel protective equipment like face-mask, earplug/ muffs.

For air pollution management at the progressive quarry closure plan, greenbelt will be developed to prevent and control air pollution.

(iv) Top Soil and Waste Management:

There is no topsoil or waste generated during the proposed plan period. The entire quarried out Rough stone and Gravel is utilized (100%). Hence, waste management does not arise.

(v) Disposal of mining machinery:

All the machineries will be engaged on rental basis. Hence, disposal or decommissioning of mining machinery does not arise.

(vi) Safety & Security:

Safety measures will be implemented to prevent access in the excavation area to 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 equipments.
- Protective equipment like dust masks, ear-plugs/ muffs and other equipments 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 provided before blasting time to prevent any accident.
- Security guards will be posted.
- In the event of temporary closure, approaches will be fenced off and notice displayed.

**(vii) 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 quarrying 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 in the applied area and approach road.

(viii) 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, quarrying operation will be restarted as early as possible after completing rescue work, restoring safety and security, repairs of roads etc.

(ix) Economic Repercussion of Closure of Quarry and manpower Retrenchments:

The Quarry Lease is granted for a period of maximum five 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.

(x) Time Scheduling for Abandonment:

The lease applied area has enormous potential for continuance of operations even after the expiry of the lease period. The details of time schedule of all abandonment will be given at the time of final closure plan.

**(xi) 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:

LAND USE TABLE-16

ACTIVITY		YEAR					RATE	COST (Rs.)
		I	II	III	IV	V		
Plantation under safety zone	Nos.	30	30	30	30	30	@100 Rs Per sapling	15,000/-
	Cost	3000	3000	3000	3000	3000		
Plantation in the quarried out top benches in the applied area and approach road	Nos.	45	45	45	45	45		45,000/-
	Cost	4500	4500	4500	4500	4500		
Wire Fencing (In Mtrs) 670 Mtrs		201000	-	-	-	-	@300 Rs Per Meter	2,01,000/-
Garland drain (In Mtrs) 590 Mtrs		177000	-	-	-	-	@300 Rs Per Meter	1,77,000/-
TOTAL								4,38,000/-

**12.0 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 as per the guidelines of the Concerned Department.

Prepared by

P. Viswanathan, M.Sc.,
Qualified person

Place: Salem

Date: 19.02.2022

DONATE RED

SPREAD GREEN

SAVE BLUE

This Mining Plan is approved based on incorporation of the particulars specified under sub rule (7) (i) to (7) (vii) & 8 of Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959 and subject to the future fulfilment of the conditions laid down under sub rule (9) of Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959

Assistant Geologist /
Assistant Director i/c
Geology and Mining
Thoothukudi

The Mining Plan is approved subject to the conditions / Stipulations indicated in the Mining Plan Approval

Roc. No. G.M. 1/17/2021
Date 02/03/2022

புவியியல் மற்றும் சுரங்கத்துறை

ந.க.எண்.ஜி.எம்.1/17/2021

மாவட்ட ஆட்சியர் அலுவலகம்
தூத்துக்குடி
நாள் : 16.02.2022.



குறிப்பாணை

பொருள்: கனிமமும் சுரங்கமும் - தூத்துக்குடி மாவட்டம் - ஸ்ரீவைகுண்டம் வட்டம் - ஸ்ரீமூலக்கரை கிராமம் - புல எண்கள். 213(ப) மற்றும் 214(ப)-ல் விஸ்தீரணம் 2.99.00 ஹெக்டேர் பட்டா நிலத்தில் குண்டுக்கல் மற்றும் கிராவல் குவாரி அமைக்க அனுமதி வேண்டி திரு. ஸ்ரீ நயினார் பாலாஜி த/பெ.நயினார் நாகேந்திரன் என்பவர் விண்ணப்பித்தது - குவாரி பணி செய்ய தகுதி வாய்ந்த நிலப்பரப்பாக தெரிவித்தல் - சுரங்கத்திட்டம் மற்றும் மாநில அளவிலான சுற்றுச்சூழல் பாதுகாப்பு தாக்க மதிப்பீட்டு ஆணையத்தின் இசைவினைப் பெற்று சமர்ப்பிக்க கோருவது - தொடர்பாக.

- பார்வை:
1. திரு. ஸ்ரீ நயினார் பாலாஜி த/பெ.நயினார் நாகேந்திரன் என்பவரது விண்ணப்பம் நாள்: 18.01.2021.
 2. இவ்வலுவலக கடிதம் ந.க.எண்.ஜி.எம்.1/17/2021 நாள்: 02.02.2021..
 3. தூத்துக்குடி சார் ஆட்சியர் (பொ) அறிக்கை ந.க.ஆ.2/345/2021 நாள்: 28.06.2021.
 4. உதவி புவியியலாளர் / உதவி இயக்குநர்(பொ), புவியியல் மற்றும் சுரங்கத்துறை, தூத்துக்குடி புலத்தணிக்கை அறிக்கை நாள்: 04.02.2022.

தூத்துக்குடி மாவட்டம், ஸ்ரீவைகுண்டம் வட்டம், ஸ்ரீமூலக்கரை கிராமம் புல எண்கள். 213(ப) மற்றும் 214(ப)-ல் விஸ்தீரணம் 2.99.00 ஹெக்டேர் பரப்பில் உள்ள திரு.தாமஸ் பாண்டியன் மகன் அரவிந்த்குமார் என்பவருக்கு பாத்தியப்பட்ட பட்டா நிலத்தில் குண்டுக்கல் மற்றும் கிராவல் குவாரி செய்ய அனுமதி வேண்டி பார்வை 1-ல் கண்டவாறு திரு. ஸ்ரீ நயினார் பாலாஜி த/பெ.நயினார் நாகேந்திரன் என்பவரது விண்ணப்பம் வரப்பெற்றுள்ளது.

மேற்படி நிலத்தில் 5 வருட காலத்திற்கு குண்டுக்கல் மற்றும் கிராவல் குவாரி செய்ய உரிமம் வழங்க தூத்துக்குடி சார் ஆட்சியர் மற்றும் உதவி புவியியலாளர் / உதவி இயக்குநர் (பொ) (கனிமம்) ஆகியோர் கீழ்க்காணும் நிபந்தனைகளுக்குட்பட்டு பரிந்துரை செய்துள்ளனர்.

- 1) அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீ பாதுகாப்பு இடைவெளி விட வேண்டும்.
- 2) அருகிலுள்ள குவாரிகளுக்கு போதுமான பாதுகாப்பு இடைவெளி விட வேண்டும்.

127



- 3) குவாரி கழிவுகளை குத்தகை உரிமம் வழங்கப்படும் பகுதிக்கு உள்ளேயே இருந்து வைக்க வேண்டும்.
- 4) வெடி மருந்தினை விதிகளின் படி பாதிப்பு ஏற்படாவண்ணம் பயன்படுத்த வேண்டும்.
- 5) சுரங்கத்திட்டம் மற்றும் சுற்றுச்சூழல் தடையில்லாச் சான்று குத்தகை உரிமம் வழங்குவதற்கு முன் சமர்ப்பிக்கவேண்டும்.

மேற்கூறிய அலுவலர்களின் பரிந்துரையினை ஏற்றும் நிபந்தனைகளுக்குட்பட்டும், தூத்துக்குடி மாவட்டம், ஸ்ரீவைகுண்டம் வட்டம், ஸ்ரீமூலக்கரை கிராமம், புல எண்கள். 213(ப) மற்றும் 214(ப)-ல் விஸ்தீரணம் 2.99.00 ஹெக்டேர் பரப்பு நிலத்திற்கு குவாரி உரிமம் வழங்கலாம். மேற்படி பிரஸ்தாப நிலமானது 1959-ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள் விதிஎண்: 19 மற்றும் 20-ன் படி 5 வருட காலத்திற்கு குண்டுக்கல் மற்றும் கிராவல் குவாரி பணி செய்ய தகுதி வாய்ந்த நிலப்பரப்பாக கருதப்படுகிறது.

மேலும் தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி எண்: 41-ன் படி குவாரி பணி மேற்கொள்வது தொடர்பாக மேற்படி பரப்பளவான 2.99.00 ஹெக்டேர் நிலத்திற்கு சுரங்கத் திட்டத்தினை (Mining Plan) சமர்ப்பித்து விதி எண்: 42-ன் படி மாநில அளவிலான சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் (State Level Environmental Impact Assessment Authority Clearance) சுற்றுச்சூழல் தடையில்லாச் சான்று (Environmental Clearance) பெற்று சமர்ப்பிக்குமாறும் மனுதாரர் கேட்டுக் கொள்ளப்படுகிறார்.

ஓம்/-மரு.செந்தில்ராஜ்,
மாவட்ட ஆட்சியர்,
தூத்துக்குடி.

//உண்மை நகல்//

மாஸ்டர் ஆட்சியருக்காக
தூத்துக்குடி.

பெறுநர்

திரு. ஸ்ரீ நயினார் பாலாஜி,
த/பெ.நயினார் நாகேந்திரன்,
18A, 23வது குறுக்கு தெரு,
மகாராஜநகர்,
பாளையங்கோட்டை,
திருநெல்வேலி மாவட்டம் - 627 011.

11/11/11 DIST

ப.ம. திருமங்கலம்

வட்டம். பூரணவட்டம்

புல எண். 213.

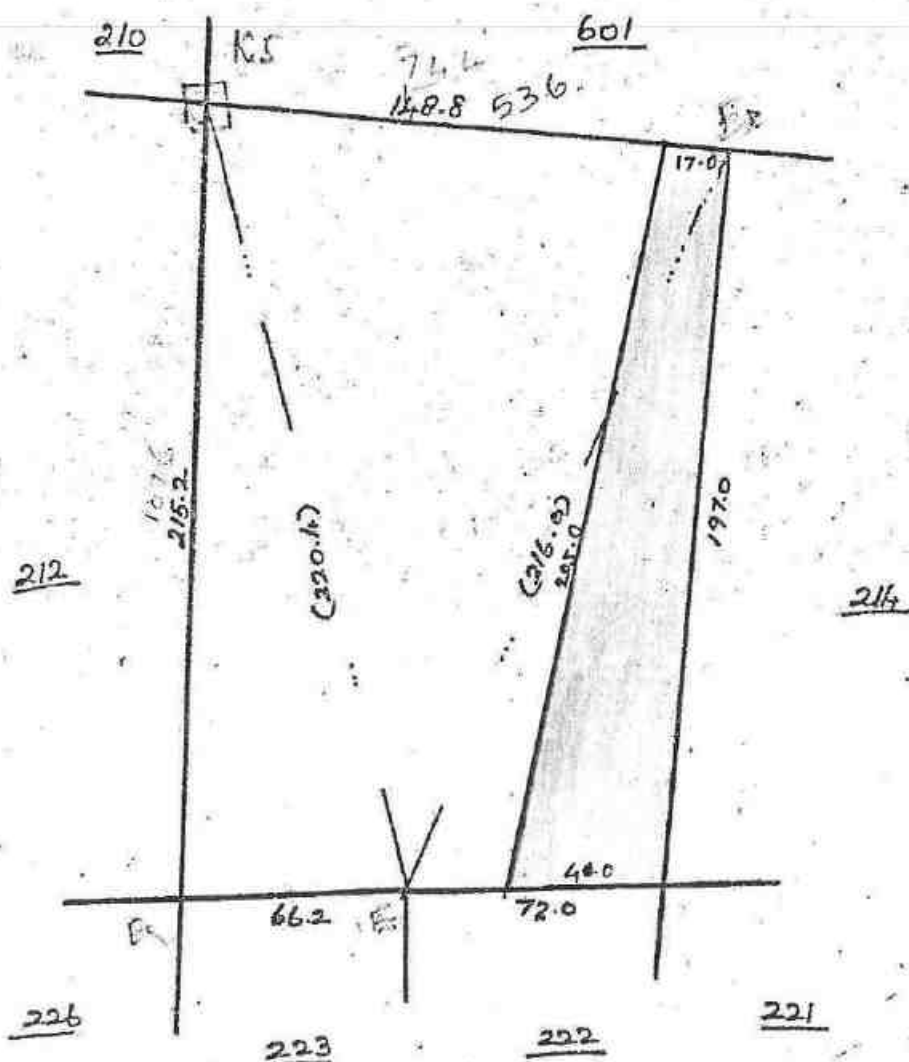
என்க.

சிராமம்

பெயர்

பரப்ப: ஹெக்டேர்

2 ஏர். 91.5



/2-ആം തവണ നൽകി/

Rev. Dr. Loomes

LEASE APPLIED AREA

39. ஸ்ரீ மூலக்கரை கிராமம்
ஸ்ரீவைகுண்டம் வட்டம்

பொருள் தருகிறது

4. Enrichment Section
14-B-B2

அளவு. 1டி.மீ³ : 2000மி.மீ³

மதுராசபுரம் ஸ்தலம் : கி. பி. 11

மாவட்டம். சீரு என் வெலி

வட்டம். ஸ்ரீ வைகுண்டம்

புல எண். 214



சென்னை-23

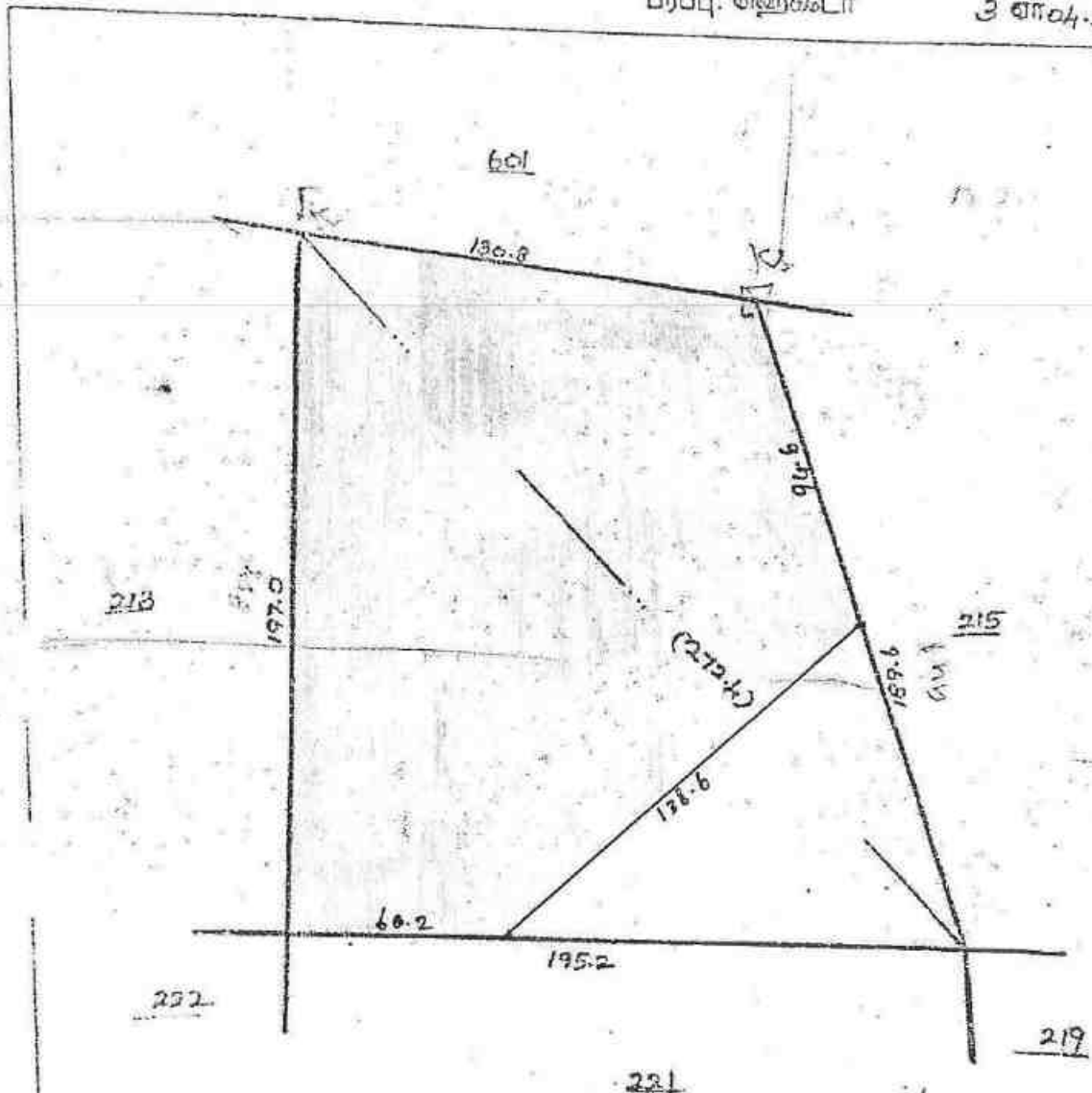
எண். 39

சிராமம்

பெயர். ஸ்ரீ ஸ்ரீ

பரப்பு: ஹெக்டேர்

3 ஏ. 04.5



12 ஏக்கர் மண்

ஸ்ரீ வைகுண்டம்

சிராமம்

39. பரப்பு

ஸ்ரீ வைகுண்டம் வட்டம்

LEASE APPLIED AREA



சென்னை

4. சி. என். வெலி

14-8-82

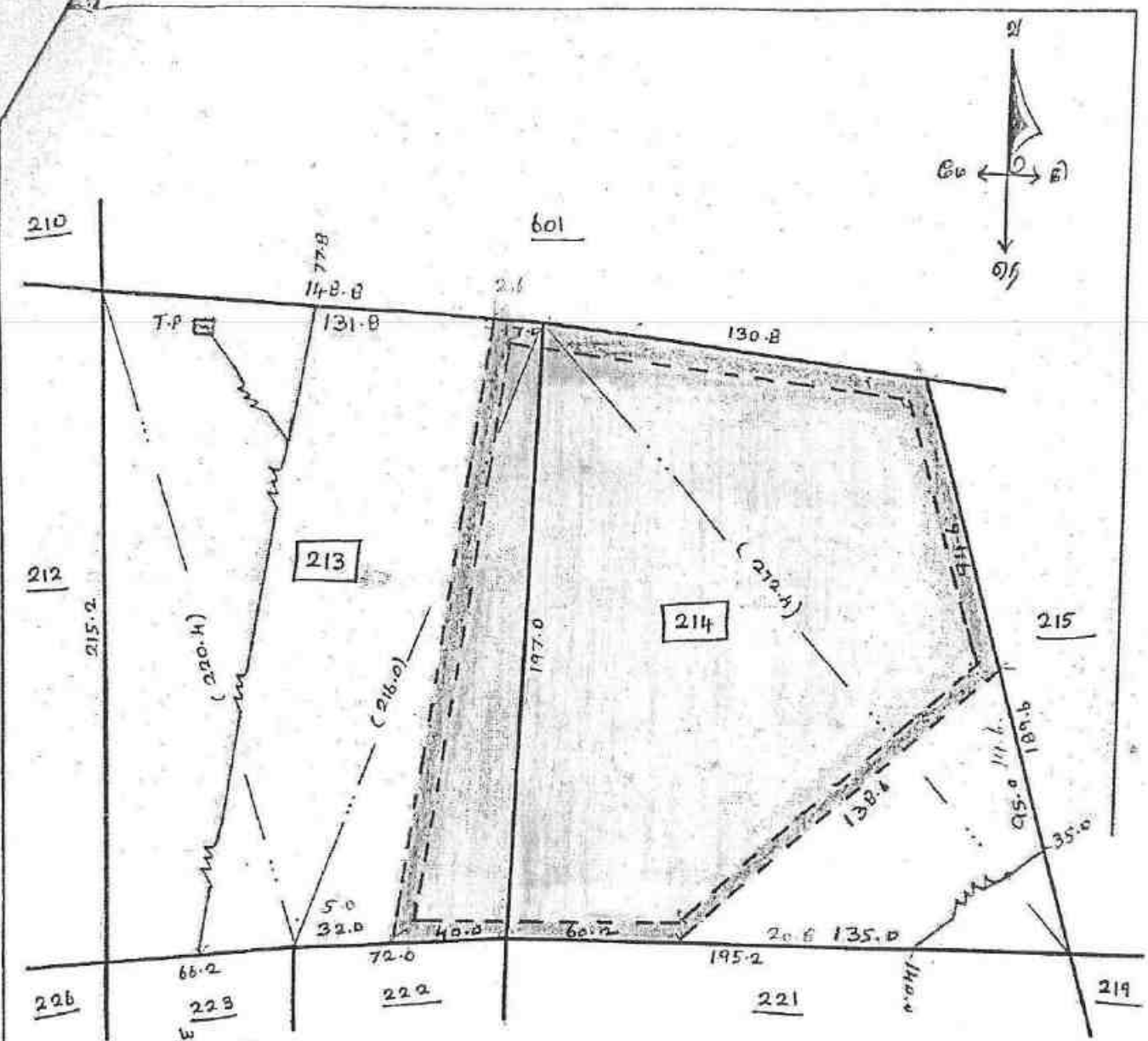
அளவு 11.15 = 200 ஏ. 15

பரப்பு



வட்டம் : தூத்துக்குடி
 வட்டம் : பரிகாசம்
 H.N. எண் : 213 & 214

எண் : 39
 பெயர் : பரிகாசம்
 பகுதி : 213 & 214



நிதி அமைச்சர் உத்தரவு 213 & 214 0.57.00 } 2.99.00
 214 2.42.00

பரிகாசம் பகுதி வரலாற்று பகுதி (7.00.00)

LEASE APPLIED AREA

சார் ஆட்சியர்
 தூத்துக்குடி

திகதி : 16.2.2024
 பரிகாசம்

வட்ட சார் ஆய்வாளர்
 பரிகாசம்

28/1/21



ANNEXURE III



132



தமிழக அரசு

வருவாய்த் துறை



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

மாவட்டம் : தூத்துக்குடி

வட்டம் : ஸ்ரீவைகுண்டம்

வருவாய் கிராமம் : ஸ்ரீமூலக்கரை

பட்டா எண் : 781

உரிமையாளர்கள் பெயர்

1. தாமஸ்பாண்டியன்

மகன்

அரவிந்தகுமார்



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	
213	-	2 - 91.50	2.66	--	--	--	--	R0607/706--- - - 26-07-2006
214	-	3 - 4.50	2.78	--	--	--	--	R0607/706--- - - 26-07-2006
215	-	2 - 30.00	2.10	--	--	--	--	R0607/706--- - - 26-07-2006
221	1A	0 - 62.50	0.57	--	--	--	--	R0607/706--- - - 26-07-2006
		8 - 88.50	8.11					

குறிப்பு2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 28/05/390/00781/100066 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 20-02-2022 அன்று 10:34:10 AM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

[illegible]

Rev. L. D. Jones

கிராமநிருபர்கள் அறிவுலா

39. பூர்வீழலக்கரை கிராமம்

மீனவகம் வட்டம்

6-11000000

[illegible]



ANNEXURE VI



தமிழ்நாடு தமிழ்நாடு TAMILNADU 07/01/2021

N.ஸ்ரீ நயினார் பரவாதி

திருநெல்வேலி

AL 161720
த. இருதயநாத் அலெக்ஸ்
முத்திரைத்தான் விநாயகன்
ஏரல்
உரிமை எண்: 1/2005

குத்தகை ஒப்பந்தப் பத்திரம்

2021ம் வருடம் ஜனவரி மாதம் 08-ம் தேதி தூத்துக்குடி மாவட்டம், தூத்துக்குடி வட்டம், குமாரகிரி என்ற புதுக்கோட்டை கிராமம், புதுக்கோட்டை, மெயின்ரோடு, 4/429 நிரில் வசிக்கும் திரு. A.தாமஸ் பாண்டியன் அவர்கள்

குமாரர் திரு. T.அரவிந்த் குமார் 1வது நபர், (ஆதார் அடையாள அட்டை எண் 4332 9436 4140)

2வது நபர்

1வது நபர்

T. Aravindh Kumar

Attested True Copy

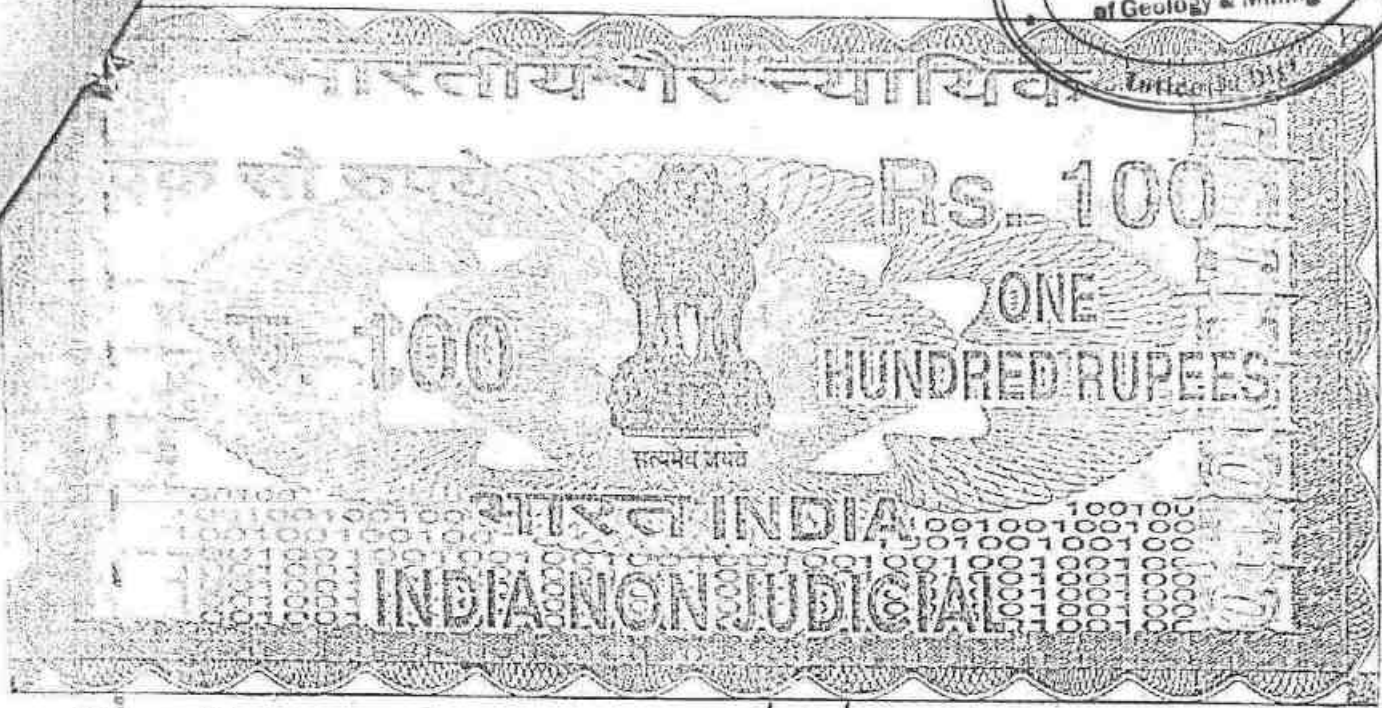
T. Balaji Krishnaswamy

18/1/2021

T. BALAJI KRISHNASWAMY, B.Sc., B.L.,
ADVOCATE & NOTARY
Enroll No 350/06
No.9, Perumal South Mada Street,
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Cell:99944 29489

23 1 ஏப்ரல் 2021 ம் ஆண்டு
என் ஆவணம் 12 தப்தகளை
உடனடி 1/2 தப்தக.





தமிழ்நாடு தமிழ்நாடு TAMILNADU 07/01/2021

N. ஸ்ரீ நயினார் பாலாஜி
திருநெல்வேலி

CH 824795
த. இருதயநாத் அனல்
முத்திரைத்தாள் விற்பனைய
ஏரல்
உரிமம் எண். 1/2006

-2-

திருநெல்வேலி மாவட்டம், பாளையங்கோட்டை வட்டம், நயினார் காட்டேஜ்,
23வது குறுக்கு தெரு, 18A நிரலில் வசிக்கும் திரு. நயினார் நாகேந்திரன்
அவர்கள் குமாரர் திரு. N.ஸ்ரீ நயினார் பாலாஜி 2வது நபர், (ஆதார் அடையாள
அட்டை எண் 5125 9795 7709) ஆக நாம் இருவரும் செய்து கொண்ட
குத்தகை ஒப்பந்தப் பத்திரம். (கைபேசி எண் 9489894444)

1 வது நபர்

T. Aravindh Kumar

2 வது நபர்

[Signature]

1 வது நபர் 2021 மார்ச்சு 23
எண். சுவாமிநாத்/23/2021
திருநெல்வேலி 2 வது நபர்.



Attested True Copy

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THIRUNELVELI TOWN, THIRUNELVELI DISTRICT
Cell: 99944 29466



தமிழ்நாடு தமிழ்நாடு TAMILNADU 07/01/2021

N. ஸ்ரீ நயனார் பாலாஜி
திருநெல்வேலி

BC 385446
த. இருதயநாதன்
முத்திரைத்தாள் இப்பணியை
ஏரல்
உரிமம் எண். 1/2005

-3-

என்னவென்றால் இதன் தபசில் கண்ட சொத்தானது நம்மில் 1வது நபருக்கு பெ.சப்ரி.1.859/2005 நிர் கிரைய ஆவணம் மூலமும் தனிப்பட்டா என் 781ன் படியும் பாத்தியப்பட்டதாகும். இதன் தபசில் கண்ட சொத்தை நம்மில் 2வது நபர் 1வது நபரிடம் "அரசு அனுமதி பெற்ற கணிமம்" சார்ந்த தொழில் செய்வதற்காக குத்தகைக்கு வேண்டும் என கேட்டதை ஏற்று நாளது தேதிமுதல் வருடம் ஒன்றுக்கு ரூபாய்.5,000/- (ரூபாய் ஐந்தாயிரம்) குத்தகை தொகையாக நிர்ணயித்து 13 வருடங்களுக்கு நம்மில் 2வது நபருக்கு குத்தகை விட நம்மில் 1வது நபர் சம்மதித்துள்ளார்.

Attested True Copy

T. Balaji

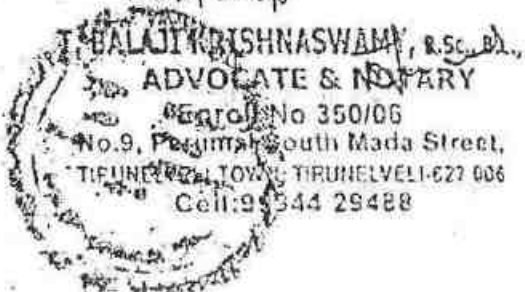
Krishnaswamy

18/1/2021

1 வது நபர்

T. Aravindh Kumar

23/01/2021 க.ஆனந்தன்
என் ஆவணம்/2 தப.கணம்
வருடம் 3 க.தப.





-4-

நாளது தேதி முதல் இதன் தபசில் கண்ட சொத்துக்களில் நம்மில் 2வது நபர் தொழிலுக்குத் தேவையான மாற்றங்களை தபசில் கண்ட சொத்தில் தன் சொந்தப் பொறுப்பில் செய்து கொள்ள வேண்டியது. மின் இணைப்பு வண்டிவாகனங்கள் போன்றவற்றை நம்மில் 2வது நபர் ஏற்பாடு செய்து கொண்டு அரசு அலுவலங்களில் நம்மில் 2வது நபர் பெயரிலோ நிறுவனத்தின் பெயரிலோ நம்மில் 2வது நபர் கையொப்பம் செய்து கொண்டு தபசில் கண்ட சொத்தில் தொழிலுக்குத் தேவையான கட்டிடங்களை அரசு அனுமதியுடன் அமைத்துக் கொள்ள வேண்டியது.

இதன் தபசில் கண்ட சொத்தில் அரசின் சட்டத்திட்டங்களுக்கு பாதகமாக நம்மில் 2வது நபரோ 2வது நபரின் வாரிசுகளோ செய்யக்கூடாது. கணிமவளம் எடுக்கும் போது அரசின் சட்டம் மற்றும் விதிமுறைகளுக்கு உட்பட்டு மட்டுமே தபசில் சொத்தின் நிலத்திலிருந்த கணிம வளங்களை எடுக்க வேண்டும்.

இதன் தபசில் கண்ட சொத்தினை குத்தகை காலம் முடியும் தருவாயில் குத்தகையை நீடித்துக் கொள்ள நாம் இருநபர்களும் விரும்பாத நிலையில் மீண்டும் நம்மில் 1வது நபரிடம் 2வது நபர் நல்ல நிலைமையில் கட்டிடத்தோடு சுவாதீனத்தை வழங்கி விட வேண்டியது. குத்தகை நீட்டிப்பு செய்யும் பட்சத்தில் அதற்கு தனியாக ஒரு ஆவணம் எழுதி அதனை பதிவு செய்து கொள்ள வேண்டும்.

இந்த குத்தகை சம்பந்தமாக முன்பணம் நமக்குள் பெற்றுக் கொள்ளவில்லை.

Attested True Copy

T. Balaji Krishna Swamy

T. BALAJI KRISHNASWAMY, B.Sc., 2வது நபர்
ADVOCATE & NOTARY

Enroll No 350/06

No.9, Perumal South Mada Street,
TIRUNELVELI-627 006
Cell 99034 29488

1 வது நபர்

T. Aravindh Kumar

23 / 4ம் மார்ச் 2021 ம் ஆண்டு
எண் ஆவணம் 12 தபசுகளை
கண்டது 4 ம் தபசு.





-5-

தபசில்

தூத்துக்குடி மாவட்டம், திருவைகுண்டம் வட்டம் தூத்துக்குடி பதிவு மாவட்டம், பெருங்குளம் சார்பதிவாளர் அலுவலகம், ஸ்ரீமூலக்கரை கிராமத்தில் 781ம் நம்பர் பட்டாவில் அ.பு.சர்வே 213 நம்பர் ஹெக்டேர் 2.91.50க்கு ஏக்கர் 7 செண்டு 20ம், அ.பு.சர்வே 214 நம்பர் ஹெக்டேர் 3.04.50க்கு ஏக்கர் 7 செண்டு 52ம், அ.பு.சர்வே 215 நம்பர் ஹெக்டேர் 2.30.00க்கு ஏக்கர் 5 செண்டு 68ம், அ.பு.சர்வே 221/1A நிர் நம்பர் ஹெக்டேர் 0.62.50க்கு ஏக்கர் 1 செண்டு 54ம் ஆக அயிட்டம் 4க்கும் புஞ்சை ஏக்கர் 21 செண்டு 94ம் தபசில் விபரம் சரி.

1 வது நபர்
T. Aravindh Kumar

2 வது நபர்

சாட்சிகள்:

1. (முகம்மது தனீஸ் காஜா) த/பெ சமீசு நஜ்முதின் பி17, 24வது குறுக்குத்தெரு, மகாராஜா நகர், பாளையங்கோட்டை.
2. (சுப்பிரமணியன்) த/பெ வெள்ளத்துரை, 1/14, அரசு ஆஸ்பத்திரி தெரு, மெயின்ரோடு, புதுக்கோட்டை.

ஆவணம் தயாரித்தவர்: (V.பழனி த/பெ வைகுண்டராமதாஸ், பெருங்குளம்.

உரிமம்எண்:பி.3588/TCN/1984)

Attested True Copy

1 முதலாம் 2021 ஆண்டில்
23 எண் ஆவணம் 12 நாட்களில்
1 எண் 5 க்குள்.



7. Balaji Krishnaswamy
18/1/2021
T. BALAJI KRISHNASWAMY, B.Sc., B.L.,
ADVOCATE & NOTARY
Enroll No 350/06
No.9, Perumal South Mada Street,
TIRUNELVELI TOWN, TIRUNELVELI-627 006
Cell:99844 29483



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : தூத்துக்குடி

வட்டம் : ஸ்ரீவைகுண்டம்

வருவாய் கிராமம் : ஸ்ரீமூலக்கரை

பட்டா எண் : 781

உரிமையாளர்கள் பெயர்

1. தாமஸ்பாண்டியன்

மகன்

அரவிந்தகுமார்

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	
213	-	2 - 91.50	2.66	--	--	--	--	R0607/706--- -- 26-07-2006
214	-	3 - 4.50	2.78	--	--	--	--	R0607/706--- -- 26-07-2006
215	-	2 - 30.00	2.10	--	--	--	--	R0607/706--- -- 26-07-2006
221	1A	0 - 62.50	0.57	--	--	--	--	R0607/706--- -- 26-07-2006
		8 - 88.50	8.11					

குறிப்பு2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 28/05/390/00781/100066 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.

2. இத் தகவல்கள் 06-01-2021 அன்று 11:42:47 AM நேரத்தில் அச்சடிக்கப்பட்டது.

3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

Attested True Copy

T. Balaji Krishnaswamy
18/1/2024

T. BALAJI KRISHNASWAMY, B.Sc., B.L.,
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Enroll No 350/06
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Cell:99944 29488

T. Aravindh Kumar

23/1/2024
என்.ஆ.வ.எண் 12 தா.க.க.எண் 6
தூத்துக்குடி





இந்திய அரசாங்கம்
Government of India
சு. நயினர் நாகேந்திரன்
Sr. Nainar Balaji N
நயினர் நாகேந்திரன்
Nainar Nainar Nagenthiran
பிறந்தநாள் / Year of Birth: 1952
ஆண்பால் / Male

5125 9795 7709

சாதாரண மனிதனின் அதிகாரம்



Unique Identification Authority of India

Address:
: நயினர் நாகேந்திரன், 18A,
23RD CROSS STREET
MAHARAJA NAGAR, nainar
cottage, Palayamkottai,
Tirunelveli, Maharajanga, Tamil
Nadu, 627011

Address:
S/O: Nainar Nagenthiran, 18A,
23RD CROSS STREET
MAHARAJA NAGAR, nainar
cottage, Palayamkottai,
Tirunelveli, Maharajanga, Tamil
Nadu, 627011

5125 9795 7709



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T. Balaji Krishnaswamy
18/11/2021

T. BALAJI KRISHNASWAMY, B.Sc., B.L.,
ADVOCATE & NOTARY
Enroll No. 35295.
No.9, Perumal South Street,
TIRUNELVELI TOWN, TIRUNELVELI-627 006
Cell:99944 29488

T. Aravindh Kumar

23 | பத்தகம் 2021 | 8
சாதாரண மனிதனின் அதிகாரம்
பிறந்தநாள் / Year of Birth: 1952
ஆண்பால் / Male





இந்திய அரசாங்கம்

Government of India

முஹமது தானிஷ் ஹஜா சம்சு நஜ்முதீன்
Mohamed Danish Haja Samsu Najmudeen

தந்தை: சம்சு நஜ்முதீன் பீர் அடும்பை
Father: SAMSU NAJMUDEEN BEER ADUMAI

பிறந்த ஆண்டு: 1990
பாலினம்: ஆண் / Male



6260 9519 9759



Unique Identification Authority of India

முஹமது: சம்சு நஜ்முதீன்
சம்சு ஹாஜா, சம்சு நஜ்முதீன்
மஹாராஜா நகர், பாலையங்கோட்டை,
மஹாராஜா, திருநெல்வேலி, தமிழ்நாடு
626011

Address: S/O Samsu
Najmudeen, NO 817, 24TH
CROSS STREET,
MAHARAJA NAGAR,
Palayamkottai,
Maharajar, Tirunelveli,
Tamil Nadu, 627011

6260 9519 9759

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

1947
1800 200 1847

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Attested True Copy

T. Balaji Krishnaswamy
18/11/2024

T. BALAJI KRISHNASWAMY, B.Sc., B.L.,
ADVOCATE & NOTARY

Enroll No 350/06

No.9, Perumal South Mada Street,
TIRUNELVELI TOWN, TIRUNELVELI-627 006
Cell:99944 29488

T. Aravindh Kumar

23 | 1 மீதகம் 2021 | மீ ஆண்டில்
என் ஆண்டில் 12 தாடகங்கள்
4/4 கட்டி 9 மீதகம்.
சம்சு நஜ்முதீன்





இந்திய அரசாங்கம்

Government of India



சுப்பிரமணியன் வெள்ளைத்துரை
Subramanian Velladurai
பிறந்தவருடம் / Year of Birth : 1966
ஆண்பால் / Male



5558 2687 3109

ஆதார் - சாதாரண மனிதனின் அதிகாரம்



Unique Identification Authority of India

ஆதார்
முகவரி:

S/O. வெள்ளைத்துரை, 1/ 14, அரசு
ஆஸ்பத்திரி தெரு, மெயின்
ரோடு, புதுக்கோட்டை, குமாரகிரி,
புதுக்கோட்டை, தூத்துக்குடி,
தூத்துக்குடி, தமிழ் நாடு, 628103

Address:

S/O. Velladurai, 1/ 14, GOVT
HOSPITAL STREET, MAIN
ROAD, PUDUKOTTAI,
Kumaragiri, Pudukottai,
Thoothukkudi, Thoothukkudi,
Tamil Nadu, 628103

5558 2687 3109



1947
1800 300 1947



help@uidai.gov.in



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T. Aravindh Kumar
23 / 455826873109
18/11/2021
10 க்கு



Attested True Copy

T. Balaji Krishnaswamy
18/11/2021
T. BALAJI KRISHNASWAMY, B.Sc., B.L.
ADVOCATE & NOTARY
Enroll No 350/06
No.9, Perumal South Mada Street,
TIRUNELVELI TOWN, TIRUNELVELI-627 006
Cell:99944 29488

145

R/பெருங்குளம்/புத்தகம்-1/23/2021



2021 ஆம் ஆண்டு ஜனவரி மாதம் 08ம் தேதி பி.பி. 0352 மனியளவில் பெருங்குளம் சார்பதிவாளர் அலுவலகத்தில் செய்வு கட்டணம் ₹ 650/- செலுத்தியவர்.

இடது பெருவிரல்



[Signature]

கூடுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி

எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்



T. Aravink Kumar

கூடுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி

எழுதி வாங்கியதாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்



[Signature]

கூடுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி

இன்னொரு நிருபித்தவர்கள்

1. V. சிம்பிரேஷ்

2. *[Signature]*

திரு சுப்பிரமணியன் தபி வெள்ளத்துறை 1/14, அரசு ஆஸ்பத்திரி தெரு,
மெயின்ரோடு, புதுக்கோட்டை, குமாரகிரி, தூத்துக்குடி, தூத்துக்குடி, தமிழ்நாடு,
இந்தியா, 628103
திரு முகம்மது தனீஸ் காலா தபி சமீக ரஜ்தின் பி17, 24வது குறுக்குத்தெரு,
மகாராஜா நகர், பாலையங்கோட்டை, பாலையங்கோட்டை, திருநெல்வேலி,
தமிழ்நாடு, இந்தியா, 627011

Attested True Copy.

2021 ஆம் ஆண்டு ஜனவரி மாதம் 8ம் நாள்

23 ! மத்திய 2021 க் ஆண்டில்
சென்னை 12 நாட்களில்
சென்னை 11 க் நாள்.

T. Balaji Krishna Sany
T. BALAJI KRISHNASANY, B.Sc.,
ADVOCATE & NOTARY
Enroll No 350/06
No.9, Perumal South Mada Street,
TIRUNELVELI TOWN, TIRUNELVELI-627 005
Call 9944 29488

[Signature]
Jebanesan G
சார்பதிவாளர்
பெருங்குளம்
சார்பதிவாளர்
பெருங்குளம்



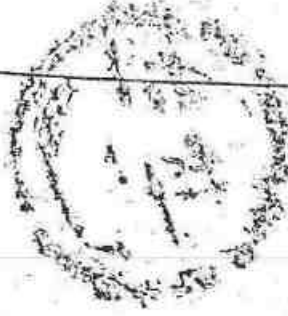
R/பெருங்குளம்/புத்தகம்-1/23/2021

பெருங்குளம்/புத்தகம்-1/23/2021 எண்ணாகப் பதிவு செய்யப்பட்டது.

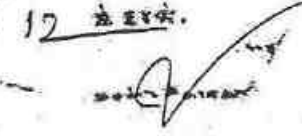
நாள் 08/01/2021

பெருங்குளம்


S. Ganesan G
சார்பதிவாளர்
சார்பதிவாளர்
பெருங்குளம்



1 புத்தகம் 2021 க்கு
23 ரூபாய் / 12 தாக்கணம்
மாசு 12 க்கு.





Attested True Copy

T. Balaji Krishna Swamy

18/1/2021

T. BALAJI KRISHNASWAMY, B.Sc., B.L.
ADVOCATE & NOTARY

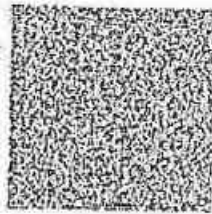
Enroll No 350/06
No. 9, Perumal South Mada Street,
TIRUNELVELI TOWN, TIRUNELVELI-627 006
Cell: 99944 29488



பதிவு எண் / Enrolment No.: 1092/12701/00186

To
ஸ்ரீ நயினார் பாலாஜி ந
Sri Nainar Balaji N
S/O: Nainar Naganthran
18A
23RD CROSS STREET MAHARAJA NAGAR
nainar collage
Palayamkottai
Maharajgar
Tirunelveli Tamil Nadu - 627011
9489834444

Download Date: 06/01/2021
Issue Date: 19/12/2012



உங்கள் ஆதார் எண் / Your Aadhaar No. :

5125 9795 7709

VID : 9183 4060 3876 4860

எனது ஆதார், எனது அடையாளம்



GOVERNMENT OF INDIA



ஸ்ரீ நயினார் பாலாஜி ந
Sri Nainar Balaji N
பிறந்த நாள்/DOB: 12/11/1988
ஆண்/ MALE

Issue Date: 19/12/2012

5125 9795 7709

VID : 9183 4060 3876 4860

எனது ஆதார், எனது அடையாளம்



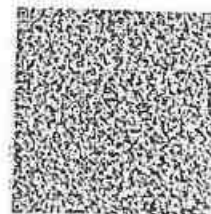
GOVERNMENT OF INDIA



Unique Identification Authority of India

உதவி:
S/O: நயினார் நாகேந்திரன், 18A, 23வது
குறுக்கு தெரு மகாராஜா நகர், நயினார்
காலேஜ், பாலையங்கோட்டை,
திருநெல்வேலி,
தமிழ் நாடு - 627011

Address:
S/O: Nainar Naganthran, 18A, 23RD CROSS
STREET MAHARAJA NAGAR, nainar
collage, Palayamkottai, Tirunelveli,
Tamil Nadu - 627011



5125 9795 7709

VID : 9183 4060 3876 4860

1047 | help@uidai.gov.in | www.uidai.gov.in

தகவல்

- இ ஆதார் அட்டையானது உறுதுறு ஆதாரமாக அல்ல.
- பாதுகாப்பான வ குறியீடு/ ஆய்வுக் XML / ஆன்லைன்
அங்கீகரிக்கப்பட்ட பயன்படுத்தி அடையாளத்தை சரிபார்க்கவும்.
- இது எலக்ட்ரானிக் செயல்முறை மூலம் தயாரிக்கப்பட்ட
கடிதமாகும்.

INFORMATION

- Aadhaar is a proof of identity, not of citizenship.
- Verify Identity using Secure QR Code/ Offline XML/ Online Authentication.
- This is electronically generated letter.

- ஆதார் நாடு முழுவதிலும் செல்லுபடியாகும்.
- பல்வேறு அரசு மற்றும் அரசு அரசு சேவைகளை
எளிதில் பெற ஆதார் உதவுகிறது.
- உங்கள் மொபைல் எண் மற்றும் மின்னஞ்சல் இவ்வாறு
ஆதாரில் புதுப்பிக்கவும்.
- உங்கள் செயலியைப் பயன்படுத்தி உங்கள்
ஸமர்ட் போனில் ஆதாரை எடுத்துச் செல்லுங்கள்.

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அறிவியல் புலம்
FACULTY OF SCIENCE

பெரியார் பல்கலைக்கழக ஆட்சிக்குழு 2010 ஆம் ஆண்டு ஏப்ரல் மாதம்
நடந்த பயன்பாட்டுப்புவியமைப்பியல் தேர்வில்
அரசு கலைக் கல்லூரி, சேலம் - 636 007 (தன்னாட்சி) பயின்ற
P விஸ்வநாதன் என்பவர்

முதல் வகுப்பு A++ தரத்தில் தேர்ச்சி பெற்றார் என்று தக்க
தேர்வாளர்கள் சான்றளித்தபடி அறிவியல் நிறைஞர் என்னும்
பட்டத்தை அவருக்குப் பல்கலைக்கழக இலச்சினையுடன் வழங்குகிறது.

The Syndicate of the Periyar University hereby makes known
that **VISWANATHAN P** *has been*
admitted to the **DEGREE OF MASTER OF SCIENCE in**
APPLIED GEOLOGY
he/she having been certified by duly appointed Examiners to be qualified
to receive the same and was placed in the **FIRST CLASS**
WITH A++ GRADE *at the Examination held in* **APR-2010** *through*
GOVERNMENT ARTS COLLEGE, SALEM - 636 007 (AUTONOMOUS).

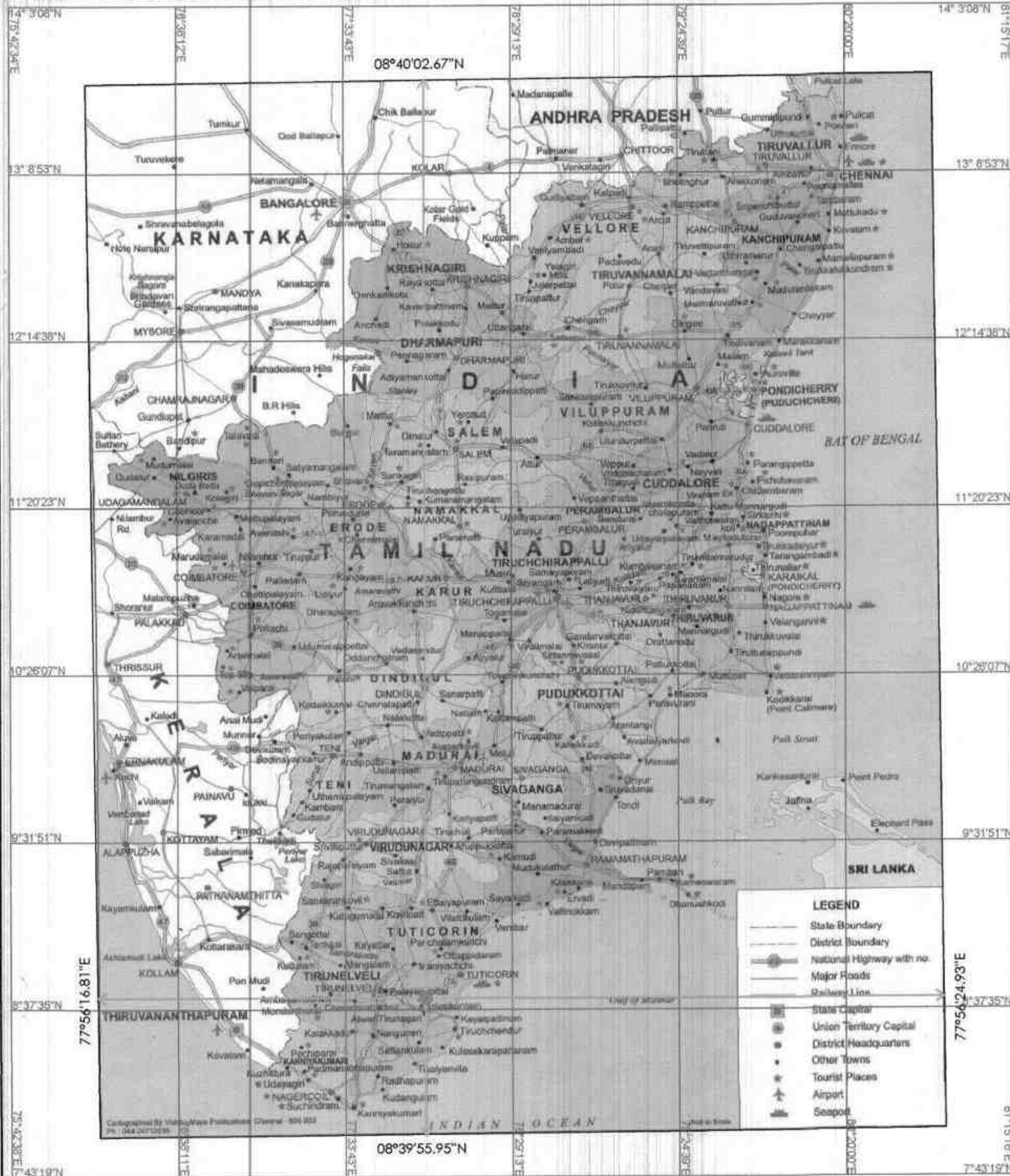


Given under the seal of this university

பதிவாளர்
Registrar

துணைவேந்தர்
Vice-Chancellor

நாள்
Dated 28-02-2011
சேலம் 636011, தமிழ்நாடு, இந்தியா.
Salem 636011, Tamil Nadu, India.



INDEX

Q.L. APPLIED AREA : ●

TOPO SHEET NO. : 58 H/14

LATITUDE : 08°39'55.95"N to 08°40'02.67"N
LONGITUDE : 77°56'16.81"E to 77°56'24.93"E

APPLICANT :

Thiru. SRI NAINAR BALAJI,
S/o. NAINAR NAGENTHRAN,
No.18A, 23rd CROSS STREET,
MAHARAJANAGAR,
PALAYAMKOTTAI,
TIRUNELVELI DISTRICT - 627 011.

LOCATION OF Q.L.A AREA:

S.F.Nos : 213 (P) & 214 (P).
EXTENT : 2.99.0 Ha,
VILLAGE : SRIMOOLAKARAI,
TALUK : SRIVAIKUNTAM,
DISTRICT : THOOTHUKUDI,
STATE : TAMIL NADU.

PLATE NO - I

DATE OF SURVEY : 18.02.2022

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 LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT

P. Viswanathan
P. VISWANATHAN, M.Sc.,
QUALIFIED PERSON



08° 45' 27.87"N



77° 50' 50.01"E



08° 34' 30.76"N

78° 01' 51.72"E

TOPO SHEET NO. : 58 H/14

LATITUDE : 08°39'55.95"N to 08°40'02.67"N
LONGITUDE : 77°56'16.81"E to 77°56'24.93"E

10km RADIUS :

Q.L. APPLIED AREA :

INDEX

Express highway: with toll; with bridge; with distance stone.....
Roads metalled: according to importance.....
Roads, double carriageway; according to importance.....
Unmetalled road, Cart-track, Pack-track with pass: Foot-path.....
Streams: with track in bed; undefined. Canal.....
Dams: masonry or rock-filled; earthwork. Weir.....
River, dry with water channel; with island & rocks. Tidal river.....
Submerged rocks. Shoal. Swamp. Reeds.....
Wells: lined; unlined. Tubewell. Spring. Tanks: perennial; dry.....
Embankments: road or rail; tank. Broken ground.....
Railways, broad gauge: double: single with station; under constrn.....
Railways, other gauges: double: single with distance stone; do.....
Mineral line or tramway. Kiln. Cutting with tunnel.....
Contours with sub-features. Rocky slopes. Cliffs.....
Sand features: (1)flat. (2)sand-hills(permanent). (3)dunes(shifting).
Towns or Villages. inhabited; deserted. Fort.....
Huts: permanent; temporary. Tower. Antiquities.....
Temple. Chhatra. Church. Mosque. Idgah. Tomb. Graves.....
Lighthouse. Lightship. Buoys: lighted; unlighted. Anchorage.....
Mine. Vine on trellis. Grass. Scrub.....
Palms: palmyra; other. Plantain. Conifer. Bamboo. Other trees.....
Areas: cultivated; Wooded. Surveyed trees.....
Boundary, international.....
Boundary, state: demarcated; undemarcated.....
Boundary, district; subdivision; tahsil or taluk; forest.....
Boundary pillars: surveyed; unlocated.....
Heights, triangulated: station point; approximate.....
Bench-mark: geodetic; tertiary; canal.....
Post office. Telegraph office. Overhead tank.....
Rest house or inspection bungalow. Circuit house. Police station.....
Camping Ground. Forest: reserved; protected.....
Spaces names: administrative; locality or tribal.....
Hospital. Dispensary. Veterinary. Hospital/Dispensary.....
Aerodrome. Helipad. Tourist site.....
Powerline: with pylons surveyed; with poles unsurveyed.....



APPLICANT :

Thiru. SRI NAINAR BALAJI,
S/o. NAINAR NAGENTHRAN,
No.18A, 23rd CROSS STREET,
MAHARAJANAGAR,
PALAYAMKOTTAI, TIRUNELVELI DISTRICT - 627 011.

LOCATION OF Q.L.A AREA:

S.F.Nos : 213 (P) & 214 (P).
EXTENT : 2.99.0 Ha,
VILLAGE : SRIMOOLAKARAI,
TALUK : SRIVAIKUNTAM,
DISTRICT : THOOTHUKUDI,
STATE : TAMIL NADU.

PLATE NO - I-A

DATE OF SURVEY : 18.02.2022

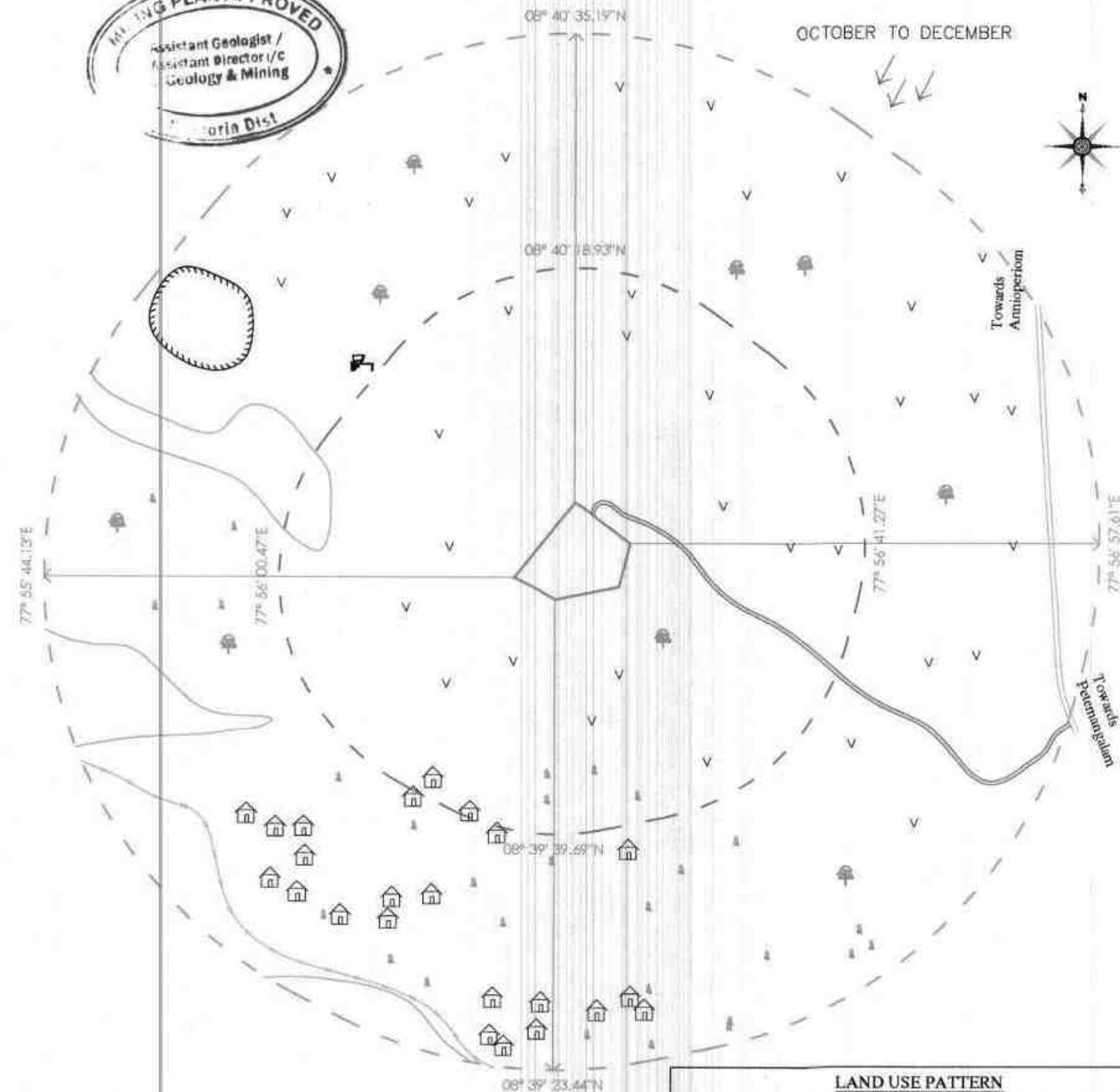
TOPO SKETCH OF QUARRY LEASE APPLIED AREA FOR 10Km RADIUS

SCALE. 1:1,00,000

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 LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT

P. VISWANATHAN, M.Sc.,
QUALIFIED PERSON



JULY TO SEPTEMBER

TOPO SHEET NO. : 58 H/14
 LATITUDE : 08°39'55.95"N to 08°40'02.67"N
 LONGITUDE : 77°56'16.81"E to 77°56'24.93"E

LAND USE PATTERN		
DESCRIPTION	PERCENTAGE	INDEX
OLD PITS/ CRUSHER	(05%)	
TREES	(06%)	
ROADS	(04%)	
HABITATION	(10%)	
AGRICULTURE LAND	(24%)	
BARREN LAND	(39%)	
ODAI & TANK	(12%)	
TOTAL	100%	

INDEX

- Q.L. APPLIED AREA
- 1 Km RADIUS
- 500m RADIUS
- SEASONAL AGRICULTURE LAND
- TREES
- HABITATION
- WIND DIRECTION
- MD-358 ROAD
- APPROACH ROAD
- QUARRY PIT & CRUSHER
- BARREN LAND
- ODAI & TANK

APPLICANT :

Thiru. SRI NAINAR BALAJI,
 S/o. NAINAR NAGENTHRAN,
 No.18A, 23rd CROSS STREET,
 MAHARAJANAGAR,
 PALAYAMKOTTAI,
 TIRUNELVELI DISTRICT - 627 011.

LOCATION OF Q.L.A AREA:

S.F.Nos : 213 (P) & 214 (P).
 EXTENT : 2.99.0 Ha.
 VILLAGE: SRIMOOLAKARAI,
 TALUK : SRIVAIKUNTAM,
 DISTRICT : THOOTHUKUDI,
 STATE : TAMIL NADU.

PLATE NO - I-B

DATE OF SURVEY : 18.02.2022

ENVIRONMENTAL & LAND USE PLAN

SCALE. 1:10,000

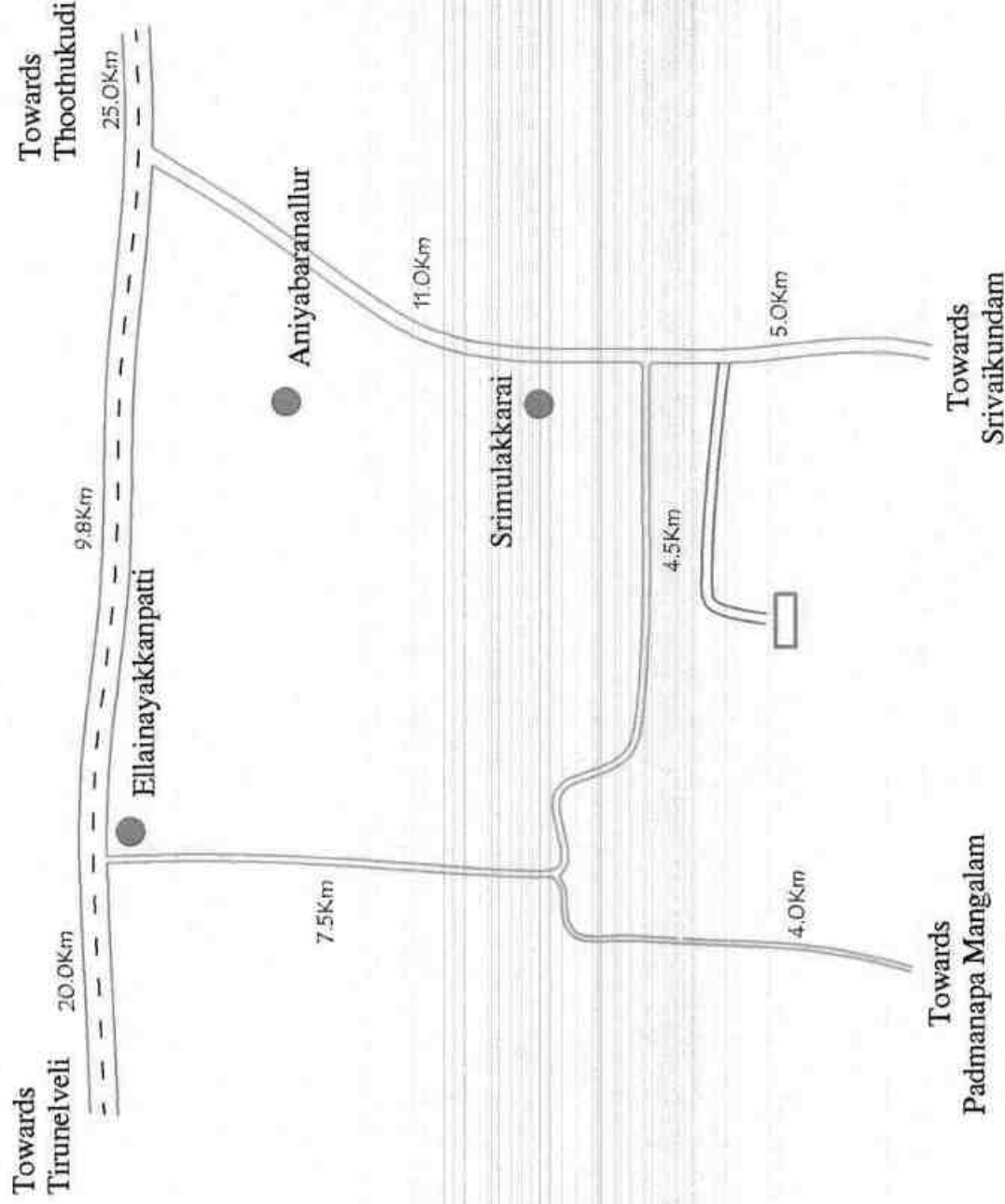
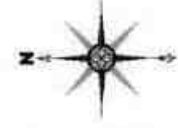
PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
 PLATE IS TRUE AND CORRECT TO THE BEST OF MY
 KNOWLEDGE BASED UPON THE LEASE MAP
 AUTHENTICATED BY STATE GOVERNMENT

P.VISWANATHAN,M.Sc.,
 QUALIFIED PERSON

PLATE NO : I-C

ROUTE MAP



APPLICANT :

Thiru. SRI NAINAR BALAJI,
S/o. NAINAR NAGENTHRAN,
No. 18A, 23rd CROSS STREET,
MAHARAJANAGAR,
PALAYAMKOTTAI,
TIRUNELVELI DISTRICT - 627 011.

LOCATION OF Q.L.A AREA:

S.F.Nos : 213 (P) & 214 (P).
EXTENT : 2.99.0 Ha.
VILLAGE : SRIMOOLAKARAI,
TALUK : SRIVAIKUNTAM,
DISTRICT : THOOTHUKUDI,
STATE : TAMIL NADU.

INDEX

- LEASE APPLIED AREA 
- NATIONAL HIGHWAY 
- APPROACH ROAD 
- MD-358 ROAD 

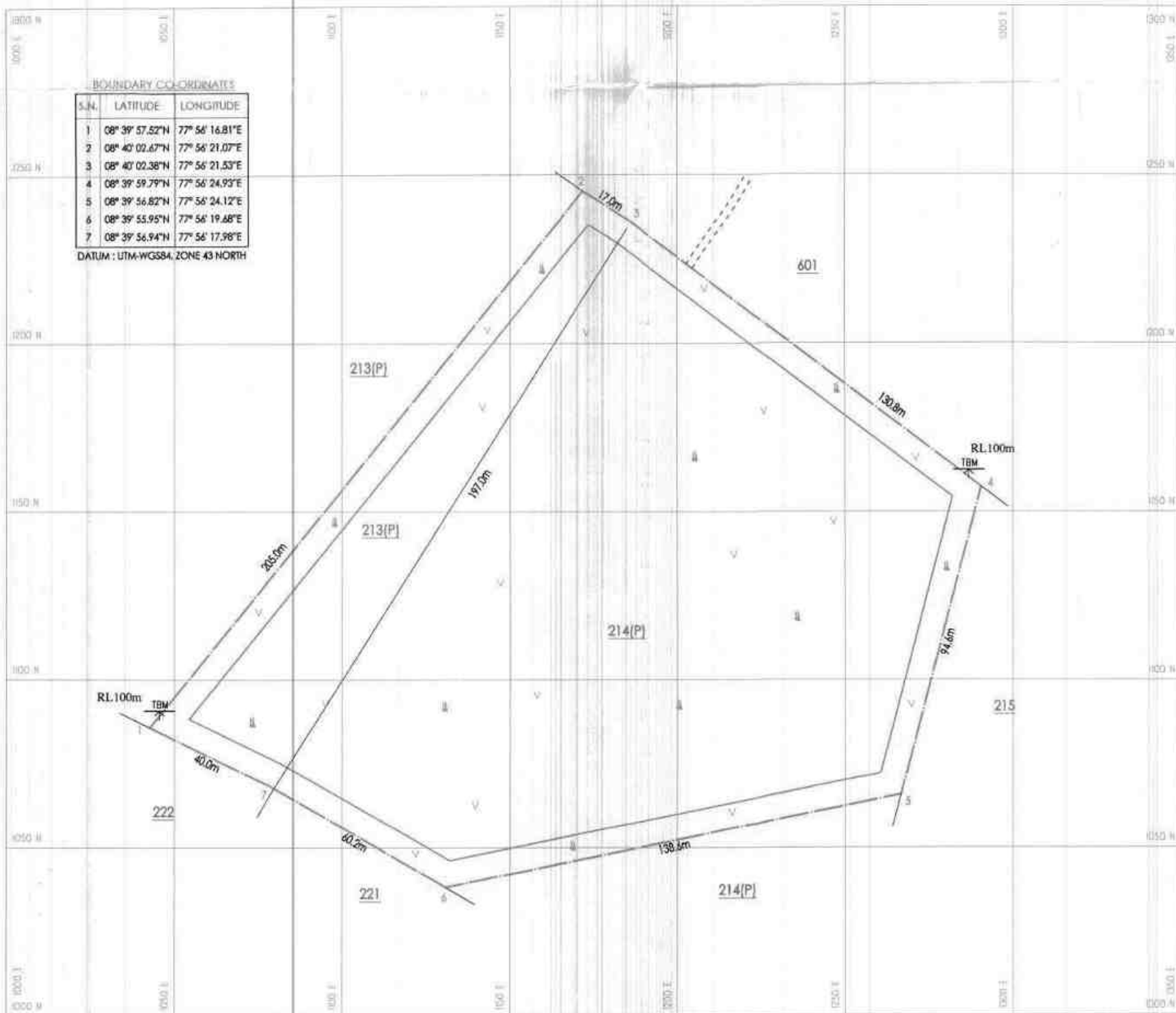
SCALE :

NOT TO SCALE

PREPARED BY:

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KNOWLEDGE BASED UPON THE LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT


P. VISWANATHAN, M.Sc.,
QUALIFIED PERSON



INDEX

- Q.L. APPLIED AREA BOUNDARY
- 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- GRAVEL
- SHRUBS
- APPROACH ROAD

APPLICANT :

Thiru. SRI NAINAR BALAJI,
S/o. NAINAR NAGENTHRAN,
No.18A, 23rd CROSS STREET,
MAHARAJANAGAR,
PALAYAMKOTTAI,
TIRUNELVELI DISTRICT - 627 011.

LOCATION OF Q.L.A AREA:

S.F.Nos : 213 (P) & 214 (P).
EXTENT : 2.99.0 Ha.
VILLAGE : SRIMOOLAKARAI,
TALUK : SRIVAIKUNTAM,
DISTRICT : THOOTHUKUDI,
STATE : TAMIL NADU.

PLATE NO - II

DATE OF SURVEY : 18.02.2022

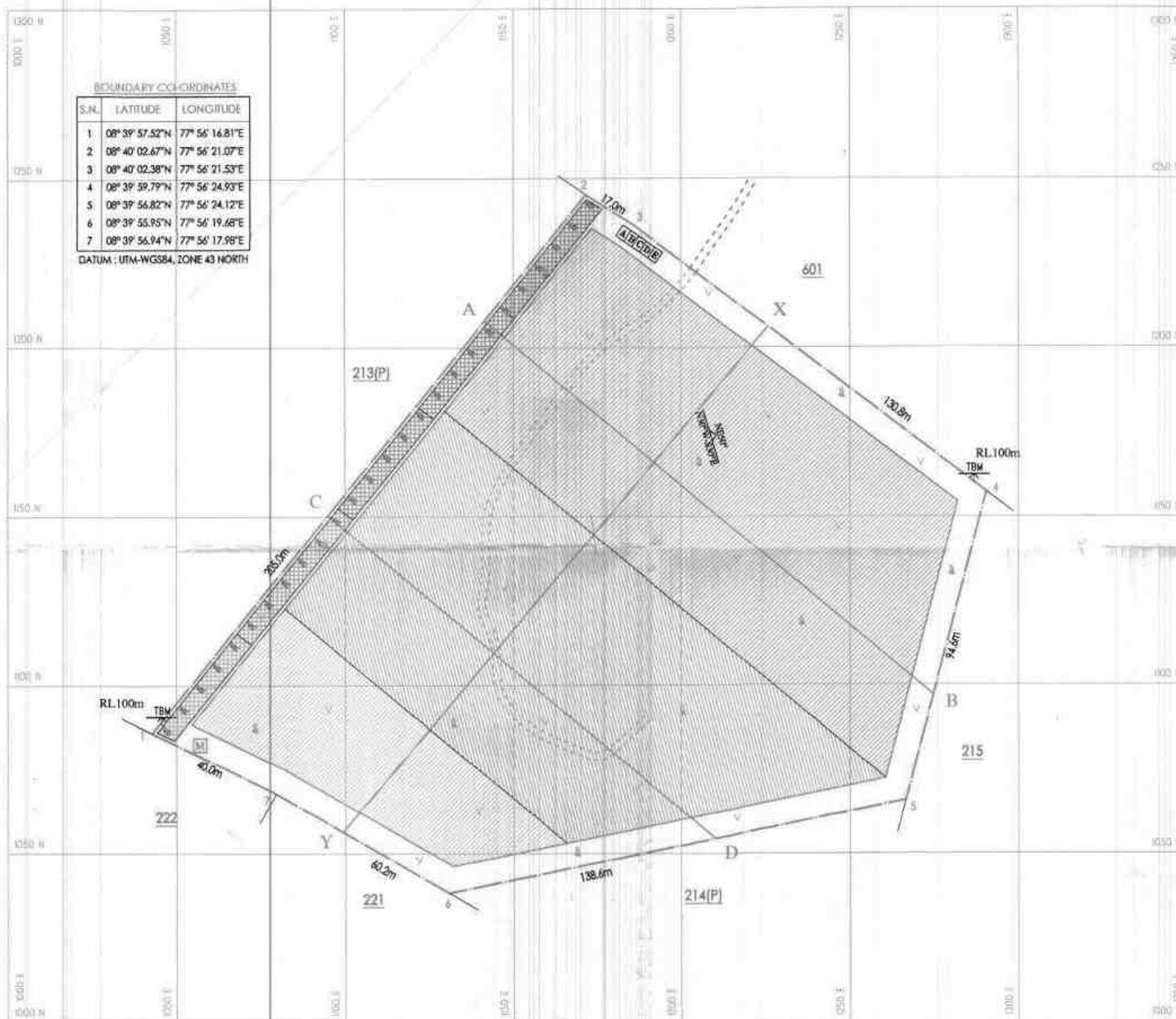
QUARRY LEASE PLAN & SURFACE PLAN

SCALE: 1:1000

PREPARED BY :

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PLATE IS TRUE AND CORRECT TO THE BEST OF MY
KNOWLEDGE BASED UPON THE LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT

P. VISWANATHAN M.Sc.,
QUALIFIED PERSON



SITE SERVICES
(Proposed)

A - OFFICE
B - STORE ROOM
C - FIRST AID ROOM
D - REST SHELTER
E - TOILET
M - MAGAZINE

INDEX

- Q.L. APPLIED AREA BOUNDARY
- 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- GRAVEL
- WEATHERED FORMATION
- ROUGHSTONE
- STRIKE & DIP
- SHRUBS
- QUARRY HAUL ROAD
- APPROACH ROAD
- D.O.E. DEPTH OF ESTIMATION

APPLICANT :

Thiru. SRI NAINAR BALAJI,
S/o. NAINAR NAGENTHRAN,
No. 18A, 23rd CROSS STREET,
MAHARAJANAGAR,
PALAYAMKOTTAI,
TIRUNELVELI DISTRICT - 627 011.

LOCATION OF Q.L.A. AREA:

S.F.Nos : 213 (P) & 214 (P).
EXTENT : 2.99.0 Ha.
VILLAGE : SRIMOOLAKARAI,
TALUK : SRIVAIKUNTAM,
DISTRICT : THOOTHUKUDI,
STATE : TAMIL NADU.

PLATE NO - III

DATE OF SURVEY : 18.02.2022

TOPOGRAPHY, GEOLOGICAL PLAN YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTIONS

SCALE : 1 : 1000

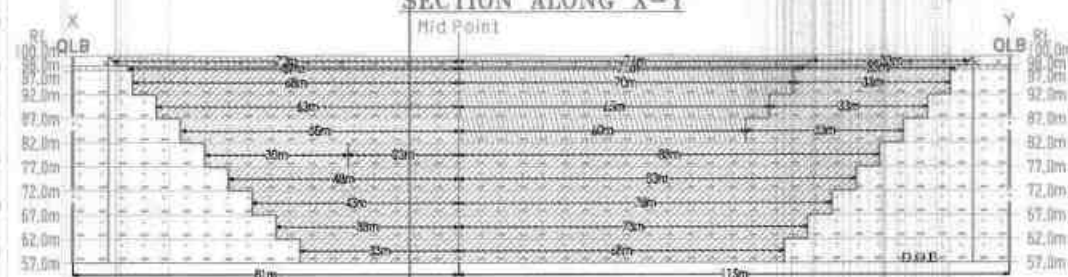
PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE BEST OF MY
KNOWLEDGE BASED UPON THE LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT

P. Viswanathan M.Sc.
P. VISWANATHAN M.Sc.,
QUALIFIED PERSON

SECTION ALONG X-Y

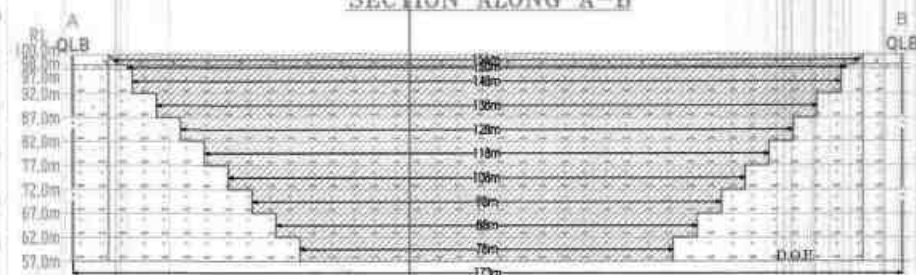
Mid Point



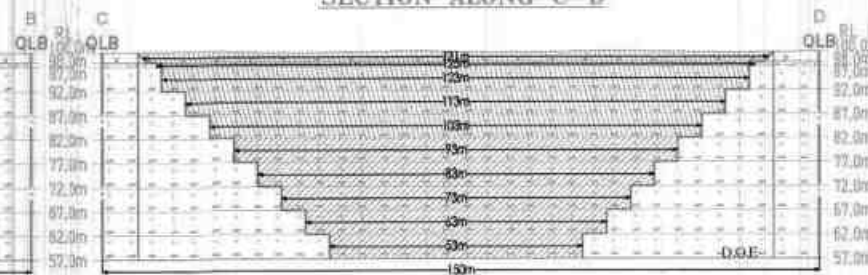
- I - yr Proposed area to be Planted
- II - yr Proposed area to be Planted
- III - yr Proposed area to be Planted
- IV - yr Proposed area to be Planted
- V - yr Proposed area to be Planted

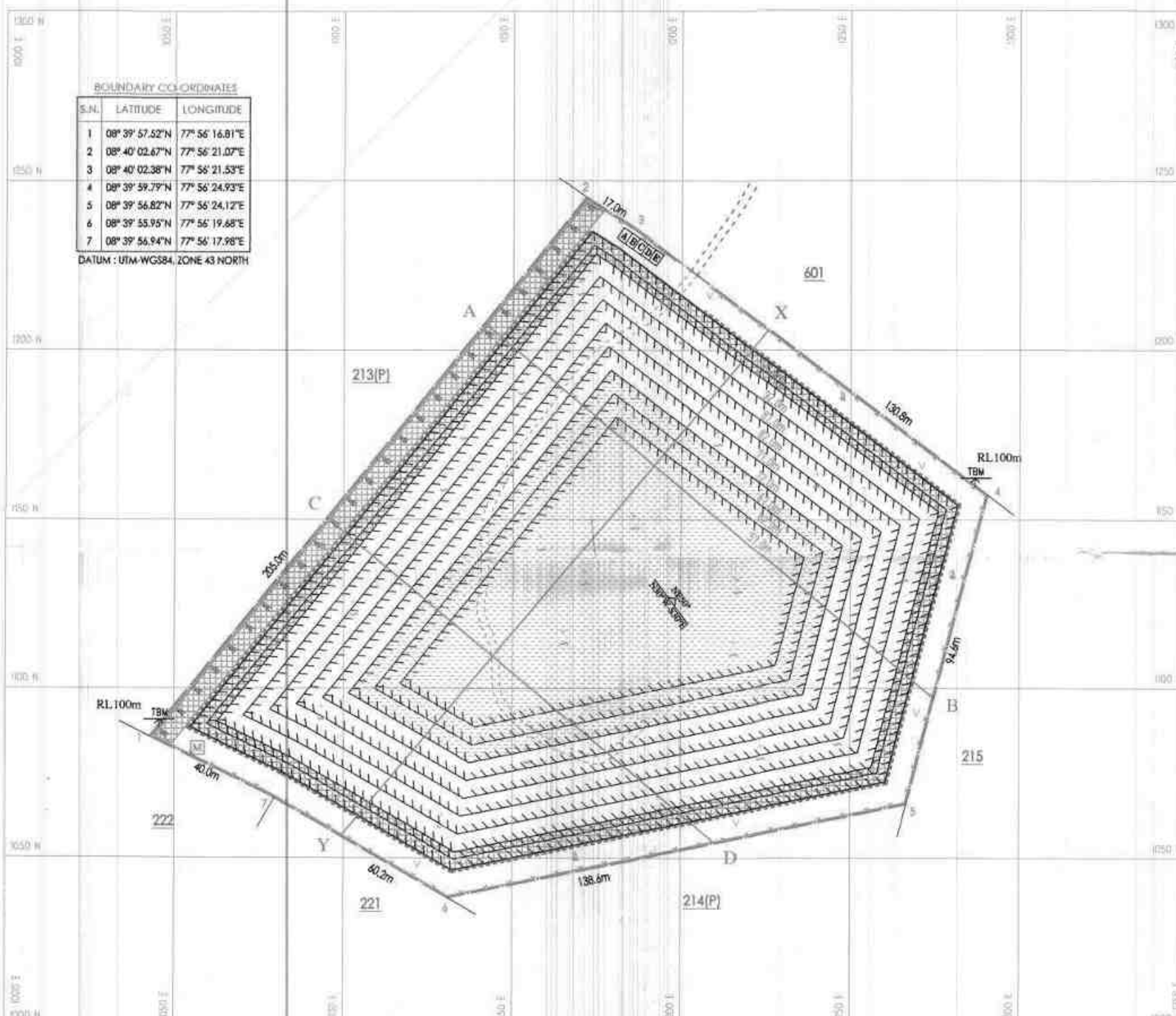
- I - yr Proposed area to be Quarried
- II - yr Proposed area to be Quarried
- III - yr Proposed area to be Quarried
- IV - yr Proposed area to be Quarried
- V - yr Proposed area to be Quarried

SECTION ALONG A-B



SECTION ALONG C-D





INDEX

	Q.L. APPLIED AREA BOUNDARY
	7.5m SAFETY DISTANCE
	TEMPORARY BENCH MARK
	GRAVEL
	WEATHERED FORMATION
	ROUGHSTONE
	STRIKE & DIP
	SHRUBS
	QUARRY HAUL ROAD
	APPROACH ROAD
	QUARRY PIT
	F.V. Yr PLANTATION
	BARBED WIRE FENCING
	EXISTING LAND FORM
	SOIL LAYER
	REHABILITATED LAND FORM
	PROPOSED GARLAND DRAIN
	OLD SURFACE LEVEL
	FINISHED SURFACE LEVEL
	RAIN WATER STORAGE

APPLICANT :
 Thiru. SRI NAINAR BALAJI,
 S/o. NAINAR NAGENTHRAN,
 No. 18A, 23rd CROSS STREET,
 MAHARAJANAGAR,
 PALAYAMKOTTAI,
 TIRUNELVELI DISTRICT - 627 011.

LOCATION OF Q.L.A AREA:
 S.F.Nos : 213 (P) & 214 (P).
 EXTENT : 2.99.0 Ha.
 VILLAGE : SRIMOOLAKARAI,
 TALUK : SRIVAIKUNTAM,
 DISTRICT : THOOTHUKUDI,
 STATE : TAMIL NADU.

PLATE NO - IV
 DATE OF SURVEY : 18.02.2022

**PROGRESSIVE QUARRY CLOSURE
 PLAN & SECTIONS**
 SCALE: 1:1000

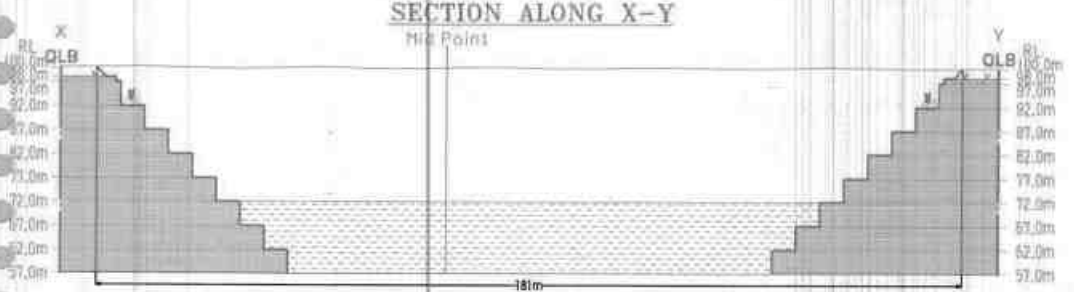
PREPARED BY :
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
 PLATE IS TRUE AND CORRECT TO THE BEST OF MY
 KNOWLEDGE BASED UPON THE LEASE MAP
 AUTHENTICATED BY STATE GOVERNMENT
 P. Vishwanathan, M.Sc.
 QUALIFIED PERSON

Proposed Pit Dimension (max)
 = 181mX158mX43m(d)

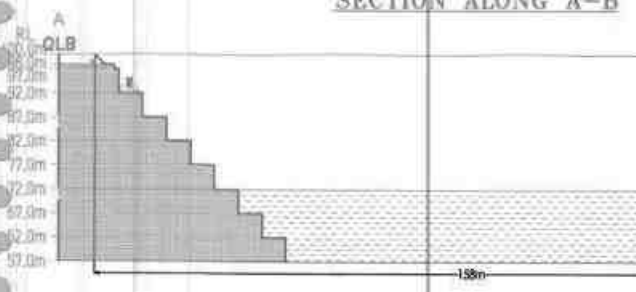
LAND USE PATTERN

DESCRIPTION	PRESENT AREA IN (Ha)	AREA AT THE END OF THIS QUARRYING PERIOD (Ha)
QUARRYING PIT	Nil	2.49.8
INFRASTRUCTURE	Nil	0.01.0
ROADS	Nil	0.02.0
GREEN BELT	Nil	0.13.0
UN-UTILIZED AREA	2.99.0	0.33.2
TOTAL	2.99.0	2.99.0

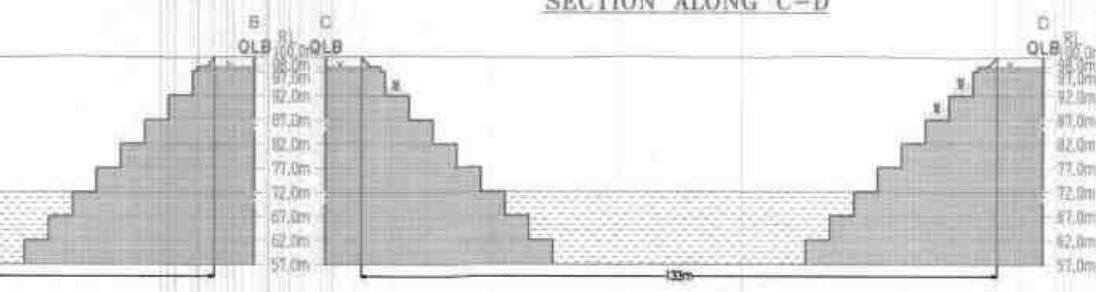
SECTION ALONG X-Y
 Mid Point



SECTION ALONG A-B



SECTION ALONG C-D

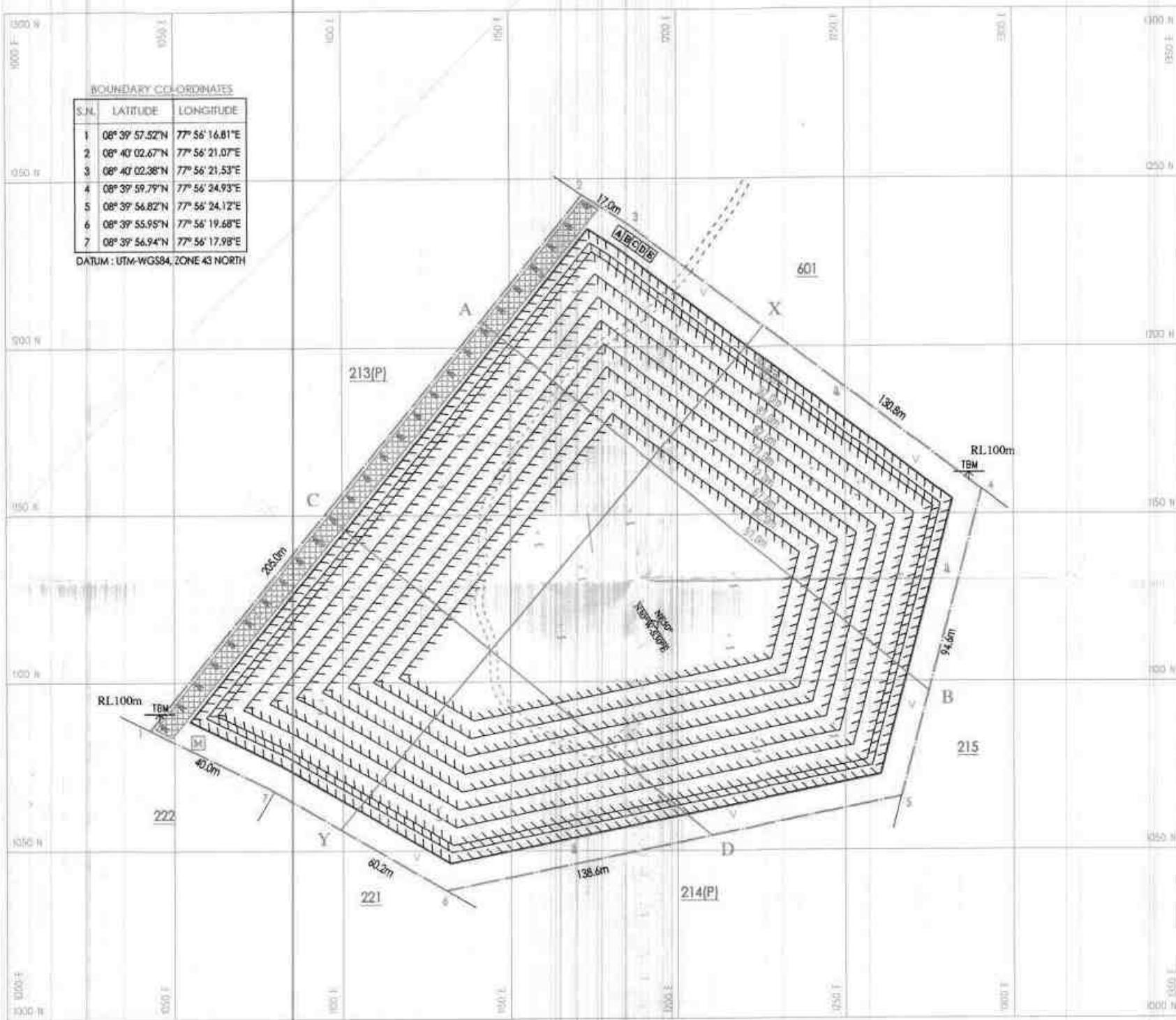




SITE SERVICES
 A - OFFICE
 B - STORE ROOM
 C - FIRST AID ROOM
 D - REST SHED
 E - TOILET
 M - MAGAZINE

S.N.	LATITUDE	LONGITUDE
1	08° 39' 57.52"N	77° 56' 16.81"E
2	08° 40' 02.67"N	77° 56' 21.07"E
3	08° 40' 02.38"N	77° 56' 21.53"E
4	08° 39' 59.79"N	77° 56' 24.93"E
5	08° 39' 56.82"N	77° 56' 24.12"E
6	08° 39' 55.95"N	77° 56' 19.68"E
7	08° 39' 56.94"N	77° 56' 17.98"E

DATUM : UTM-WGS84, ZONE 43 NORTH



INDEX	
	Q.L. APPLIED AREA BOUNDARY
	7.5m SAFETY DISTANCE
	TEMPORARY BENCH MARK
	GRAVEL
	WEATHERED FORMATION
	ROUGHSTONE
	STRIKE & DIP
	SHRUBS
	QUARRY HAUL ROAD
	APPROACH ROAD
	QUARRY PIT
	I-V Yr PLANTATION

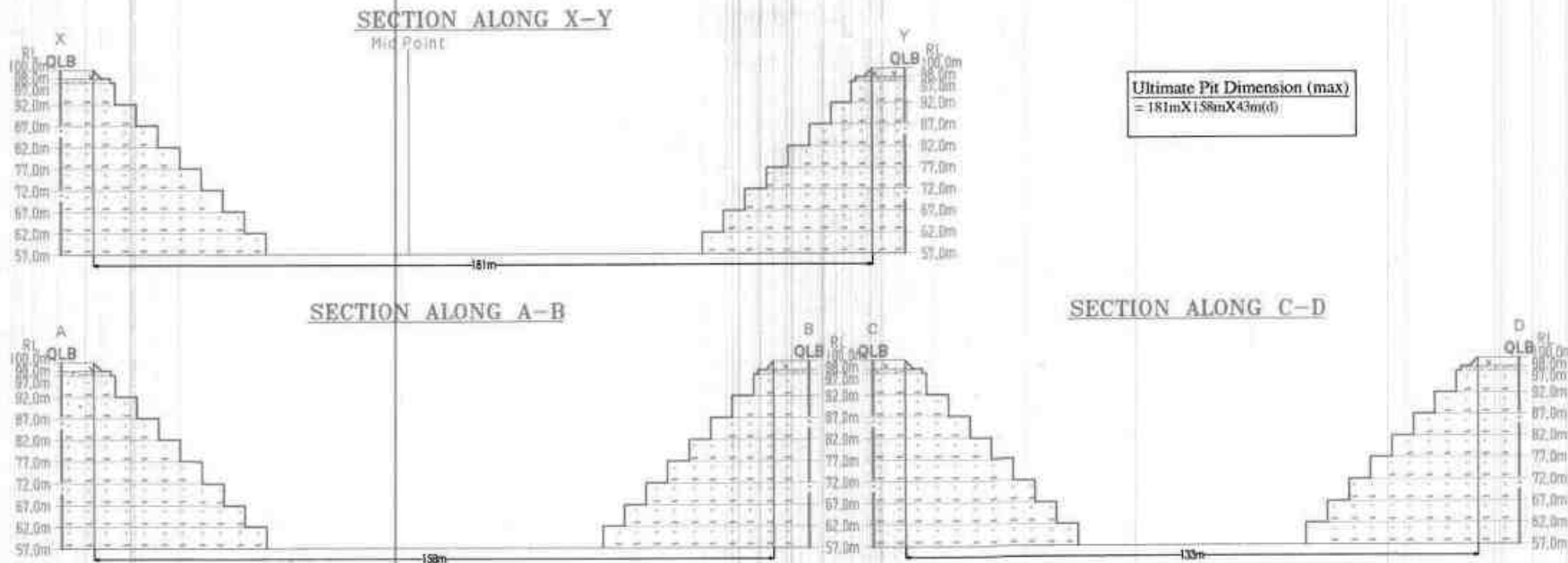
APPLICANT :
 Thiru. SRI NAINAR BALAJI,
 S/o. NAINAR NAGENTHRAN,
 No.18A, 23rd CROSS STREET,
 MAHARAJANAGAR,
 PALAYAMKOTTAI,
 TIRUNELVELI DISTRICT - 627 011.

LOCATION OF Q.L.A AREA:
 S.F.Nos : 213 (P) & 214 (P).
 EXTENT : 2.99.0 Ha.
 VILLAGE : SRIMOOLAKARAI,
 TALUK : SRIVAIKUNTAM,
 DISTRICT : THOOTHUKUDI,
 STATE : TAMIL NADU.

PLATE NO - V
 DATE OF SURVEY : 18.02.2022

CONCEPTUAL PLAN & SECTIONS
 SCALE : 1 : 1000

PREPARED BY :
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 KNOWLEDGE BASED UPON THE LEASE MAP
 AUTHENTICATED BY STATE GOVERNMENT
 P. Viswanathan, N. Sc.
 QUALIFIED PERSON



Ultimate Pit Dimension (max)
 = 181mX158mX43m(d)



CHENNAI METTEX LAB PRIVATE LIMITED®

(Approved by AAI, AGMARK, APEDA, BIS, EIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

Jothi Complex, 83, M.K.N. Road, Guindy, Chennai - 600 032, Tamil Nadu, INDIA
Phone : +91 44 22323163, 22311034, 42179490, 42179491 | CIN: U74999TN2008PTC069459
Email : test@mettexlab.com | Web : www.mettexlab.com

TEST REPORT

ISSUED TO: Thiru. Sri Nainar Balaji, Extent : 2.99.0ha

S.F.Nos. 213 (P) & 214 (P), Srimoolakarai Village,
Srivaikundam Taluk, Thoothukudi District.

Test Certificate No : CML/22-23/6638

Test Certificate Date : 03.01.2023

Sample Description : Ambient Air Monitoring

Location of Sampling : AAQ1 Project Aea, Core Zone - 8°39'56.74"N 77°56'19.71"E

Sampling Plan & Procedure: IS 5182 Part 14:2000 & CML/LAB/ENV/SOP/07

Sampling Instrument ID & Calibration Due Date: CML/ENV/RDS/09 & 28.11.2023

Sampling Instrument ID & Calibration Due Date: CML/ENV/FDS/09 & 28.11.2023

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
03.10.2022	7:00-7:00	76.3	40.3	18.7	6.3	19.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.10.2022	7:15-7:15	78.7	42.0	20.2	6.7	21.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.10.2022	7:00-7:00	75.2	41.6	19.6	7.4	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.10.2022	7:15-7:15	77.6	40.3	21.0	8.0	20.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.10.2022	7:00-7:00	70.0	40.9	20.6	7.6	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.10.2022	7:15-7:15	79.6	41.5	20.1	6.9	19.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.10.2022	7:00-7:00	69.1	41.9	18.2	6.3	21.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.10.2022	7:15-7:15	78.5	41.6	19.6	7.5	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.10.2022	7:00-7:00	78.2	42.0	21.0	8.0	21.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
01.11.2022	7:15-7:15	75.3	40.8	20.4	7.7	21.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.11.2022	7:00-7:00	77.6	40.3	19.5	6.3	19.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.11.2022	7:15-7:15	79.3	41.5	19.2	6.9	19.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.11.2022	7:00-7:00	78.5	42.0	18.7	7.6	20.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.11.2022	7:15-7:15	70.0	41.3	20.6	8.0	21.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.11.2022	7:00-7:00	78.7	40.7	21.0	6.5	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.11.2022	7:15-7:15	76.3	41.5	19.3	7.8	19.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.11.2022	7:00-7:00	79.7	42.0	19.7	7.1	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.11.2022	7:15-7:15	77.4	41.7	18.5	6.9	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.12.2022	7:00-7:00	78.3	41.2	20.3	8.0	20.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.12.2022	7:15-7:15	78.9	40.5	21.0	6.4	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.12.2022	7:00-7:00	75.7	40.7	19.3	7.5	21.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.12.2022	7:15-7:15	77.6	42.0	19.7	7.2	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.12.2022	7:00-7:00	79.7	41.3	18.6	8.9	19.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.12.2022	7:15-7:15	70.0	41.9	20.2	6.4	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.12.2022	7:00-7:00	78.4	40.4	21.0	6.1	20.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.12.2022	7:15-7:15	78.9	41.2	19.2	7.6	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit; DL: Detection Limit; NH₃: BDL (DL:20); O₃: BDL (DL:20); CO: BDL (DL:1.0);

Pb: BDL (DL:0.1); Ni: BDL (DL:1.0); As: BDL (DL:1.0); C₆H₆: BDL (DL:1.0); BaP: BDL (DL:0.1)

Remarks: The values observed for the pollutants given above are within the CPCB standards.

End of Report

For Chennai Mettex Lab Private Limited



Reviewed & Authorized By
P. KAVITHA
Technical Manager
Authorised Signatory



CHENNAI METTEX LAB PRIVATE LIMITED[®]

(Approved by AAI, AGMARK, APEDA, BIS, EIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

Jothi Complex, 83, M.K.N. Road, Guindy, Chennai - 600 032, Tamil Nadu, INDIA
Phone : +91 44 22323163, 22311034, 42179490, 42179491 | CIN: U74999TN2008PTC069459
Email : test@mettexlab.com | Web : www.mettexlab.com

TEST REPORT

ISSUED TO: Thiru. Sri Nainar Balaji, Extent : 2.99.0ha
S.F.Nos. 213 (P) & 214 (P), Srimoolakarai Village,
Srivaikundam Taluk, Thoothukudi District.

Test Certificate No : CML/22-23/6639

Test Certificate Date : 03.01.2023

Sample Description : Ambient Air Monitoring

Location of Sampling : AAQ 2 -Srimoolakarai Melu- 8°39'42.04"N 77°55'58.12"E

Sampling Plan & Procedure: IS 5182 Part 14:2000 & CML/LAB/ENV/SOP/07

Sampling Instrument ID & Calibration Due Date: CML/ENV/RDS/10 & 28.11.2023

Sampling Instrument ID & Calibration Due Date: CML/ENV/FDS/10 & 28.11.2023

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period:hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
03.10.2022	7:00-7:00	73.5	45.7	23.5	7.6	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.10.2022	7:15-7:15	74.2	46.2	23.9	7.2	23.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.10.2022	7:00-7:00	75.6	46.9	26.0	8.5	25.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.10.2022	7:15-7:15	77.0	48.3	25.8	9.0	24.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.10.2022	7:00-7:00	76.5	49.0	24.2	8.1	24.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.10.2022	7:15-7:15	75.3	47.4	24.9	7.4	23.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.10.2022	7:00-7:00	75.7	47.9	23.2	7.0	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.10.2022	7:15-7:15	74.2	45.3	24.7	8.6	24.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.10.2022	7:00-7:00	74.9	46.8	24.1	8.1	25.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
01.11.2022	7:15-7:15	75.8	48.2	25.6	7.4	23.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.11.2022	7:00-7:00	76.3	49.0	25.8	7.3	24.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.11.2022	7:15-7:15	77.0	47.7	25.1	7.9	23.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.11.2022	7:00-7:00	74.8	45.3	23.7	9.0	23.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.11.2022	7:15-7:15	74.2	45.9	23.1	8.7	24.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.11.2022	7:00-7:00	76.7	46.4	26.0	8.2	24.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.11.2022	7:15-7:15	76.1	46.0	25.8	7.4	25.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.11.2022	7:00-7:00	75.3	47.2	24.7	7.7	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.11.2022	7:15-7:15	74.0	48.6	25.2	8.5	23.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.12.2022	7:00-7:00	73.8	49.0	24.3	8.1	24.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.12.2022	7:15-7:15	75.7	46.2	26.0	9.0	24.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.12.2022	7:00-7:00	75.1	46.7	25.4	7.6	23.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.12.2022	7:15-7:15	76.3	48.3	25.1	7.2	25.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.12.2022	7:00-7:00	77.0	47.6	23.2	8.6	24.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.12.2022	7:15-7:15	75.8	45.2	24.5	8.8	24.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.12.2022	7:00-7:00	75.2	46.6	24.9	7.2	23.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.12.2022	7:15-7:15	76.2	47.8	23.9	7.7	23.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ;DL: Detection Limit ; NH₃: BDL (DL:20); O₃: BDL (DL:20); CO: BDL (DL:1.0);

Pb: BDL (DL:0.1);

Ni: BDL (DL:1.0); As: BDL (DL:1.0); C₆H₆: BDL (DL:1.0); BaP: BDL (DL:0.1)

Remarks: The values observed for the pollutants given above are within the CPCB standards.

End of Report

For Chennai Mettex Lab Private Limited



[Signature]
Reviewed & Authorized By

P. KAVITHA
Technical Manager
Authorised Signatory



CHENNAI METTEX LAB PRIVATE LIMITED®

(Approved by AAI, AGMARK, APEDA, BIS, EIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

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Email : test@mettexlab.com | Web : www.mettexlab.com

TEST REPORT

ISSUED TO: Thiru. Sri Nainar Balaji, Extent : 2.99.0ha
S.F.Nos. 213 (P) & 214 (P), Srimoolakarai Village,
Srivaikundam Taluk, Thoothukudi District.

Test Certificate No : CML/22-23/6640

Test Certificate Date 03.01.2023

Sample Description : Ambient Air Monitoring

Location of Sampling : AAQ3 – Patemanagaram 8°39'22.87"N 77°57'3.14"E

Sampling Plan & Procedure: IS 5182 Part 14:2000 & CML/LAB/ENV/SOP/07

Sampling Instrument ID & Calibration Due Date: CML/ENV/RDS/11 & 28.11.2023

Sampling Instrument ID & Calibration Due Date: CML/ENV/FDS/11 & 28.11.2023

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
03.10.2022	7:00-7:00	72.8	44.2	21.6	7.6	22.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.10.2022	7:15-7:15	74.0	46.5	23.0	7.1	24.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.10.2022	7:00-7:00	73.6	45.8	22.8	8.6	23.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.10.2022	7:15-7:15	73.2	47.0	22.1	8.2	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.10.2022	7:00-7:00	72.5	45.4	21.4	9.0	22.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.10.2022	7:15-7:15	62.9	44.8	21.9	7.3	22.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.10.2022	7:00-7:00	63.6	46.2	23.0	7.5	23.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.10.2022	7:15-7:15	64.0	46.7	22.8	8.6	24.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.10.2022	7:00-7:00	62.8	47.0	22.3	8.2	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
01.11.2022	7:15-7:15	72.1	45.2	21.5	9.0	23.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.11.2022	7:00-7:00	73.8	44.3	21.9	7.7	22.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.11.2022	7:15-7:15	73.2	44.9	23.0	7.2	23.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.11.2022	7:00-7:00	74.0	46.2	22.8	8.6	24.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.11.2022	7:15-7:15	73.8	46.7	22.3	8.4	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.11.2022	7:00-7:00	72.6	45.3	23.0	7.3	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.11.2022	7:15-7:15	72.2	46.7	21.7	8.6	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.11.2022	7:00-7:00	73.5	46.3	21.3	9.0	23.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.11.2022	7:15-7:15	74.0	44.8	22.5	8.2	24.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.12.2022	7:00-7:00	73.8	44.2	22.7	7.2	22.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.12.2022	7:15-7:15	73.1	46.5	21.4	7.6	22.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.12.2022	7:00-7:00	72.5	47.0	23.0	8.7	23.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.12.2022	7:15-7:15	72.7	46.3	21.4	9.0	23.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.12.2022	7:00-7:00	73.4	45.7	22.7	8.2	24.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.12.2022	7:15-7:15	64.0	45.1	22.1	8.9	22.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.12.2022	7:00-7:00	63.8	44.8	21.8	7.2	22.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.12.2022	7:15-7:15	63.1	44.2	23.0	7.6	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ;DL: Detection Limit ; NH₃: BDL (DL:20); O₃: BDL (DL:20); CO: BDL (DL:1.0); Pb: BDL (DL:0.1); Ni: BDL (DL:1.0); As: BDL (DL:1.0); C₆H₆: BDL (DL:1.0); BaP: BDL (DL:0.1)

Remarks: The values observed for the pollutants given above are within the CPCB standards.

End of Report

For Chennai Mettex Lab Private Limited



[Signature]
Reviewed & Authorized By
P. KAVITHA
Technical Manager
Authorised Signatory



CHENNAI METTEX LAB PRIVATE LIMITED®

(Approved by AAI, AGMARK, APEDA, BIS, EIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

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TEST REPORT

ISSUED TO: Thiru. Sri Nainar Balaji, Extent : 2.99.0ha

S.F.Nos. 213 (P) & 214 (P), Srimoolakarai Village,
Srivaikundam Taluk, Thoothukudi District.

Test Certificate No : CML/22-23/6641

Test Certificate Date : 03.01.2023

Sample Description : Ambient Air Monitoring

Location of Sampling : AAQ4 – Nallanghudi- 8°37'32.04"N 77°56'20.53"E

Sampling Plan & Procedure: IS 5182 Part 14:2000 & CML/LAB/ENV/SOP/07

Sampling Instrument ID & Calibration Due Date: CML/ENV/RDS/12 & 28.11.2023

Sampling Instrument ID & Calibration Due Date: CML/ENV/FDS/12 & 28.11.2023

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
03.10.2022	7:00-7:00	68.6	42.7	21.3	7.2	21.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.10.2022	7:15-7:15	70.7	45.0	22.6	7.7	23.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.10.2022	7:00-7:00	77.3	44.8	23.0	8.5	24.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.10.2022	7:15-7:15	71.6	43.6	22.8	9.0	22.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.10.2022	7:00-7:00	72.0	44.5	22.1	8.7	22.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.10.2022	7:15-7:15	70.8	42.3	21.6	7.6	21.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.10.2022	7:00-7:00	79.2	42.7	21.7	7.1	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.10.2022	7:15-7:15	77.6	43.8	23.0	8.4	24.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.10.2022	7:00-7:00	71.8	44.6	22.8	8.9	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
01.11.2022	7:15-7:15	70.3	45.0	22.1	9.0	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.11.2022	7:00-7:00	60.0	43.7	21.6	7.6	24.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.11.2022	7:15-7:15	67.5	44.5	21.2	8.2	22.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.11.2022	7:00-7:00	67.0	45.0	21.9	8.7	23.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.11.2022	7:15-7:15	68.6	43.6	23.0	7.3	23.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.11.2022	7:00-7:00	71.4	43.1	22.6	7.9	21.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.11.2022	7:15-7:15	71.9	42.8	22.4	8.6	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.11.2022	7:00-7:00	72.0	42.1	21.8	9.0	22.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.11.2022	7:15-7:15	70.3	44.7	22.4	7.4	24.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.12.2022	7:00-7:00	78.6	44.2	23.0	7.8	23.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.12.2022	7:15-7:15	77.4	45.0	21.7	8.6	21.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.12.2022	7:00-7:00	78.9	42.8	21.9	8.9	22.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.12.2022	7:15-7:15	71.8	42.2	22.5	7.4	22.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.12.2022	7:00-7:00	72.0	44.5	22.1	9.0	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.12.2022	7:15-7:15	70.3	43.7	21.6	8.7	24.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.12.2022	7:00-7:00	70.9	43.1	21.9	7.6	21.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.12.2022	7:15-7:15	78.6	42.5	23.0	7.2	22.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ; DL: Detection Limit ; NH₃: BDL (DL:20); O₃: BDL (DL:20); CO: BDL (DL:1.0); Pb: BDL (DL:0.1); Ni: BDL (DL:1.0); As: BDL (DL:1.0); C₆H₆: BDL (DL:1.0); BaP: BDL (DL:0.1)

Remarks: The values observed for the pollutants given above are within the CPCB standards.

End of Report

For Chennai Mettex Lab Private Limited



[Signature]
Reviewed & Authorized By

P. KAVITHA
Technical Manager
Authorised Signatory



CHENNAI METTEX LAB PRIVATE LIMITED®

(Approved by AAI, AGMARK, APEDA, BIS, EIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

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Phone : +91 44 22323163, 22311034, 42179490, 42179491 | CIN: U74999TN2008PTC069459
Email : test@mettexlab.com | Web : www.mettexlab.com

TEST REPORT

ISSUED TO: Thiru. Sri Nainar Balaji, Extent : 2.99.0ha

S.F.Nos. 213 (P) & 214 (P), Srimoolakarai Village,
Srivaikundam Taluk, Thoothukudi District.

Test Certificate No : CML/22-23/6642

Test Certificate Date : 03.01.2023

Sample Description : Ambient Air Monitoring

Location of Sampling : AAQ5 – Pudupatti- 8°42'36.12"N 77°56'12.49"E

Sampling Plan & Procedure: IS 5182 Part 14:2000 & CML/LAB/ENV/SOP/07

Sampling Instrument ID & Calibration Due Date: CML/ENV/RDS/13 & 28.11.2023

Sampling Instrument ID & Calibration Due Date: CML/ENV/FDS/13 & 28.11.2023

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
03.10.2022	7:00-7:00	72.7	43.7	24.3	6.3	24.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.10.2022	7:15-7:15	74.3	45.8	25.8	6.7	24.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.10.2022	7:00-7:00	75.0	46.0	27.6	7.6	26.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.10.2022	7:15-7:15	71.8	44.3	25.3	8.0	25.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.10.2022	7:00-7:00	72.6	43.2	28.0	7.8	25.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.10.2022	7:15-7:15	74.8	45.7	27.2	6.3	24.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.10.2022	7:00-7:00	74.1	46.0	26.5	6.7	26.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.10.2022	7:15-7:15	63.7	44.5	24.1	7.4	25.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.10.2022	7:00-7:00	62.5	43.1	25.6	7.5	25.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
01.11.2022	7:15-7:15	64.8	44.6	25.3	8.0	24.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.11.2022	7:00-7:00	65.0	46.0	27.2	6.4	24.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.11.2022	7:15-7:15	63.7	45.8	27.9	6.9	25.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.11.2022	7:00-7:00	63.2	44.2	25.7	7.5	26.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.11.2022	7:15-7:15	61.5	44.9	25.1	7.1	25.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.11.2022	7:00-7:00	63.8	43.7	24.3	6.3	25.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.11.2022	7:15-7:15	73.2	44.9	24.0	8.0	24.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.11.2022	7:00-7:00	74.7	46.0	26.2	7.6	24.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.11.2022	7:15-7:15	71.3	45.2	27.6	6.4	25.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.12.2022	7:00-7:00	71.7	43.8	28.0	6.0	26.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.12.2022	7:15-7:15	73.5	46.0	26.7	7.6	24.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.12.2022	7:00-7:00	72.4	44.5	26.1	7.2	24.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.12.2022	7:15-7:15	75.0	43.7	24.5	8.0	25.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.12.2022	7:00-7:00	74.1	45.3	25.6	7.7	25.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.12.2022	7:15-7:15	62.4	44.7	24.9	6.3	26.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.12.2022	7:00-7:00	61.8	44.1	24.0	6.9	24.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.12.2022	7:15-7:15	63.0	43.7	26.4	7.1	24.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ; DL: Detection Limit ; NH₃: BDL (DL:20); O₃: BDL (DL:20); CO: BDL (DL:1.0);

Pb: BDL (DL:0.1); Ni: BDL (DL:1.0); As: BDL (DL:1.0); C₆H₆: BDL (DL:1.0); BaP: BDL (DL:0.1)

Remarks: The values observed for the pollutants given above are within the CPCB standards.

End of Report

For Chennai Mettex Lab Private Limited



[Signature]
Reviewed & Authorized By
P. KAVITHA
Technical Manager
Authorised Signatory



CHENNAI METTEX LAB PRIVATE LIMITED®

(Approved by AAI, AGMARK, APEDA, BIS, EIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

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Email : test@mettexlab.com | Web : www.mettexlab.com

TEST REPORT

ISSUED TO: Thiru. Sri Nainar Balaji, Extent : 2.99.0ha

S.F.Nos. 213 (P) & 214 (P), Srimoolakarai Village,
Srivaikundam Taluk, Thoothukudi District.

Test Certificate No : CML/22-23/6643

Test Certificate Date : 03.01.2023

Sample Description : Ambient Air Monitoring

Location of Sampling : AAQ6 - Adaikalapuram- 8°40'37.99"N 77°58'16.03"E

Sampling Plan & Procedure: IS 5182 Part 14:2000 & CML/LAB/ENV/SOP/07

Sampling Instrument ID & Calibration Due Date: CML/ENV/RDS/14 & 28.11.2023

Sampling Instrument ID & Calibration Due Date: CML/ENV/FDS/14 & 28.11.2023

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
03.10.2022	7:00-7:00	74.2	46.2	23.8	7.5	23.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.10.2022	7:15-7:15	77.0	45.9	23.0	9.0	25.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.10.2022	7:00-7:00	75.8	49.0	24.5	8.6	24.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.10.2022	7:15-7:15	74.2	48.5	26.0	8.1	24.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.10.2022	7:00-7:00	73.8	48.2	25.8	7.6	23.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.10.2022	7:15-7:15	73.0	46.7	23.1	8.2	23.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.10.2022	7:00-7:00	74.5	45.0	23.9	7.9	25.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.10.2022	7:15-7:15	65.2	45.7	24.6	8.0	23.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.10.2022	7:00-7:00	66.0	48.6	24.2	8.7	23.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
01.11.2022	7:15-7:15	64.2	48.2	23.7	9.0	24.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.11.2022	7:00-7:00	65.6	49.0	25.8	7.4	25.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.11.2022	7:15-7:15	66.2	46.3	26.0	7.0	23.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.11.2022	7:00-7:00	67.0	45.4	25.4	8.6	23.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.11.2022	7:15-7:15	64.8	48.7	23.1	8.1	24.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.11.2022	7:00-7:00	63.0	48.1	23.9	7.3	24.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.11.2022	7:15-7:15	76.2	46.3	24.6	8.4	25.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.11.2022	7:00-7:00	73.5	46.0	26.0	9.0	23.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.11.2022	7:15-7:15	76.8	47.4	25.8	7.6	23.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.12.2022	7:00-7:00	74.2	47.9	25.1	7.2	24.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.12.2022	7:15-7:15	75.6	45.2	24.9	8.5	25.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.12.2022	7:00-7:00	77.0	46.3	24.2	8.0	23.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.12.2022	7:15-7:15	64.5	49.0	23.7	7.6	23.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.12.2022	7:00-7:00	63.2	48.6	23.1	7.0	24.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.12.2022	7:15-7:15	66.7	48.1	25.7	8.9	24.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.12.2022	7:00-7:00	65.3	46.3	26.0	8.2	23.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.12.2022	7:15-7:15	64.8	45.7	25.4	7.4	24.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ; DL: Detection Limit ; NH₃: BDL (DL:20); O₃: BDL (DL:20); CO: BDL (DL:1.0); Pb: BDL (DL:0.1); Ni: BDL (DL:1.0); As: BDL (DL:1.0); C₆H₆: BDL (DL:1.0); BaP: BDL (DL:0.1)
Remarks: The values observed for the pollutants given above are within the CPCB standards.

End of Report

For Chennai Mettex Lab Private Limited



[Signature]

Reviewed & Authorized By

P. KAVITHA
Technical Manager
Authorised Signatory



CHENNAI METTEX LAB PRIVATE LIMITED®

(Approved by AAI, AGMARK, APEDA, BIS, EIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

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TEST REPORT

ISSUED TO: Thiru. Sri Nainar Balaji, Extent : 2.99.0ha

S.F.Nos. 213 (P) & 214 (P), Srimoolakarai Village,
Srivaikundam Taluk, Thoothukudi District.

Test Certificate No : CML/22-23/6644

Test Certificate Date : 03.01.2023

Sample Description : Ambient Air Monitoring

Location of Sampling : AAQ7 – Assengola-8°39'12.48"N 77°54'44.91"E

Sampling Plan & Procedure: IS 5182 Part 14:2000 & CML/LAB/ENV/SOP/07

Sampling Instrument ID & Calibration Due Date: CML/ENV/RDS/15 & 28.11.2023

Sampling Instrument ID & Calibration Due Date: CML/ENV/FDS/15 & 28.11.2023

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
03.10.2022	7:00-7:00	73.8	44.3	25.6	7.6	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.10.2022	7:15-7:15	75.4	46.7	25.1	7.3	25.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.10.2022	7:00-7:00	76.0	45.2	27.6	8.4	26.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.10.2022	7:15-7:15	75.6	48.0	29.0	9.0	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.10.2022	7:00-7:00	74.2	47.6	28.2	8.7	23.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.10.2022	7:15-7:15	63.9	47.2	28.7	8.1	24.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.10.2022	7:00-7:00	65.4	45.7	27.4	7.6	24.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.10.2022	7:15-7:15	66.0	44.2	26.3	7.0	26.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.10.2022	7:00-7:00	64.5	45.6	26.0	8.6	25.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
01.11.2022	7:15-7:15	63.5	45.1	25.1	8.1	23.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.11.2022	7:00-7:00	66.0	47.3	25.6	9.0	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.11.2022	7:15-7:15	64.2	48.0	28.2	7.3	24.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.11.2022	7:00-7:00	64.9	45.3	28.7	7.7	24.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.11.2022	7:15-7:15	75.2	44.7	29.0	8.7	26.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.11.2022	7:00-7:00	76.0	44.0	27.6	9.0	25.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.11.2022	7:15-7:15	74.3	46.2	27.1	8.3	25.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.11.2022	7:00-7:00	73.8	48.0	25.4	8.4	24.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.11.2022	7:15-7:15	73.2	47.6	25.0	7.1	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.12.2022	7:00-7:00	75.7	47.1	26.3	7.7	23.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.12.2022	7:15-7:15	75.2	44.3	29.0	9.0	24.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.12.2022	7:00-7:00	66.0	46.2	27.6	8.6	24.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.12.2022	7:15-7:15	63.8	48.0	26.0	8.2	26.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.12.2022	7:00-7:00	63.5	45.6	25.8	7.3	25.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.12.2022	7:15-7:15	64.7	44.3	27.3	7.9	25.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.12.2022	7:00-7:00	66.0	44.9	28.5	9.0	26.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.12.2022	7:15-7:15	65.2	46.8	28.1	8.9	23.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ; DL: Detection Limit ; NH₃: BDL (DL:20); O₃: BDL (DL:20); CO: BDL (DL:1.0); Pb: BDL (DL:0.1); Ni: BDL (DL:1.0); As: BDL (DL:1.0); C₆H₆: BDL (DL:1.0); BaP: BDL (DL:0.1)
Remarks: The values observed for the pollutants given above are within the CPCB standards.

End of Report

For Chennai Mettex Lab Private Limited



[Signature]
Reviewed & Authorized By

P. KAVITHA
Technical Manager
Authorised Signatory



CHENNAI METTEX LAB PRIVATE LIMITED®

(Approved by AAI, AGMARK, APEDA, BIS, EIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

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TEST REPORT

ISSUED TO: Thiru. Sri Nainar Balaji, Extent : 2.99.0ha

S.F.Nos. 213 (P) & 214 (P), Srimoolakarai Village,
Srivaikundam Taluk, Thoothukudi District.

Test Certificate No : CML/22-23/6645

Test Certificate Date : 03.01.2023

Sample Description : Ambient Air Monitoring

Location of Sampling : AAQ8 – Sivagalai- 8°38'20.33"N 77°58'27.00"E

Sampling Plan & Procedure: IS 5182 Part 14:2000 & CML/LAB/ENV/SOP/07

Sampling Instrument ID & Calibration Due Date: CML/ENV/RDS/16 & 28.11.2023

Sampling Instrument ID & Calibration Due Date: CML/ENV/FDS/16 & 28.11.2023

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
03.10.2022	7:00-7:00	72.5	45.7	25.3	6.3	24.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.10.2022	7:15-7:15	74.8	44.6	27.6	7.6	26.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.10.2022	7:00-7:00	75.0	43.7	28.0	8.0	25.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.10.2022	7:15-7:15	73.8	46.0	24.3	7.2	25.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.10.2022	7:00-7:00	71.4	45.3	25.9	6.7	24.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.10.2022	7:15-7:15	72.7	43.2	27.4	6.3	24.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.10.2022	7:00-7:00	64.3	43.7	28.0	7.5	25.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.10.2022	7:15-7:15	65.0	45.6	26.7	8.0	26.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.10.2022	7:00-7:00	61.7	44.8	24.3	6.3	25.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
01.11.2022	7:15-7:15	63.2	46.0	26.8	6.7	25.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.11.2022	7:00-7:00	74.8	44.3	27.5	7.4	24.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.11.2022	7:15-7:15	72.6	43.7	24.1	7.7	24.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.11.2022	7:00-7:00	72.7	45.6	28.0	7.1	25.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.11.2022	7:15-7:15	73.5	45.1	26.3	6.3	26.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.11.2022	7:00-7:00	71.9	43.8	25.7	8.0	24.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.11.2022	7:15-7:15	71.0	45.4	24.7	7.3	25.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.11.2022	7:00-7:00	64.8	46.0	26.2	6.8	25.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.11.2022	7:15-7:15	63.2	44.5	25.5	6.1	24.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.12.2022	7:00-7:00	65.0	43.8	28.0	7.5	24.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.12.2022	7:15-7:15	62.6	43.1	26.4	8.0	26.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.12.2022	7:00-7:00	74.7	46.0	25.7	6.3	25.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.12.2022	7:15-7:15	72.9	45.7	24.2	6.8	25.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.12.2022	7:00-7:00	71.6	45.0	28.0	7.6	24.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.12.2022	7:15-7:15	73.8	43.2	27.6	7.0	24.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.12.2022	7:00-7:00	65.0	44.7	26.2	6.4	26.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.12.2022	7:15-7:15	63.6	46.0	24.3	8.0	25.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ; DL: Detection Limit ; NH₃: BDL (DL:20); O₃: BDL (DL:20); CO: BDL (DL:1.0);

Pb: BDL (DL:0.1); Ni: BDL (DL:1.0); As: BDL (DL:1.0); C₆H₆: BDL (DL:1.0); BaP: BDL (DL:0.1)

Remarks: The values observed for the pollutants given above are within the CPCB standards.

End of Report

For Chennai Mettex Lab Private Limited



[Signature]
Reviewed & Authorized By

P. KAVITHA
Technical Manager
Authorised Signatory



CHENNAI METTEX LAB PRIVATE LIMITED®

(Approved by AAI, AGMARK, APEDA, BIS, EIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

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TEST REPORT

ISSUED TO: Thiru. Sri Nainar Balaji, Extent : 2.99.0ha

S.F.Nos. 213 (P) & 214 (P), Srimoolakarai Village,
Srivaikundam Taluk, Thoothukudi District.

Test Certificate No : CML/22-23/6646

Test Certificate Date : 03.01.2023

Sample Description : Ambient Noise Monitoring

Location of Sampling : N1 – Project Area, Core Zone - 8°40'1.07"N 77°56'22.51"E

Location of Sampling : N2 – Srimoolakarai Melur- 8°39'42.11"N 77°55'58.63"E

Sampling Plan & Procedure: IS 9989:1981 & CML/LAB/ENV/SOP/10

Sampling Instrument : CML/ENV/SLM/001 & CML/ENV/SLM/002

Sampling Date : 12.10.2022						
Loction	N1- Core Zone			N2- Srimoolakarai Melur		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	41.8	50.7	48.22	40.8	49.1	46.69
07:00-08:00	42.2	53.3	50.61	41.3	51.9	49.25
08:00-09:00	43.3	54.7	51.99	42.6	52.2	49.64
09:00-10:00	44.7	55.2	52.56	43.1	54.5	51.79
10:00-11:00	44.1	55.8	53.07	44.8	53.7	51.22
11:00-12:00	46.2	57.1	54.43	45.4	55.2	52.62
12:00-13:00	45.7	56.6	53.93	43.3	54.7	51.99
13:00-14:00	45.2	56.1	53.43	44.8	55.1	52.48
14:00-15:00	46.6	57.9	55.20	44.2	53.6	51.06
15:00-16:00	45.3	56.2	53.53	43.2	52.3	49.79
16:00-17:00	44.9	56.4	53.69	42.8	51.8	49.30
17:00-18:00	43.2	54.5	51.80	41.6	52.5	49.83
18:00-19:00	43.8	53.1	50.57	40.8	51.2	48.57
19:00-20:00	43.2	52.5	49.97	42.1	52.7	50.05
20:00-21:00	42.6	51.3	48.84	41.7	50.5	48.03
21:00-22:00	41.1	50.8	48.23	39.2	48.2	45.70
22:00-23:00	40.8	50.2	47.66	40.4	49.8	47.26
23:00-00:00	40.3	49.6	47.07	41.6	46.3	44.56
00:00-01:00	39.1	48.2	45.69	38.3	47.2	44.72
01:00-02:00	37.6	46.9	44.37	36.2	45.6	43.06
02:00-03:00	36.1	45.3	42.78	35.9	44.1	41.70
03:00-04:00	35.9	44.7	42.23	36.8	43.9	41.66
04:00-05:00	34.4	45.1	42.44	34.1	43.2	40.69
05:00-06:00	33.6	44.6	41.92	35.3	44.8	42.25
Result	Day Means		51.6	Day Means		49.7
	Night Means		44.3	Night Means		43.2
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.						

End of Report

For Chennai Mettex Lab Private Limited



[Signature]
Reviewed & Authorized By

P. KAVITHA
Technical Manager
Authorised Signatory



CHENNAI METTEX LAB PRIVATE LIMITED®

(Approved by AAI, AGMARK, APEDA, BIS, EIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

Jothi Complex, 83, M.K.N. Road, Guindy, Chennai - 600 032, Tamil Nadu, INDIA
Phone : +91 44 22323163, 22311034, 42179490, 42179491 | CIN: U74999TN2008PTC069459
Email : test@mettexlab.com | Web : www.mettexlab.com

TEST REPORT

ISSUED TO: Thiru. Sri Nainar Balaji, Extent : 2.99.0ha

S.F.Nos. 213 (P) & 214 (P), Srimoolakarai Village,
Srivaikundam Taluk, Thoothukudi District.

Test Certificate No : CML/22-23/6647

Test Certificate Date : 03.01.2023

Sample Description : Ambient Noise Monitoring

Location of Sampling : N3 - Patemanagaram - 8°39'22.78"N 77°57'2.71"E

Location of Sampling : N4 - Nallanghudi - 8°37'32.10"N 77°56'20.25"E

Sampling Plan & Procedure: IS 9989:1981 & CML/LAB/ENV/SOP/10

Sampling Instrument ID : CML/ENV/SLM/003 & CML/ENV/SLM/004

Sampling Date : 12.10.2022						
Loction	N3- Patemanagaram			N4- Nallanghudi		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	39.6	46.1	43.97	38.1	47.7	45.14
07:00-08:00	39.1	47.9	45.43	39.8	48.2	45.78
08:00-09:00	40.9	49.6	47.14	40.5	49.7	47.18
09:00-10:00	42.7	51.4	48.94	41.7	50.2	47.76
10:00-11:00	43.5	54.7	52.01	42.3	51.6	49.07
11:00-12:00	44.9	53.4	50.96	43.7	52.1	49.68
12:00-13:00	43.8	52.2	49.78	44.4	53.6	51.08
13:00-14:00	42.2	51.6	49.06	45.9	54.3	51.88
14:00-15:00	43.7	54.2	51.56	45.7	54.2	51.76
15:00-16:00	42.1	53.7	50.98	44.9	52.7	50.36
16:00-17:00	43.6	52.3	49.84	43.3	51.2	48.84
17:00-18:00	41.3	51.5	48.89	41.4	50.3	47.82
18:00-19:00	42.5	52.2	49.63	42.1	52.9	50.24
19:00-20:00	41.2	51.7	49.06	39.8	48.1	45.69
20:00-21:00	40.9	49.2	46.79	38.2	46.9	44.44
21:00-22:00	38.2	47.3	44.79	38.6	46.2	43.89
22:00-23:00	38.8	46.7	44.34	37.2	45.7	43.26
23:00-00:00	39.2	47.2	44.83	36.6	43.4	41.21
00:00-01:00	35.7	45.8	43.19	37.5	45.3	42.96
01:00-02:00	36.1	45.1	42.60	37.1	44.7	42.39
02:00-03:00	36.8	45.9	43.39	35.6	43.1	40.80
03:00-04:00	35.4	46.1	43.44	35.4	41.2	39.20
04:00-05:00	34.1	45.8	43.07	36.3	40.5	38.89
05:00-06:00	36.6	46.3	43.73	35.5	40.5	38.68
Result	Day Means		48.4	Day Means		47.9
	Night Means		43.6	Night Means		40.9

Note: CPCB Norms Residential Area Day Time:55 dB(A); Night Time:45 dB(A)

The Noise level in the above location exists within the permissible limits of CPCB.

End of Report

For Chennai Mettex Lab Private Limited



[Signature]
Reviewed & Authorized By

P. KAVITHA
Technical Manager
Authorised Signatory



CHENNAI METTEX LAB PRIVATE LIMITED®

(Approved by AAI, AGMARK, APEDA, BIS, EIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

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Phone : +91 44 22323163, 22311034, 42179490, 42179491 | CIN: U74999TN2008PTC069459
Email : test@mettexlab.com | Web : www.mettexlab.com

TEST REPORT

ISSUED TO: Thiru. Sri Nainar Balaji, Extent : 2.99.0ha
S.F.Nos. 213 (P) & 214 (P), Srimoolakarai Village,
Srivaikundam Taluk, Thoothukudi District.

Test Certificate No : CML/22-23/6648

Test Certificate Date : 03.01.2023

Sample Description : Ambient Noise Monitoring

Location of Sampling : N5 - Pudupatti - 8°42'36.15"N 77°56'12.35"E

Location of Sampling : N6 - Adaikalapuram - 8°40'37.77"N 77°58'16.03"E

Sampling Plan & Procedure: IS 9989:1981 & CML/LAB/ENV/SOP/10

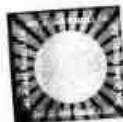
Sampling Instrument : CML/ENV/SLM/001 & CML/ENV/SLM/002

Sampling Date : 22.10.2022						
Loction	N5- Pudupatti			N5- Adaikalapuram		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	40.6	49.6	47.10	38.6	47.3	44.84
07:00-08:00	41.3	50.1	47.63	39.1	47.9	45.43
08:00-09:00	42.8	51.9	49.39	40.6	51.8	49.11
09:00-10:00	42.1	52.1	49.50	42.2	52.3	49.69
10:00-11:00	44.6	53.8	51.28	42.8	51.7	49.22
11:00-12:00	44.2	53.3	50.79	43.2	54.1	51.43
12:00-13:00	45.9	54.7	52.23	44.3	55.3	52.62
13:00-14:00	43.2	55.2	52.46	43.6	52.9	50.37
14:00-15:00	44.6	53.6	51.10	43.1	54.8	52.07
15:00-16:00	41.3	55.1	52.27	42.9	53.2	50.58
16:00-17:00	40.7	51.2	48.56	42.2	51.9	49.33
17:00-18:00	40.6	51.6	48.92	41.8	49.8	47.43
18:00-19:00	39.1	48.8	46.23	40.2	46.1	44.08
19:00-20:00	38.8	47.9	45.39	39.9	45.9	43.86
20:00-21:00	38.1	46.2	43.82	38.3	46.5	44.10
21:00-22:00	37.7	46.8	44.29	39.9	42.2	41.20
22:00-23:00	35.2	45.3	42.69	37.2	43.9	41.73
23:00-00:00	36.9	44.7	42.36	36.6	41.4	39.63
00:00-01:00	33.3	43.4	40.79	35.1	39.5	37.83
01:00-02:00	35.8	42.3	40.17	33.9	38.5	36.78
02:00-03:00	36.1	41.1	39.28	33.4	38.9	36.97
03:00-04:00	33.6	42.5	40.02	34.9	38.9	37.35
04:00-05:00	33.3	40.8	38.50	35.2	41.2	39.16
05:00-06:00	34.8	41.2	39.09	34.6	39.9	38.01
Result	Day Means		48.5	Day Means		47.5
	Night Means		40.4	Night Means		38.4

Note: CPCB Norms Residential Area Day Time:55 dB(A); Night Time:45 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

End of Report

For Chennai Mettex Lab Private Limited



Reviewed & Authorized By

P. KAVITHA
Technical Manager
Authorised Signatory



CHENNAI METTEX LAB PRIVATE LIMITED®

(Approved by AAI, AGMARK, APEDA, BIS, EIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

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Phone : +91 44 22323163, 22311034, 42179490, 42179491 | CIN: U74999TN2008PTC069459
Email : test@mettexlab.com | Web : www.mettexlab.com

TEST REPORT

ISSUED TO: Thiru. Sri Nainar Balaji, Extent : 2.99.0ha

S.F.Nos. 213 (P) & 214 (P), Srimoolakarai Village,
Srivaikundam Taluk, Thoothukudi District.

Test Certificate No : CML/22-23/6649

Test Certificate Date : 03.01.2023

Sample Description : Ambient Noise Monitoring

Location of Sampling : N7 - Assengola - 8°39'12.73"N 77°54'44.92"E

Location of Sampling : N8 - Sivagalai- 8°38'19.95"N 77°58'26.58"E

Sampling Plan & Procedure: IS 9989:1981 & CML/LAB/ENV/SOP/10

Sampling Instrument ID : CML/ENV/SLM/003 & CML/ENV/SLM/004

Sampling Date : 22.10.2022						
Location	N7 - Assengola			N8 - Sivagalai		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	40.5	49.1	46.65	39.8	48.6	46.13
07:00-08:00	41.2	50.5	47.97	40.3	49.1	46.63
08:00-09:00	42.8	51.9	49.39	41.1	50.8	48.23
09:00-10:00	44.3	53.7	51.16	42.7	51.3	48.85
10:00-11:00	45.6	54.3	51.84	44.1	53.7	51.14
11:00-12:00	44.1	55.1	52.42	45.9	54.2	51.79
12:00-13:00	45.8	56.4	53.75	46.2	56.9	54.24
13:00-14:00	43.2	53.9	51.24	44.8	54.6	52.02
14:00-15:00	42.7	52.7	50.10	45.4	55.2	52.62
15:00-16:00	43.3	52.2	49.72	43.9	52.9	50.40
16:00-17:00	42.1	43.5	42.86	42.6	51.2	48.75
17:00-18:00	43.9	52.9	50.40	42.2	52.8	50.15
18:00-19:00	42.4	51.6	49.08	41.7	51.1	48.56
19:00-20:00	40.7	49.2	46.76	40.1	50.5	47.87
20:00-21:00	39.2	48.7	46.15	39.9	48.9	46.40
21:00-22:00	38.6	45.9	43.63	39.2	48.4	45.88
22:00-23:00	36.3	43.7	41.42	38.8	47.8	45.30
23:00-00:00	35.7	41.1	39.19	36.1	45.2	42.69
00:00-01:00	34.8	40.8	38.76	36.9	45.5	43.05
01:00-02:00	35.2	42.7	40.40	35.3	45.2	42.61
02:00-03:00	36.4	40.2	38.70	34.8	43.9	41.39
03:00-04:00	35.7	41.9	39.82	34.2	43.3	40.79
04:00-05:00	34.1	40.2	38.14	33.1	43.8	41.14
05:00-06:00	34.8	41.6	39.41	33.5	44.2	41.54
Result	Day Means		48.5	Day Means		38.9
	Night Means		39.5	Night Means		41.2
Note: CPCB Norms Residential Area Day Time:55 dB(A); Night Time:45 dB(A) The Noise level in the above location exists within the permissible limits of CPCB.						

End of Report

For Chennai Mettex Lab Private Limited



[Signature]
Reviewed & Authorized By

P. KAVITHA
Technical Manager
Authorised Signatory



CHENNAI METTEX LAB PRIVATE LIMITED

Jothi Complex, 83, M.K.N. Road, Guindy, Chennai - 600 032

(Approved/Recognized by APEDA, AGMARK, GAFSA, EIC, FSSAI, BIS & MoEF)

TEST REPORT

Page No. 1 of 2

ISSUED TO : Thiru. Sri Nainar Balaji. Extent : 2.99.0ha
S.F.Nos. 213 (P) & 214 (P),
Srimoolakarai Village, Srivaikundam Taluk,
Thoothukudi District.

T.C Date : 03.01.2023

T.C No : CML/22-23/66650

Date Of Receipt : 23.12.2022

Analysis Commenced On: 23.12.2022

Analysis Completed On : 03.01.2023

Cust. Ref : SRF Dated : 22.12.2022

Lab No : 2374205

Sample Description : Surface Water (SW-1) – Core Zone-Tank Near Project Area
(as stated by customer)

TEST	PROTOCOL	RESULTS
Discipline: Chemical	Group: Water	
Colour	IS 3025 Part 4:1983 (Reaff.2017)	5 Hazen
Odour	IS 3025 Part 5:2018	Agreeable
pH at 25°C	IS 3025 Part 11:1983 (Reaff.2017)	7.31
Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff.2019)	1021 µmhos/cm
Turbidity	IS 3025 Part 10:1984 (Reaff.2017)	1.8 NTU
Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff.2017)	602 mg/l
Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff.2019)	173.27 mg/l
Calcium as Ca	IS 3025 Part 40:1991 (Reaff.2019)	35.5 mg/l
Magnesium as Mg	IS 3025 Part 46:1994 (Reaff.2019)	20.6 mg/l
Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff.2019)	246 mg/l
Chloride as Cl	IS 3025 Part 32:1988 (Reaff.2019)	128 mg/l
Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff.2019)	60.3 mg/l
Iron as Fe	IS 3025 Part 53:2003 (Reaff.2019)	0.22 mg/l
Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff.2019)	BDL (DL:0.1 mg/l)
Fluoride as F	APHA 23 rd Edn. 2017:4500 F.D	0.21 mg/l
Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff.2019)	11.8 mg/l
Copper as Cu	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.01 mg/l)
Manganese as Mn	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.02 mg/l)
Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
Cadmium as Cd	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.001 mg/l)
Selenium as Se	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.005 mg/l)

...Contd....2

Yours truly,

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Phone : 044-22323163, 22311034
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CHENNAI METTEX LAB PRIVATE LIMITED

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Lab No: 2374205 T.C No: CML/22-23/66650 Dated : 03.01.2023

Page No. 2 of 2

TEST	PROTOCOL	RESULTS
Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
BOD @ 27°C for 3 days	IS 3025 Part 44:1993 (Reaff:2019)	6.1 mg/l
Chemical Oxygen Demand	IS 3025 Part 58:2006 (Reaff:2017)	24 mg/l
Dissolved Oxygen	IS 3025 Part 38:1989 (Reaff:2019)	5.4 mg/l
Barium as Ba	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL:0.05 mg/l)
Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.01 mg/l)
Sulphide as H ₂ S	IS 3025 Part 29-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
Total Arsenic as As	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
Total Suspended Solids	IS 3025 Part 17 -1984 (Reaff:2017)	20.4 mg/l
Discipline: Biological		Group: Water
Total Coliform	APHA 23 rd Edn. 2017:9221B	1600 MPN/100ml
<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	110 MPN/100ml

Note : APHA – American Public Health Association, BDL – Below Detection Limit, DL – Detection Limit, MPN – Most Probable Number.

End of Report

For Chennai Mettex Lab Private Limited

Reviewed & Authorized By

B. ARUNAN
Technical Manager
Authorised Signatory



Reviewed & Authorized By

P. KAVITHA
Technical Manager
Authorised Signatory

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CHENNAI METTEX LAB PRIVATE LIMITED

Jothi Complex, 83, M.K.N. Road, Guindy, Chennai - 600 032

(Approved/Recognized by APEDA, AGMARK, GAFSA, EIC, FSSAI, BIS & MoEF)

TEST REPORT

Page No.1 of 2

ISSUED TO : Thiru. Sri Nainar Balaji. Extent : 2.99.0ha
S.F.Nos. 213 (P) & 214 (P),
Srimoolakarai Village, Srivaikundam Taluk,
Thoothukudi District.

T.C Date : 03.01.2023

T.C No : CML/22-23/66651

Date Of Receipt : 23.12.2022

Analysis Commenced On: 23.12.2022

Analysis Completed On : 03.01.2023

Cust. Ref : SRF Dated : 22.12.2022.

Lab No : 2374206

Sample Description : Surface Water (SW-2) – Tamiraparani River
(as stated by customer)

TEST	PROTOCOL	RESULTS
Discipline: Chemical	Group: Water	
Colour	IS 3025 Part 4:1983 (Reaff.2017)	5 Hazen
Odour	IS 3025 Part 5:2018	Agreeable
pH at 25°C	IS 3025 Part 11:1983 (Reaff.2017)	7.55
Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff.2019)	1088 µmhos/cm
Turbidity	IS 3025 Part 10:1984 (Reaff.2017)	2.9 NTU
Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff.2017)	642 mg/l
Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff.2019)	217.69 mg/l
Calcium as Ca	IS 3025 Part 40:1991 (Reaff.2019)	44.9 mg/l
Magnesium as Mg	IS 3025 Part 46:1994 (Reaff.2019)	25.7 mg/l
Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff.2019)	210 mg/l
Chloride as Cl	IS 3025 Part 32:1988 (Reaff.2019)	137.2 mg/l
Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff.2019)	50.5 mg/l
Iron as Fe	IS 3025 Part 53:2003 (Reaff.2019)	0.19 mg/l
Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff.2019)	BDL (DL:0.1 mg/l)
Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.31 mg/l
Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff.2019)	10.8 mg/l
Copper as Cu	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.01 mg/l)
Manganese as Mn	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.02 mg/l)
Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
Cadmium as Cd	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.001 mg/l)
Selenium as Se	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.005 mg/l)

...Contd....2

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Jothi Complex, 83, M.K.N. Road, Guindy, Chennai - 600 032.

(Approved/Recognized by APEDA, AGMARK, GAFTA, EIC, FSSAI, BIS & MoEF)

Lab No: 2374206 T.C No: CML/22-23/66651 Dated : 03.01.2023

Dated : 03.01.2023

Page No. 2 of 2

TEST	PROTOCOL	RESULTS
Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
Mineral Oil	IS 3025 Part 39:1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43:1992(Reaff. 2019)	BDL (DL:0.0005 mg/l)
Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
Cyanide as CN	IS 3025 Part 27:1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
BOD @ 27°C for 3 days	IS 3025 Part 44:1993 (Reaff:2019)	6.8
Chemical Oxygen Demand	IS 3025 Part 59:2006 (Reaff:2017)	28 mg/l
Dissolved Oxygen	IS 3025 Part 38:1989 (Reaff:2019)	5.6 mg/l
Barium as Ba	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL:0.05 mg/l)
Ammonia total ammonia-N) (as	IS 3025 Part 34:1988 (Reaff. 2019)	BDL (DL:0.01 mg/l)
Sulphide as H ₂ S	IS 3025 Part 29:1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
Total Arsenic as As	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
Total Suspended Solids	IS 3025 Part 17 -1984 (Reaff:2017)	25.4 mg/l
Discipline: Biological Group: Water		
Total Coliform	APHA 23 rd Edn. 2017:9221B	920 MPN/100ml
<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	70 MPN/100ml
Note : APHA – American Public Health Association, BDL – Below Detection Limit, DL – Detection Limit, MPN – Most Probable Number.		

End of Report

For Chennai Mettlex Lab Private Limited

Reviewed & Authorized By

B. ARUNAN
Technical Manager
Authorised Signatory



Reviewed & Authorized By

P. KAVITHA
Technical Manager
Authorised Signatory

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TEST REPORT

Page No.1 of 2

ISSUED TO : Thiru. Sri Nainar Balaji, Extent : 2.99.0ha
S.F.Nos. 213 (P) & 214 (P),
Srimoolakarai Village, Srivaikundam Taluk,
Thoothukudi District.

T.C Date : 03.01.2023

T.C No : CML/22-23/66652

Date Of Receipt : 23.12.2022

Analysis Commenced On: 23.12.2022

Analysis Completed On : 03.01.2023

Cust. Ref : SRF Dated : 22.12.2022

Lab No : 2374207

Sample Description : Ground Water (WW-1) –Near Project Area.
(as stated by customer)

TEST	PROTOCOL	RESULTS
Discipline: Chemical		Group: Water
Colour	IS 3025 Part 4:1983 (Reaff.2017)	Less than 5 Hazen
Odour	IS 3025 Part 5:2018	Agreeable
pH at 25°C	IS 3025 Part 11:1983 (Reaff.2017)	7.83
Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff.2019)	951 μ mhos/cm
Turbidity	IS 3025 Part 10:1984 (Reaff.2017)	1.3 NTU
Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff.2017)	560 mg/l
Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff.2019)	174.59 mg/l
Calcium as Ca	IS 3025 Part 40:1991 (Reaff.2019)	35.7 mg/l
Magnesium as Mg	IS 3025 Part 46:1994 (Reaff.2019)	20.8 mg/l
Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff.2019)	183 mg/l
Chloride as Cl	IS 3025 Part 32:1988 (Reaff.2019)	155.7 mg/l
Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff.2019)	48.3 mg/l
Iron as Fe	IS 3025 Part 53:2003 (Reaff.2019)	0.26 mg/l
Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff.2019)	BDL (DL:0.1 mg/l)
Fluoride as F	APHA 23 rd Edn. 2017:4500 F.D	0.55 mg/l
Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff.2019)	8.4 mg/l
Copper as Cu	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.01 mg/l)
Manganese as Mn	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.02 mg/l)
Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
Cadmium as Cd	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.001 mg/l)
Selenium as Se	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.005 mg/l)

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Hand

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42179490, 42179491



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(Approved/Recognized by APEDA, AGMARK, GAFTA, EIC, FSSAI, BIS & MoEF)

Lab No: 2374207 T.C No: CML/22-23/66652 Dated : 03.01.2023

Dated : 03.01.2023

Page No. 2 of 2

TEST	PROTOCOL	RESULTS
Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
Discipline: Biological Group: Water		
Total Coliform	APHA 23 rd Edn. 2017:9221B	120 MPN/100ml
<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml
Note : APHA – American Public Health Association, BDL – Below Detection Limit, DL – Detection Limit, MPN – Most Probable Number, < 1.8 MPN/100ml can be taken as "No Microbial Growth".		

End of Report

For Chennai Mettlex Lab Private Limited

Reviewed & Authorized By

B. ARUNAN
Technical Manager
Authorised Signatory



Reviewed & Authorized By

P. KAVITHA
Technical Manager
Authorised Signatory

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Page No.1 of 2

ISSUED TO : Thiru. Sri Nainar Balaji. Extent : 2.99.0ha
S.F.Nos. 213 (P) & 214 (P),
Srimoolakarai Village, Srivaikundam Taluk,
Thoothukudi District.

T.C Date : 03.01.2023

T.C No : CML/22-23/66653

Date Of Receipt : 23.12.2022

Analysis Commenced On: 23.12.2022

Analysis Completed On : 03.01.2023

Cust. Ref : SRF Dated : 22.12.2022

Lab No : 2374208

Sample Description : Ground Water (WW-2) – Adaikalapuram
(as stated by customer)

TEST	PROTOCOL	RESULTS
Discipline: Chemical		Group: Water
Colour	IS 3025 Part 4:1983 (Reaff.2017)	5 Hazen
Odour	IS 3025 Part 5:2018	Agreeable
pH at 25°C	IS 3025 Part 11:1983 (Reaff.2017)	7.68
Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff.2019)	910 µmhos/cm
Turbidity	IS 3025 Part 10:1984 (Reaff.2017)	1.3 NTU
Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff.2017)	536 mg/l
Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff.2019)	205.55 mg/l
Calcium as Ca	IS 3025 Part 40:1991 (Reaff.2019)	39.7 mg/l
Magnesium as Mg	IS 3025 Part 46:1994 (Reaff.2019)	25.9 mg/l
Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff.2019)	186 mg/l
Chloride as Cl	IS 3025 Part 32:1988 (Reaff.2019)	130.2 mg/l
Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff.2019)	51.8mg/l
Iron as Fe	IS 3025 Part 53:2003 (Reaff.2019)	0.34 mg/l
Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff.2019)	BDL (DL:0.1 mg/l)
Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.41 mg/l
Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff.2019)	7.6 mg/l
Copper as Cu	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.01 mg/l)
Manganese as Mn	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.02 mg/l)
Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
Cadmium as Cd	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.001 mg/l)
Selenium as Se	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.005 mg/l)

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Lab No: 2374208 T.C No: CML/22-23/66653 Dated : 03.01.2023

Dated : 03.01.2023

Page No. 2 of 2

TEST	PROTOCOL	RESULTS
Aluminium as Al	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.005 mg/l)
Lead as Pb	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.005 mg/l)
Zinc as Zn	IS 3025 Part 65:2014 (Reaff.2019)	BDL(DL : 0.05 mg/l)
Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff.2019)	BDL(DL : 0.02 mg/l)
Boron as B	IS 3025 Part 65:2014 (Reaff.2019)	BDL(DL : 0.05 mg/l)
Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff. 2019)	BDL (DL:0.0005 mg/l)
Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff.2019) (Annex K)	BDL (DL:0.01 mg/l)
Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
Barium as Ba	IS 3025 Part 44:1993 (Reaff.2019)	BDL(DL:0.05 mg/l)
Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff.2017)	BDL (DL:0.01 mg/l)
Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff.2019)	BDL (DL:0.01 mg/l)
Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.02 mg/l)
Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
Total Suspended Solids	IS 3025 Part 29-1986 (Reaff. 2019)	BDL (DL:1.0 mg/l)
Discipline: Biological		Group: Water
Total Coliform	APHA 23 rd Edn. 2017:9221B	140 MPN/100ml
<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

Note : APHA – American Public Health Association, BDL – Below Detection Limit, DL – Detection Limit, MPN – Most Probable Number, < 1.8 MPN/100ml can be taken as “No Microbial Growth”.

End of Report

For Chennai Mettlex Lab Private Limited

Reviewed & Authorized By

B. ARUNAN
Technical Manager
Authorised Signatory



Reviewed & Authorized By

P. KAVITHA
Technical Manager
Authorised Signatory

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TEST REPORT

Page No.1 of 2

ISSUED TO : Thiru. Sri Nainar Balaji. Extent : 2.99.0ha
S.F.Nos. 213 (P) & 214 (P),
Srimoolakarai Village, Srivaikundam Taluk,
Thoothukudi District.

T.C Date : 03.01.2023

T.C No : CML/22-23/66654

Date Of Receipt : 23.12.2022

Analysis Commenced On: 23.12.2022

Analysis Completed On : 03.01.2023

Cust. Ref : SRF Dated : 22.12.2022

Lab No : 2374209

Sample Description : Ground Water (BW-1) – Srimoolakarai Melur
(as stated by customer)

TEST	PROTOCOL	RESULTS
Discipline: Chemical	Group: Water	
Colour	IS 3025 Part 4:1983 (Reaff.2017)	5 Hazen
Odour	IS 3025 Part 5:2018	Agreeable
pH at 25°C	IS 3025 Part 11:1983 (Reaff.2017)	7.03
Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff.2019)	998 µmhos/cm
Turbidity	IS 3025 Part 10:1984 (Reaff.2017)	2.2 NTU
Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff.2017)	588 mg/l
Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff.2019)	230.28 mg/l
Calcium as Ca	IS 3025 Part 40:1991 (Reaff.2019)	48.3 mg/l
Magnesium as Mg	IS 3025 Part 46:1994 (Reaff.2019)	26.7 mg/l
Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff.2019)	200 mg/l
Chloride as Cl	IS 3025 Part 32:1988 (Reaff.2019)	145.3 mg/l
Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff.2019)	59.4 mg/l
Iron as Fe	IS 3025 Part 53:2003 (Reaff.2019)	0.31 mg/l
Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff.2019)	BDL (DL:0.1 mg/l)
Fluoride as F	APHA 23 rd Edn. 2017.4500 F.D	0.55 mg/l
Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff.2019)	10.2 mg/l
Copper as Cu	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.01 mg/l)
Manganese as Mn	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.02 mg/l)
Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
Cadmium as Cd	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.001 mg/l)
Selenium as Se	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.005 mg/l)

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Sam A.

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Lab No: 2374209 T.C No: CML/22-23/66654 Dated : 03.01.2023

Dated : 03.01.2023

Page No. 2 of 2

TEST	PROTOCOL	RESULTS
Aluminium as Al	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.005 mg/l)
Lead as Pb	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.005 mg/l)
Zinc as Zn	IS 3025 Part 65:2014 (Reaff.2019)	BDL(DL : 0.05 mg/l)
Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff.2019)	BDL(DL : 0.02 mg/l)
Boron as B	IS 3025 Part 65:2014 (Reaff.2019)	BDL(DL : 0.05 mg/l)
Mineral Oil	IS 3025 Part 39:1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43:1992(Reaff. 2019)	BDL (DL:0.0005 mg/l)
Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff.2019) (Annex K)	BDL (DL:0.01 mg/l)
Cyanide as CN	IS 3025 Part 27:1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
Barium as Ba	IS 3025 Part 44:1993 (Reaff.2019)	BDL(DL:0.05 mg/l)
Ammonia total ammonia-N) (as	IS 3025 Part 58:2006 (Reaff.2017)	BDL (DL:0.01 mg/l)
Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff.2019)	BDL (DL:0.01 mg/l)
Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.02 mg/l)
Total Arsenic as As	IS 3025 Part 34:1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
Total Suspended Solids	IS 3025 Part 29:1986 (Reaff. 2019)	BDL (DL:1.0 mg/l)
Discipline: Biological Group: Water		
Total Coliform	APHA 23 rd Edn. 2017:9221B	150 MPN/100ml
<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml
Note : APHA – American Public Health Association, BDL – Below Detection Limit, DL – Detection Limit, MPN – Most Probable Number, < 1.8 MPN/100ml can be taken as “No Microbial Growth”.		

End of Report

For Chennai Mettlex Lab Private Limited

Reviewed & Authorized By

B. ARUNAN
Technical Manager
Authorised Signatory



Reviewed & Authorized By

P. KAVITHA
Technical Manager
Authorised Signatory

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TEST REPORT

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ISSUED TO : Thiru. Sri Nainar Balaji, Extent : 2.99.0ha
S.F.Nos. 213 (P) & 214 (P),
Srimoolakarai Village, Srivaikundam Taluk,
Thoothukudi District.

T.C Date : 03.01.2023

T.C No : CML/22-23/66655

Date Of Receipt : 23.12.2022

Analysis Commenced On: 23.12.2022

Analysis Completed On : 03.01.2023

Cust. Ref : SRF Dated : 22.12.2022.

Lab No : 2374210

Sample Description : Ground Water (BW-2) – Assengola
(as stated by customer)

TEST	PROTOCOL	RESULTS
Discipline: Chemical		Group: Water
Colour	IS 3025 Part 4:1983 (Reaff.2017)	4 Hazen
Odour	IS 3025 Part 5:2018	Agreeable
pH at 25°C	IS 3025 Part 11:1983 (Reaff.2017)	7.44
Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff.2019)	1045 µmhos/cm
Turbidity	IS 3025 Part 10:1984 (Reaff.2017)	2.6 NTU
Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff.2017)	616 mg/l
Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff.2019)	197.46 mg/l
Calcium as Ca	IS 3025 Part 40:1991 (Reaff.2019)	39.1 mg/l
Magnesium as Mg	IS 3025 Part 46:1994 (Reaff.2019)	24.3 mg/l
Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff.2019)	210 mg/l
Chloride as Cl	IS 3025 Part 32:1988 (Reaff.2019)	165 mg/l
Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff.2019)	62.1 mg/l
Iron as Fe	IS 3025 Part 53:2003 (Reaff.2019)	0.38 mg/l
Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff.2019)	BDL (DL:0.1 mg/l)
Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.24 mg/l
Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff.2019)	9.5 mg/l
Copper as Cu	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.01 mg/l)
Manganese as Mn	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.02 mg/l)
Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
Cadmium as Cd	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.001 mg/l)
Selenium as Se	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.005 mg/l)

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Sum'd

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Jothi Complex, 83, M.K.N. Road, Guindy, Chennai - 600 032

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Lab No: 2374210 T.C No: CML/22-23/66655 Dated : 03.01.2023

Page No. 2 of 2

TEST	PROTOCOL	RESULTS
Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff. 2019)	BDL (DL:0.0005 mg/l)
Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff.2019) (Annex K)	BDL (DL:0.01 mg/l)
Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
Ammonia total ammonia-N) (as	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
Sulphide as H ₂ S	IS 3025 Part 53:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
Total Suspended Solids	IS 3025 Part 29-1986 (Reaff. 2019)	BDL (DL:1.0 mg/l)
Discipline: Biological Group: Water		
Total Coliform	APHA 23 rd Edn. 2017:9221B	120 MPN/100ml
<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml
Note : APHA – American Public Health Association, BDL – Below Detection Limit, DL – Detection Limit, MPN – Most Probable Number, < 1.8 MPN/100ml can be taken as "No Microbial Growth".		

End of Report

For Chennai Mettlex Lab Private Limited

Reviewed & Authorized By

B. ARUNAN
Technical Manager
Authorised Signatory



Reviewed & Authorized By

P. KAVITHA
Technical Manager
Authorised Signatory

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TEST REPORT

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ISSUED TO : Thiru. Sri Nainar Balaji, Extent : 2.99.0ha
S.F.Nos. 213 (P) & 214 (P),
Srimoolakarai Village, Srivaikundam Taluk,
Thoothukudi District.

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Date Of Receipt : 23.12.2022

Analysis Commenced On: 23.12.2022

Analysis Completed On : 03.01.2023

Cust. Ref : SRF Dated : 22.12.2022.

Lab No : 2374211

Sample Description : Soil – 1 – Project Area, Core Zone
(as stated by customer)

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff.2016)	8.59
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	560 µmhos/cm
03	Texture :		
	Clay	Gravimetric Method	35.8 %
	Sand		41.8 %
	Silt		22.4 %
04	Water Holding Capacity	By Gravimetric Method	48.6 %
05	Bulk Density	By Cylindrical Method	1.06 g/cm ³
06	Porosity	By Gravimetric Method	44.3 %
07	Calcium as Ca	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	177.3 mg/kg
08	Magnesium as Mg		120 mg/kg
09	Manganese as Mn		23.7 mg/kg
10	Zinc as Zn		1.12 mg/kg
11	Boron as B		1.03 mg/kg
12	Chloride as Cl	APHA 23 rd Edn 1919 4500 Cl B	133 mg/kg
13	Total Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff 2015)	0.019 %
14	Potassium as K	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	34.3 mg/kg
15	Total Phosphorus as P	IS 10158 : 1982 (Reaff. 2019)	1.41 mg/kg
16	Total Nitrogen as N	IS 14684 : 1999 (Reaff.2019)	270 mg/kg
17	Cadmium as Cd	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	BDL (DL : 1.0 mg/kg)
18	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
19	Copper as Cu		BDL (DL : 1.0 mg/kg)
20	Lead as Pb		0.33 mg/kg
21	Iron as Fe		2.03 mg/kg
22	Organic Matter	IS : 2720 Part 22: 1972 (Reaff. 2015)	1.82 %
23	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff. 2015)	1.06 %
24	Cation Exchange Capacity	USEPA 9080 – 1986	39.7 meq/100g of soil

End of Report

For Chennai Mettlex Lab Private Limited



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S.F.Nos. 213 (P) & 214 (P),
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Thoothukudi District.

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Date Of Receipt : 23.12.2022

Analysis Commenced On: 23.12.2022

Analysis Completed On : 03.01.2023

Cust. Ref : SRF Dated : 22.12.2022

Lab No : 2374212

Sample Description : Soil – 2 – Srimoolakarai Melur
(as stated by customer)

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff.2016)	8.48
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	680 µmhos/cm
03	Texture :		
	Clay	Gravimetric Method	32.6 %
	Sand		39.1 %
	Silt		28.3 %
04	Water Holding Capacity	By Gravimetric Method	47.3 %
05	Bulk Density	By Cylindrical Method	1.29 g/cm ³
06	Porosity	By Gravimetric Method	40.6 %
07	Calcium as Ca	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	183 mg/kg
08	Magnesium as Mg		122.7 mg/kg
09	Manganese as Mn		25.9 mg/kg
10	Zinc as Zn		1.23 mg/kg
11	Boron as B		1.42 mg/kg
12	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	210 mg/kg
13	Total Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff.2015)	0.018 %
14	Potassium as K	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	35 mg/kg
15	Total Phosphorus as P	IS 10158 : 1982 (Reaff. 2019)	1.26 mg/kg
16	Total Nitrogen as N	IS 14684 : 1999 (Reaff.2019)	251 mg/kg
17	Cadmium as Cd	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	BDL (DL : 1.0 mg/kg)
18	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
19	Copper as Cu		BDL (DL : 1.0 mg/kg)
20	Lead as Pb		0.36 mg/kg
21	Iron as Fe		2.23 mg/kg
22	Organic Matter	IS : 2720 Part 22: 1972 (Reaff. 2015)	2.91 %
23	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff. 2015)	1.69 %
24	Cation Exchange Capacity	USEPA 9080 – 1986	38.8 meq/100g of soil

End of Report

For Chennai Mettex Lab Private Limited



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S.F.Nos. 213 (P) & 214 (P),
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Thoothukudi District.

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Analysis Completed On : 03.01.2023

Cust. Ref : SRF Dated : 22.12.2022

Lab No : 2374213

Sample Description : Soil – 3 – Patemanagaram
(as stated by customer)

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff.2016)	8.93
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	690 µmhos/cm
03	Texture :		
	Clay	Gravimetric Method	35.5 %
	Sand		42.7 %
	Silt		21.8 %
04	Water Holding Capacity	By Gravimetric Method	46.4 %
05	Bulk Density	By Cylindrical Method	1.23 g/cm ³
06	Porosity	By Gravimetric Method	44.1 %
07	Calcium as Ca	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	280 mg/kg
08	Magnesium as Mg		92.4 mg/kg
09	Manganese as Mn		19 mg/kg
10	Zinc as Zn		1.9 mg/kg
11	Boron as B		2.3 mg/kg
12	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	188.4 mg/kg
13	Total Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff.2015)	0.017 %
14	Potassium as K	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	40 mg/kg
15	Total Phosphorus as P	IS 10158 : 1982 (Reaff. 2019)	1.36 mg/kg
16	Total Nitrogen as N	IS 14684 : 1999 (Reaff.2019)	297 mg/kg
17	Cadmium as Cd	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	BDL (DL : 1.0 mg/kg)
18	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
19	Copper as Cu		BDL (DL : 1.0 mg/kg)
20	Lead as Pb		0.36 mg/kg
21	Iron as Fe		1.88 mg/kg
22	Organic Matter	IS : 2720 Part 22: 1972 (Reaff. 2015)	2.48 %
23	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff. 2015)	1.44 %
24	Cation Exchange Capacity	USEPA 9080 – 1986	39.2 meq/100g of soil

End of Report

For Chennai Mettlex Lab Private Limited



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S.F.Nos. 213 (P) & 214 (P),
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Thoothukudi District.

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Cust. Ref : SRF Dated : 22.12.2022.

Lab No : 2374214

Sample Description : Soil - 4 - Adaikalapuram
(as stated by customer)

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff.2016)	8.86
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	640 µmhos/cm
03	Texture :		
	Clay	Gravimetric Method	32.6 %
	Sand		41.5 %
	Silt		25.9 %
04	Water Holding Capacity	By Gravimetric Method	45.7 %
05	Bulk Density	By Cylindrical Method	1.24 g/cm ³
06	Porosity	By Gravimetric Method	42.5 %
07	Calcium as Ca	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	189 mg/kg
08	Magnesium as Mg		120.7 mg/kg
09	Manganese as Mn		16.2 mg/kg
10	Zinc as Zn		1.9 mg/kg
11	Boron as B		1.2 mg/kg
12	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	165.3 mg/kg
13	Total Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff.2015)	0.015 %
14	Potassium as K	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	34 mg/kg
15	Total Phosphorus as P	IS 10158 : 1982 (Reaff. 2019)	1.5 mg/kg
16	Total Nitrogen as N	IS 14684 : 1999 (Reaff.2019)	310 mg/kg
17	Cadmium as Cd	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	BDL (DL : 1.0 mg/kg)
18	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
19	Copper as Cu		BDL (DL : 1.0 mg/kg)
20	Lead as Pb		0.42 mg/kg
21	Iron as Fe		1.83 mg/kg
22	Organic Matter	IS : 2720 Part 22: 1972 (Reaff. 2015)	2.89 %
23	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff. 2015)	1.68 %
24	Cation Exchange Capacity	USEPA 9080 – 1986	32.7 meq/100g of soil

End of Report

For Chennai Mettler Lab Private Limited



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TEST REPORT

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S.F.Nos. 213 (P) & 214 (P),
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Thoothukudi District.

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T.C No : CML/22-23/66660

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Analysis Commenced On: 23.12.2022

Analysis Completed On : 03.01.2023

Cust. Ref : SRF Dated : 22.12.2022.

Lab No : 2374215

Sample Description : Soil - 5 - Assengola
(as stated by customer)

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff.2016)	8.73
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	440 µmhos/cm
03	Texture :		
	Clay	Gravimetric Method	32.7 %
	Sand		34.2 %
	Silt		33.1 %
04	Water Holding Capacity	By Gravimetric Method	45.5 %
05	Bulk Density	By Cylindrical Method	1.18 g/cm ³
06	Porosity	By Gravimetric Method	41.4 %
07	Calcium as Ca	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	190 mg/kg
08	Magnesium as Mg		141.5 mg/kg
09	Manganese as Mn		18.5 mg/kg
10	Zinc as Zn		1.1 mg/kg
11	Boron as B		1.65 mg/kg
12	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	176 mg/kg
13	Total Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff.2015)	0.025 %
14	Potassium as K	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	38.3 mg/kg
15	Total Phosphorus as P	IS 10158 : 1982 (Reaff. 2019)	1.6 mg/kg
16	Total Nitrogen as N	IS 14684 : 1999 (Reaff.2019)	235.2 mg/kg
17	Cadmium as Cd	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	BDL (DL : 1.0 mg/kg)
18	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
19	Copper as Cu		BDL (DL : 1.0 mg/kg)
20	Lead as Pb		0.29 mg/kg
21	Iron as Fe		1.74 mg/kg
22	Organic Matter	IS : 2720 Part 22: 1972 (Reaff. 2015)	3.55 %
23	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff. 2015)	2.06 %
24	Cation Exchange Capacity	USEPA 9080 - 1986	38.7 meq/100g of soil

End of Report

For Chennai Mettex Lab Private Limited



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TEST REPORT

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S.F.Nos. 213 (P) & 214 (P),
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Thoothukudi District.

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T.C No : CML/22-23/66661

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Analysis Commenced On: 23.12.2022

Analysis Completed On : 03.01.2023

Cust. Ref : SRF Dated : 22.12.2022.

Lab No : 2374216

Sample Description : Soil - 6 - Sivagalai
(as stated by customer)

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C		
02	Conductivity @ 25°C	IS 2720 Part 26 - 1987 (Reaff.2016)	8.67
03	Texture :	IS 14767 - 2000 (Reaff : 2016)	655 µmhos/cm
	Clay	Gravimetric Method	
	Sand		34.5 %
	Silt		35.4 %
04	Water Holding Capacity	By Gravimetric Method	30.1 %
05	Bulk Density	By Cylindrical Method	44.6 %
06	Porosity	By Gravimetric Method	1.54 g/cm ³
07	Calcium as Ca		42.6 %
08	Magnesium as Mg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	210.3 mg/kg
09	Manganese as Mn		105.5 mg/kg
10	Zinc as Zn		22 mg/kg
11	Boron as B		1.15 mg/kg
12	Chloride as Cl		1.6 mg/kg
13	Total Soluble Sulphate as SO ₄	APHA 23 rd Edn 2019 4500 Cl B	165.4 mg/kg
14	Potassium as K	IS 2720 Part 27 : 1977 (Reaff.2015)	0.23 %
15	Total Phosphorus as P	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	35.6 mg/kg
16	Total Nitrogen as N	IS 10158 : 1982 (Reaff: 2019)	1.24 mg/kg
17	Cadmium as Cd	IS 14684 : 1999 (Reaff:2019)	280 mg/kg
18	Total Chromium as Cr	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	BDL (DL : 1.0 mg/kg)
19	Copper as Cu		BDL (DL : 1.0 mg/kg)
20	Lead as Pb		BDL (DL : 1.0 mg/kg)
21	Iron as Fe		0.43 mg/kg
22	Organic Matter		2.01 mg/kg
23	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.60 %
24	Cation Exchange Capacity	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.51 %
		USEPA 9080 - 1986	41.6 meq/100g of soil

End of Report

For Chennai Mettex Lab Private Limited



[Signature]
Reviewed & Authorized By

P. KAVITHA
Technical Manager
Authorized Signatory

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Certificate of Accreditation

Geo Exploration & Mining Solutions, Salem

95/1, Brindavan Road, 4th Cross East, Fairlands, Salem – 636 016 Tamil Nadu

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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

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Sr. Director, NABET
Dated: Feb 20, 2023

Certificate No.
NABET/EIA/2225/RA 0276

Valid up to
August 06, 2025

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