

PUBLIC HEARING SUMMARY OF COMBINED DRAFT EIA/EMP REPORT FOR LIMEKANKAR QUARRY LEASES

SITE DETAILS

Extent	15.14.5 Ha	3.42.5 Ha
Location	Kallankurichi Village, Ariyalur Taluk, Ariyalur District	
Land Type	Own Patta Land	

PRODUCTION DETAILS

Production	2,40,945 T of Limekankar & 32,126 T of Top soil	63953 T of Limekankar
Ultimate Depth	2.70m bgl (0.45m Top soil and 2.25m kankar)	2.30m bgl
Mining Method	Opencast Mechanized Mining without drilling & blasting	

PROJECT DETAILS

Category	B1	B1
Type	Fresh Project, Lease Period : 10 Years	Fresh Project, Lease Period : 5 Years

EIA/EMP DETAILS

ToR reference	TO25B0108TN5600951N dated 13.05.2025	TO25B0108TN5732932N dated 01.03.2025
Baseline Monitoring	Summer Season (March – May 2025)	

PROJECT PROPONENT

CHETTINAD CEMENT CORPORATION PVT. LTD.

Ariyalur Works, Trichy Road, Keelapulur, Ariyalur District-621707.

CONSULTANT

CREATIVE ENGINEERS & CONSULTANTS



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SUMMARY & CONCLUSION

1. INTRODUCTION:

Chettinad Cement Corporation Pvt. Ltd. proposes to operate **two Lime Kankar Quarry Leases** adjacent to each other in Kallankurichi village, Ariyalur Taluk and District, Tamil Nadu and has initiated action towards obtaining environmental clearance. Its details are as follows:

- 1) Lime Kankar Quarry Lease of Chettinad Cement Corporation private limited over an area of 15.145 ha in Kallankurichi village, Ariyalur Taluk and District, Tamil Nadu.**
- 2) Lime Kankar Quarry Lease of Chettinad Cement Corporation private limited over an area of 3.425 ha in Kallankurichi village, Ariyalur Taluk and District, Tamil Nadu..**

Since one lease is more than 5 ha and for other lease although the lease area is less than 5 Ha, total existing and proposed Lime Kankar quarries within the 500m radius cluster along with this subject project works out to >5 Ha. Hence, this proposal is considered under Category – B1 and as per MoEF & CC notification necessitates preparation of EIA/EMP report and public hearing.

Considering that both the leases belong to the same proponent, within 500m radius on cluster situation, combined draft EIA with cumulative impact assessment & separate EMP measures is prepared for the above two mentioned projects based on the respective standard Terms of Reference issued by SEIAA, Tamil Nadu and is in conformance of the generic structure prescribed by MOEF&CC in their notification of September 2006 and the approved mining plan.

1.1 STATUTORY APPROVALS:

S.No	Statutory Approval	Authority	Project – 1 (15.145 Ha)	Project – 2 (3.425 Ha)
			Letter Number and Date	Letter Number and Date
1.	Precise Area Communication Letter	Industries (MMC2) Department	Lr.No. No. 6151/MMC.2/2024-1 , dated: 14.10.2024	Lr.No.5716/MMC.2/2020-1 dated 20.12.2023
2.	Mining Plan Approval	Commissionar ate of Geology & Mining,	Rc.No.8882/MM7/2018 dated 19.02.2025	1509/MM7/2018/, dated 27.03.2024

3.	Terms of Reference	Received from SEIAA, Tamil Nadu	TO25B0108TN5600951N . Dated:13.05.2025	TO25B0108TN5732932N. Dated:01.03.2025.
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As per TOR Condition, EIA/EMP report is prepared. Salient details of the report is given below

2.1 SALIENT FEATURES OF THE PROJECT:

Table 0.1: Site Details

Particulars	Project – 1 (15.145 Ha)	Project – 2 (3.425 Ha)
Name of the Project	Limekankar Quarry of Lease of Chettinad Cement Corporation Pvt. Ltd. (15.145 Ha)	Limekankar Quarry of Lease of Chettinad Cement Corporation Pvt. Ltd. (3.425 Ha)
Location	Kallankurichi village, Ariyalur Taluk and District, Tamil Nadu	Kallankurichi Village, Ariyalur Taluk & District, Tamil Nadu
Latitude	11°10'7.9148"N to 11°10'23.1276"N	11°10'3.3953"N to 11°10' 8.5623"N
Longitude	79°6' 36.1456"E to 79°6' 55.9348"E	79°6' 35.9857"E to 79°6' 47.6917"E
Nearest Village	Venkataramanapuram (hamlet) - 275 m North	Thamaraikulam Village – 830m- NW
Nearest Town	Ariyalur – 5.50Km - SW	Ariyalur – 5.50Km - SW
Nearest Highway	SH-217 - 600m	SH-217 - 600m
Nearest Railway Station	Ariyalur Railway Station – 5.50Km - SW	Ariyalur Railway Station – 5.5 (SW)
Nearest Airport	Trichy Airport-62Km - SW	Trichy Airport – 62 Km (SW)
Accessibility	Approachable from Ariyalur – Sendurai Road about 550m on the west side.	
Topography	Plain terrain, dry lands with sparse vegetation.	Plain terrain, dry lands with sparse vegetation.
Drainage	Kallar River – 1.8Km – SE,Vilangudi Odai – 5.3Km – E,Vanchyiam Odai – 5.5Km – SW,Marudaiyar River – 8.7Km – SW,Metal Odai – 8.9Km – SW,Uppu Odai – 9.5Km - SE,Venmani Odai – 9.5Km – NW.	Kanjan Eri – Adjacent to lease, 50m safety has been left, Vari – Adjacent to lease, 50m safety has been left, Kallar River – 1.9Km – SE, Vilangudi Odai – 5.5Km – E, Vanchyiam Odai – 5.5Km – SW, Marudaiyar River – 8.1Km – SW, Metal Odai – 9.0Km – SW, Uppu Odai – 9.3Km – SE, Venmani Odai – 9.6Km – NW.

Based on the conditions of Precise Area Communication letter, the following safety distances will be maintained:

Safety Distances for (15.145 Ha)

7.5m	All along the lease boundary
10m	Pathway to Arulmigu Opillathamman Temple patta land situated in S.F.No.56/10
50m	Thangavelu Udaiyar Eri situated in S.F.No.50/1 in the northern side
50m	vari course situated in S.F. Nos.42, 55, 56/4 & .60
50m	channel running in S.F.No.44/1, 2, 6, 10, 15, 18, 54/6, 7A & 7B from east to west.
50m	Sellamuthu Eri situated in S.F.No.62/10 in the eastern side.
50m	Iyyaneri lake situated in S.F.No.43/2, 3

Safety Distances for (3.425 Ha)

7.5m	All along the lease boundary
10m	Tar road in S.F.Nos.158 & 159 which is classified as car track passing in southern side and Poromboke lands 39/3 & 57/9
50m	Kanjan Eri in S.F.No.57/8 located in eastern side
50m	Vari passing in northern side in S.F.Nos.40 & 57/1

Table 0.2: Technical Description

PARTICULARS	15.145Ha			3.425Ha		
Geological reserve	766741			176193		
Mineable reserve	2,40,945			63,953		
Method of Mining	Opencast method without drilling and blasting will be carried out.			Opencast method without drilling and blasting will be carried out.		
Production	Year	Lime Kankar ROM (Tonnes)	Top Soil (Tonnes)	YEAR	LIME KANKAR (T)	
	I	100845	13446	I YEAR	30062	
	II	68212	9095	II YEAR	33891	
	III	71888	9585	III YEAR	Afforestation of safety zone area	
	IV	Afforestation of safety zone area		IV YEAR		
	V			V YEAR		
	Total	2,40,945	32,126	TOTAL	63953	
Waste Generation and Management	There is no generation of mineral rejects in the applied area. The topsoil to be generated is proposed to be utilized for afforestation.					
Ultimate Depth	2.7m			2.30m		
Man power	10 People directly and more than 50 people indirectly			10 People directly and more than 50 people indirectly		
Mode of transport	By Road			By Road		
Water requirement	8 KLD					
Source of water	The required water will be procured from outside agencies.					
Power requirement	All the equipment will be diesel operated. No electricity is needed for mining operation. The minimum power requirement for office, etc will be met from state grid.					
Life of the mine	10 Years			5 Years		
Project cost	Rs. 217 Lakhs Including capital & recurring			155 lakhs Including capital & recurring		
CER	Totally Rs.2.0 Lakhs is allocated under CER budget for both the projects.					

3.1 EXISTING ENVIRONMENTAL SCENARIO:

The studies and data collection have been carried out systematically and meticulously as per relevant IS codes, CPCB and MoEF&CC guidelines and as per approved ToR during **Summer Season (March 2025 to May 2025)** For the purpose of this study, the area has been divided into two zones, namely, core and buffer zones. Core zone is considered as the total lease area, while buffer zone encompasses an area of 10 km radius distance from the periphery of core zone. Based on 2011 census data, in the 10km radius there are 38 Rural villages from Ariyalur Taluk, & District.

Table 0.3: Social, Economic And Demographic Profile of the Study Area

Details	Population	Percentage
A. Gender-wise distribution		
Male Population	79713	49.95
Female Population	79878	50.05
Total	159591	100
B. Caste-wise population distribution		
Scheduled Caste	42566	26.67
Scheduled Tribes	900	0.56
Other	116125	72.76
Total	159591	100
C. Literate and Illiterate population		
Literate Males	56409	35.35
Literate Females	42039	26.34
Total Literate Population	98448	61.69
other Males	23304	14.60
other Females	37839	23.71
Others Population	61143	38.31
Total	159591	100
D. Occupational structure		
Main workers	63583	39.80
Marginal workers	14860	9.30
Total Workers	78443	49.10
Total Non-workers	81148	50.80
Total	159591	100

3.2.1 EXISTING ENVIRONMENTAL QUALITY:

Table 0.4: Baseline Data

A) AMBIENT AIR QUALITY	Monitoring Location – 5 locations		
PARAMETER	RESULT (µg/m ³)		*LIMIT (µg/m ³)
Location	Core Zone	Buffer Zone	
Particulate Matter (Size <10 µm)	41.1 – 52.6	46.9 – 61.7	100
Particulate Matter (Size <2.5 µm)	18.5-23.7	21.4 – 29.2	60
Sulphur Dioxide (as SO ₂)	4.6-6.9	4.8 – 9.5	80
Nitrogen Dioxide (as NO ₂)	7.9-10.4	8.3 – 13.6	80
Conclusion: The existing Ambient Air Quality levels for PM10, PM2.5, SO2 and NO2, are within the NAAQ standards prescribed CPCB limits of 100 µg/m ³ , 60 µg/m ³ , 80 µg/m ³ & 80 µg/m ³ . The CO values			

in all the locations were found to be below detectable limit. Silica values in the study area are found to be below detectable limit. (Detection limit – 0.05 mg/m³)

B) WATER QUALITY		Monitoring Location – 5 locations
PARAMETER	Result	*LIMIT (µg/m³)
pH at 25 °C	6.74 – 7.42	6.5-8.5
Total Dissolved Solids, mg/L	440 – 768	2000
Chloride as Cl ⁻ , mg/L	102 – 452	1000
Total Hardness (as CaCO ₃), mg/L	298 – 385	600
Total Alkalinity (as CaCO ₃), mg/L	239– 348	600
Sulphates as SO ₄ ²⁻ , mg/L	72.6 – 218	400
Iron as Fe, mg/L	0.05 – 0.09	0.3
Nitrate as NO ₃ , mg/L	1.67 – 3.47	45
Fluoride as F, mg/L	0.28 – 0.41	1.5

Conclusion: The water quality of ground water is found to be within the prescribed Permissible limits of IS: 10500 Norms in the absence of an alternative source as per Drinking Water Specifications.

C) NOISE LEVELS		Monitoring Location – 5 locations	
PARAMETER	RESULT dB(A)		*LIMIT (µg/m3)
	Day Equivalent	Night Equivalent	
Core Zone	45.0	39.8	90
Buffer Zone	47.3 – 50.4	39.0 – 39.9	Day Equivalent - 55dB(A), Night Equivalent - 45dB(A)

*Permissible noise for industrial workers as laid down by CPCB (at 8 hrs Exposure Time). While comparing with the MoEF&CC Norms, the monitored ambient noise levels are generally within the limit values.

D) SOIL QUALITY		Monitoring Location – 5 locations
PARAMETER	Range of values	
pH	6.58 to 7.99	
Electrical Conductivity (µmho/cm)	32.97 – 89.54	
Organic matter (%)	0.65 – 0.94	
Total Nitrogen (mg/kg)	197 - 298	
Phosphorus (mg/kg)	0.54 – 1.22	
Sodium (mg/kg)	658- 916	
Potassium (mg/kg)	203 -383.93	
Soil is of silty clay type		

3.2.2 LAND ENVIRONMENT:

Landuse pattern study carried out through remote sensing satellite data around the 10km buffer zone shows that 22.54 % of the buffer area is classified under the Agriculture/ Plantation followed by 43.87 % of fallow land, 11.80 % constitutes land with scrub, 12.71 % constitutes land without scrub and the balance falls under other land use categories.

3.2.3 BIOLOGICAL ENVIRONMENT:

Flora: Both the lease area is a non forest, private land with thorny bushes and shrubs only. The lease area is dominated with *Prosopis juliflora* (seemakaruvelam), *Acacia nilotica* (Karuvelam), *Morinda tinctoria* (nuna), *Cassia auriculata* (Aavarampoo). The Dominated species in the buffer zone are *Albizia lebbek*, *Acacia auriculiformis*, *Syzygium cumuni*, *Borassus flabellifer*, *Azadirachta indica*, *Prosopis juliflora*, etc.

Fauna: There is no Wild Life Sanctuary or National Park within the study area of 10 km. Domesticated animals, are commonly found. No wild mammalian species was directly sighted during the field survey

3.2.4 HYDROLOGICAL STUDY:

The water table aquifer is normally developed for domestic water supply and small irrigation needs, through dug wells, constructed in the past. The semi- confined aquifer is mostly developed through bore wells for agricultural purposes tapping this zone at depths of 60 to 80m. The ultimate mining depth is 2.7m for 15.145ha & 2.30m for 3.425ha only. Hence, no adverse impact on groundwater table is envisaged

4.1 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES:

In these 2 projects Semi – Mechanized Open Cast mining without drilling & blasting will be carried out to quarry out Lime Kankar. Negligible environmental impact is envisaged from these projects due to the following reasons:

- ❖ Low quantum of production
- ❖ No Drilling and Blasting
- ❖ Less number of equipments of optimum capacity proposed to be used in this project.
- ❖ Shallow depth of mining

4.1.1 AIR ENVIRONMENT:

The principal sources of air pollution in the area due to mining and allied activities are dust generation in the mine due to various activities such as excavation of material, movement of HEMM, loading, unloading and transportation operations.. Although no adverse impact on the environment is envisaged due to small scale mining operation for a shallow depth envisaged for this project, the following measures will be adopted to control impact on the air quality due to mining operations in the lease area:

- Regular wetting of transport road using mobile water tanker.
- Proper maintenance of roads.
- Avoiding overloading of tippers & Transportation of material by tarpaulin covered trucks
- Proper maintenance of HEMM to minimize gaseous emission
- Setting up of tyre washing facility in the lease area exit.
- Provision green netting around the lease periphery on all sides.
- Development of green belt/ plantation in various areas within the mine lease area etc.

By adoption of all these measures, no adverse impact on air quality is envisaged due to this proposed opencast mining operation.

The impact on air quality due to the proposed project is estimated using AERMOD View Gaussian Plume Air Dispersion Model.

The resultant added concentrations on individual basis with baseline figures in the study area, show that the values of ambient air quality with respect to PM₁₀ are in the range of 54.3 µg/m³ to 62.7 µg/m³ and with respect to PM_{2.5} are in the range of 24.7 µg/m³ to 30.2 µg/m³ for 15.145 Ha lease area and the PM₁₀ are in the range of 54.6 µg/m³ to 62.7 µg/m³ and with respect to PM_{2.5} are in the range of 24.7 µg/m³ to 30.2 µg/m³ for 3.425 Ha lease area which are within the statutory limits in each case.

The cumulative post project concentration with respect to PM₁₀ is in the range of 55.4 µg/m³ to 62.7 µg/m³ and with respect to PM_{2.5} are in the range of 24.7 µg/m³ to 30.2 µg/m³ which are also within the statutory limits in each case. For preservation of environment strict enforcement

of management schemes and regular air quality monitoring will be undertaken for taking corrective actions, as needed. By adopting the effective implementation of all the mitigative measures as given above, no adverse impact on Air quality due to the mining operation in these leases on cumulative basis is also expected.

4.1.2 WATER ENVIRONMENT:

Water Requirement: Total water requirement for the 2 projects will be 8.0 KLD .The water will be sourced from outside agencies..

The domestic sewage to be generated from the project will be collected in septic tank with soak pits. Towards surface runoff management, garland drain of length 3300m & 950 m respectively with respect to 15.145 Ha lease area & 3.425 will be constructed around the quarry and will be connected to a settling pond with silt traps. The supernatant clear water from the settling pond will be flow to the downstream users. There are no perineal water courses in both the lease areas. In the 15. 145 Ha lease area, Thangavelu Udaiyar Eri situated in S.F.No.50/1 is in the northern side, vari course is passing through the middle of the lease area, drainage channel passing in S.F.No.44/1, 2, 6, 10, 15, 18, 54/6, 7A & 7B from east to west & Sellamuthu Eri situated in S.F.No.62/10 in the eastern side.

Safety distance of 50m has been left based on precise area conditions. As a protective measures, an Earthen bund of 3 ft height will be constructed in the safety zone and it will be developed with plantation.

In the lease area of 3.425 Ha lease, Kanjan Eri in S.F.No.57/8 located in eastern side & a Vari is passing in northern side in S.F.Nos.40 & 57/1. Safety distance of 50m has been left based on precise area conditions. As a protective measures, an Earthen bund of 3 ft height will be constructed in the safety zone and it will be developed with plantation.

These streams/ water bodies act more of the drainage arrangement and it remains dry for most the year. There is no proposal to discharge any effluent into this water body. No major impact is envisaged on the nearby water bodies due to project operations.

Generation of mine pit water: Mining operations are proposed to be quarried upto a depth of 2.70m & 2.30 m respectively for the 2 leases. The groundwater table in this area is much below this level. As such no groundwater intersection envisaged.

4.1.3 NOISE ENVIRONMENT:

In this both projects, there is no drilling and blasting involved. There will be hardly operation of 1 loader and 2 tippers in the lease area. Hence the effects of noise from the mining operation will be insignificant. There will also be attenuation due to vegetation, green netting to be erected by the proponent all around the lease and as such there will not be any adverse noise propagation outside the lease boundary. Due to natural attenuation effects, by proper green belt development, design / maintenance of machines, etc., the impact on noise levels will be negligible and are expected to be well within the prescribed limits.

4.1.4 IMPACT ON LAND ENVIRONMENT:

The lease area of 15.145Ha is a patta land in the name of the applicant Chettinad Cement Corporation Pvt Ltd.. Ultimately the entire mined out area of 4.76 Ha will be used for rainwater harvesting. 10.385 Ha will be covered with vegetation. Entire mined out area will be properly fenced to prevent inadvertent entry of men and animals.

The lease area of 3.425Ha is a patta land in the name of the applicant Chettinad Cement Corporation Pvt Ltd. Ultimately the entire mined out area of 1.236 Ha will be used for rainwater harvesting. 2.189 Ha will be covered with vegetation. Entire mined out area will be properly fenced to prevent inadvertent entry of men and animals.

4.1.5 BIOLOGICAL ENVIRONMENT:

Necessary mitigative measures like dust suppression, proper maintenance of equipment's, greenbelt and plantation etc., will be carried out to prevent dust generation & any further impact on the vegetation. In the lease area, Greenbelt / Plantation will be carried out to enhance the vegetative growth and aesthetic in the safety zone area..

4.1.6 SOCIO ECONOMIC ENVIRONMENT:

The entire lease area is patta land in proponents name. Hence, there are no habitations or hutments in the core zone area and no rehabilitation or resettlement problems will arise here. The vari in proximity to the lease area not be disturbed by the proponent and sufficient safety barrier has also been left. Towards the same, it is proposed to construct a bund on the eastern side along with fencing.

The mining operations in the 2 proposed mine will employ each project about 10 persons directly and about 50 persons on indirect basis through allied opportunities in logistics, trading, repairing works etc. good employment potential will arise in this area, which will provide raising income levels and standards of living in the area through various service related activities connected with the project operations.

Towards the socio economic development of the surrounding area, the proponent has earmarked an amount of Rs.2.0 Lakhs under Corporate Environmental Responsibility for 2 projects. The activities identified under CER will be implemented in a phased manner. In consultation with the locals based on the need & priority it will be implemented.

4.1.7 OCCUPATIONAL HEALTH AND SAFETY ASPECTS:

In order to ensure minimisation of occupational health and safety problems in the project operation, the following preventive remedial measures will be effectively exercised in the project operations, so as to comply with applicable standards.

- Medical examination of workers at pre-entry level stage of workers, etc., by qualified doctors, with periodical examination of all workers/staff at least once a year, as per DGMS circulars.
- Regular awareness campaigns amongst staff and workers
- Staff will be provided with PPE to guard against excess noise levels, Dust generation and inhalation, etc., as per standards prescribed by DGMS.

4.1.8 IMPACT ON LOCAL LOGISTICAL SYSTEM DUE TO PROJECT:

On cumulative basis, there will be hardly about 3 trips per hour during the first year. Subsequently as the production will reduce in the forthcoming years, the number of trips will further reduce. The transport route can easily absorb this negligible traffic due to this project. The following mitigative measures are suggested for mitigation of adverse impacts on the logistical aspect of the project:

- ❖ Water sprinkling on Rough stone in the transport vehicles before transporting, so that no dust nuisance during transport will arise.
- ❖ Proper maintenance of transport roads
- ❖ Proper maintenance of transport vehicles.
- ❖ Avoiding overloading of material

- ❖ Covering of loaded vehicles with tarpaulin sheet.

4.1.9 WASTE MANAGEMENT:

There is no process effluent generation from this mine. Hence no liquid waste is generated. Single use plastics/ use and throwaway plastics will be banned in the site as directed by the Tamil Nadu Government vide GO(Ms)No.84 regarding ban on use of plastic products. The employees will be encouraged to use compostable material or reusable material.

5.0 ENVIRONMENTAL MONITORING PROGRAMME:

The monitoring schedules are planned for systematic study of various pollution levels with respect to air and water qualities, noise levels, etc. to ensure that they conform to the standards laid down by Environmental Protection Act and various statutory Limits. Monitoring location and the frequency of monitoring shall be suitably modified in consultation with the nodal agency as per the actual requirements and prevailing conditions of the mine and environmental factors, as dictated from time to time, depending on the prevailing pollution levels, if required. Since the 2 leases are in the same cluster of the same owner, the monitoring schedules are devised on a common basis. Towards EMP measures for 15.145ha Rs.12.63 Lakhs is allocated under capital cost. Besides, Rs.14.03 Lakhs per annum will be spent under recurring cost. Towards EMP measures for 3.425ha Rs.7.76 Lakhs is allocated under capital cost. Besides, Rs.11.07 Lakhs per annum will be spent under recurring cost. All the recurring cost of maintenance of pollution control measures, environmental monitoring etc., will be met from revenue..

6.0 ADDITIONAL STUDIES:

Since one lease is more than 5 ha and for other lease although the lease area is less than 5 Ha, total existing and proposed Lime Kankar quarries within the 500m radius cluster along with this subject project works out to >5 Ha. As such cluster situation applicable and this EMP is prepared. The baseline monitoring carried out for this project reflects the cumulative impact of the existing scenario.

7.0 CONCLUSION:

By systematic and scientific mining adhering to all the statutory norms and enforcing and strictly implementing the above said mitigation measures mentioned in this report, no adverse impact is envisaged. The proposed mining activity will be carried out without drilling and blasting, with low

quantum of production, less number of equipments and also a meagre depth of only 2.70m & 2.30m. Hence, no adverse impact on the environment due to mining operations is envisaged. Besides, this project will also provide employment, social welfare facilities by way of CER activities and also meet the raw material requirement of their plant.

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