The Ramco Cements Limited

Proposed Kairulabad Lime Kankar Quarry Lease over an Extent of 15.135 Ha & Production in Plan Period of 3,66,300 Tonnes @ Maximum 1,99,800 TPA

S.F Nos. 414/8A, 414/8B, 415/5, 415/6, 415/7, 415/8, 415/9, 415/10, 415/11, 415/12, 415/13, 415/14, 416/7, 417/1, 417/2, 417/3, 417/4, 417/5, 417/6, 417/7, 417/8, 417/9, 417/10A, 417/10B, 417/11A, 417/11B, 417/11C, 417/12, 417/13, 417/14A, 417/14B, 417/15, 417/16A, 417/16B, 417/17A, 417/17B, 418/1A, 418/1B, 418/2, 418/3, 418/7, 418/8, 418/10C, 419/1A, 419/1B, 419/2A, 419/2B, 419/3A, 419/3B, 419/4, 419/5A, 419/5B, 419/5C, 419/7, 419/8, 419/9, 419/10, 419/13, 433/2A, 433/2B, 433/3A, 433/3B, 433/4A, 433/4B, 433/5, 433/6A, 433/6B, 433/7, 433/8, 433/9, 433/10, 433/11, 433/12A, 433/12B, 433/12C, 433/12D, 433/12E, 433/13A, 433/13B, 433/13C, 433/13D, 433/15, 433/16, 433/17, 433/18, 433/19, 433/20, 434/1A, 434/1B, 434/2, 434/3, 434/5, 434/6, 434/7, 434/8, 434/9A, 434/9B, 434/9C, 434/10, 434/11, 434/12A, 434/12B, 434/12C, 434/13A, 434/13B, 434/14, 434/15, 434/18 & 434/19 of

Kairulabad Village, Ariyalur Taluk & District, Tamil Nadu

Minor Mineral for Captive Consumption (not in Cluster)

Precise Area Communication Letter 2963/MMC.2/2022-1 dated 19.05.2023

Mining Plan Approval by Directorate of Geology & Mining, Chennai vide Letter Rc. No. 1271/MM7/2021 dated 17.08.2023

Environmental Clearance under EIA Notification 2006

Schedule Sl. No. 1(a) & Category 'B' (Minor Mineral)

Summary Environmental Impact Assessment Report

(after TOR for Public Hearing)

TOR Awarded vide Identification No. TO24B0108TN5653629N dated 22.10.2024

Baseline Data Collection : March-May 2025 (Summer Season)

August 2025

EIA Consultant

ABC Techno Labs India Private Limited, Chennai

Accreditation Certificate : NABET/EIA/2225/RA0290 dated 11.06.2023 with Validity till 16.11.2025 (Sl. No. 5 of QCI/NABET List)

Lab Accreditation : NABL Certificate No. TC-5770 dated 03.04.2024-valid till 02.04.2026

Summary Environmental Impact Assessment Report

1.0 Introduction

1.1 Project Proponent

M/s. The Ramco Cements Limited (RCL), under RAMCO Group, is one of the reputed Cement Companies in India. The cement production of RCL is about 16.85 million tons per annum (MTPA) from their **Cement Plants** in India. RCL is operating its Govindapuram Cement Plant near Ariyalur for 3.62 MTPA Clinker & 5.50 MTPA Cement production. The Plant requires about 6.5-7.0 MTPA of different grade Limestone and Kankar depending on the production. The existing Captive Mines viz. Amalgamated Periyanagalur Mines, Kattupirangium, Reddipalayam, Pudupalayam-North & Usenabad-South Limestone Mines and Illupaiyur, Ottakovil & Ottakovil-II Kankar Quarries in the Ariyalur Region supply the Raw Materials Limestone & Kankar to the Plant.

In addition to the existing Leases in Ariyalur Region, RCL has obtained Precise Area Communication from the State Government for **Kairulabad Kankar Quarry Lease** over an extent of **15.135 Ha of own Patta Land** in SF Nos. 414/8A, 414/8B, 415/5, 415/6, 415/7, 415/8, 415/9, 415/10, 415/11, 415/12, 415/13, 415/14, 416/7, 417/1, 417/2, 417/3, 417/4, 417/5, 417/6, 417/7, 417/8, 417/9, 417/10A, 417/10B, 417/11A, 417/11B, 417/11C, 417/12, 417/13, 417/14A, 417/14B, 417/15, 417/16A, 417/16B, 417/17A, 417/17B, 418/1A, 418/1B, 418/2, 418/3, 418/7, 418/8, 418/10C, 419/1A, 419/1B, 419/2A, 419/2B, 419/3A, 419/3B, 419/4, 419/5A, 419/5B, 419/5C, 419/7, 419/8, 419/9, 419/10, 419/13, 433/2A, 433/2B, 433/3A, 433/3B, 433/4A, 433/4B, 433/5, 433/6A, 433/6B, 433/7, 433/8, 433/9, 433/10, 433/11, 433/12A, 433/12B, 433/12C, 433/12D, 433/12E, 433/13A, 433/13B, 433/13C, 433/13D, 433/15, 433/16, 433/17, 433/18, 433/19, 433/20, 434/1A, 434/1B, 434/2, 434/3, 434/5, 434/6, 434/7, 434/8, 434/9A, 434/9B, 434/9C, 434/10, 434/11, 434/12A, 434/12B, 434/12C, 434/13A, 434/13B, 434/14, 434/15, 434/18 & 434/19 of Kairulabad Village, Ariyalur Taluk & District, Tamil, Nadu (**Fig. 1.1**).

The entire area **is patta land owned by RCL**. There is no Forest/Government Land involved. There is **no Rehabilitation & Resettlement** (R&R) issue. Also, there is **no litigation/pending case** against the Proposal. FMB Sketch is given as **Plate-I**. Lease Area in Google Earth Imagery & nearby Settlements are shown in **Plate-II**. The **Contact information are** :

RCL Corporate Office:- **Shri.M.Srinivasan,** **Executive Director (Operations)**, The Ramco Cements Limited, 5th Floor, Auras Corporate Centre, No. 98A, Dr.Radhakrishnan Road, Mylapore, Chennai-600 004. Tel. No. : 044-28478666 Fax No. : 044-28478676 e-Mail : ramcoenv@ramcocements.co.in	**RCL Govindapuram Works :-** The Sr. Vice President (Mfg.) & Unit Head, The Ramco Cements Limited, Govindapuram Cement Plant, Sendurai Road, Ariyalur District-621 713. Tel. No. : 04329-226001 to 226004 Fax No. : 04329-226005 e-Mail : madhusudan.k@ramcocements.co.in

Fig. : 1.1 Index Map

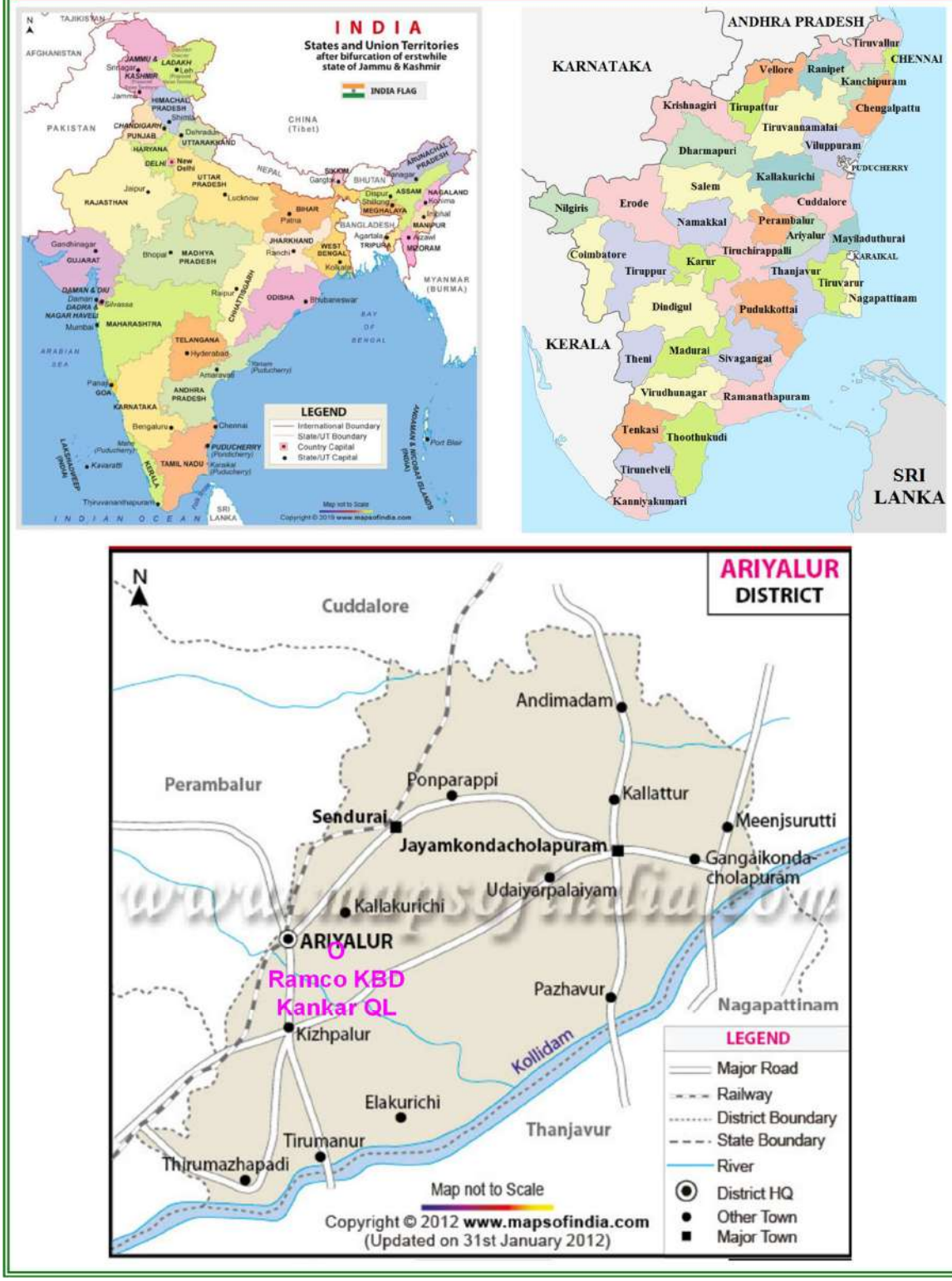


Plate : I ML Area FMB Sketch

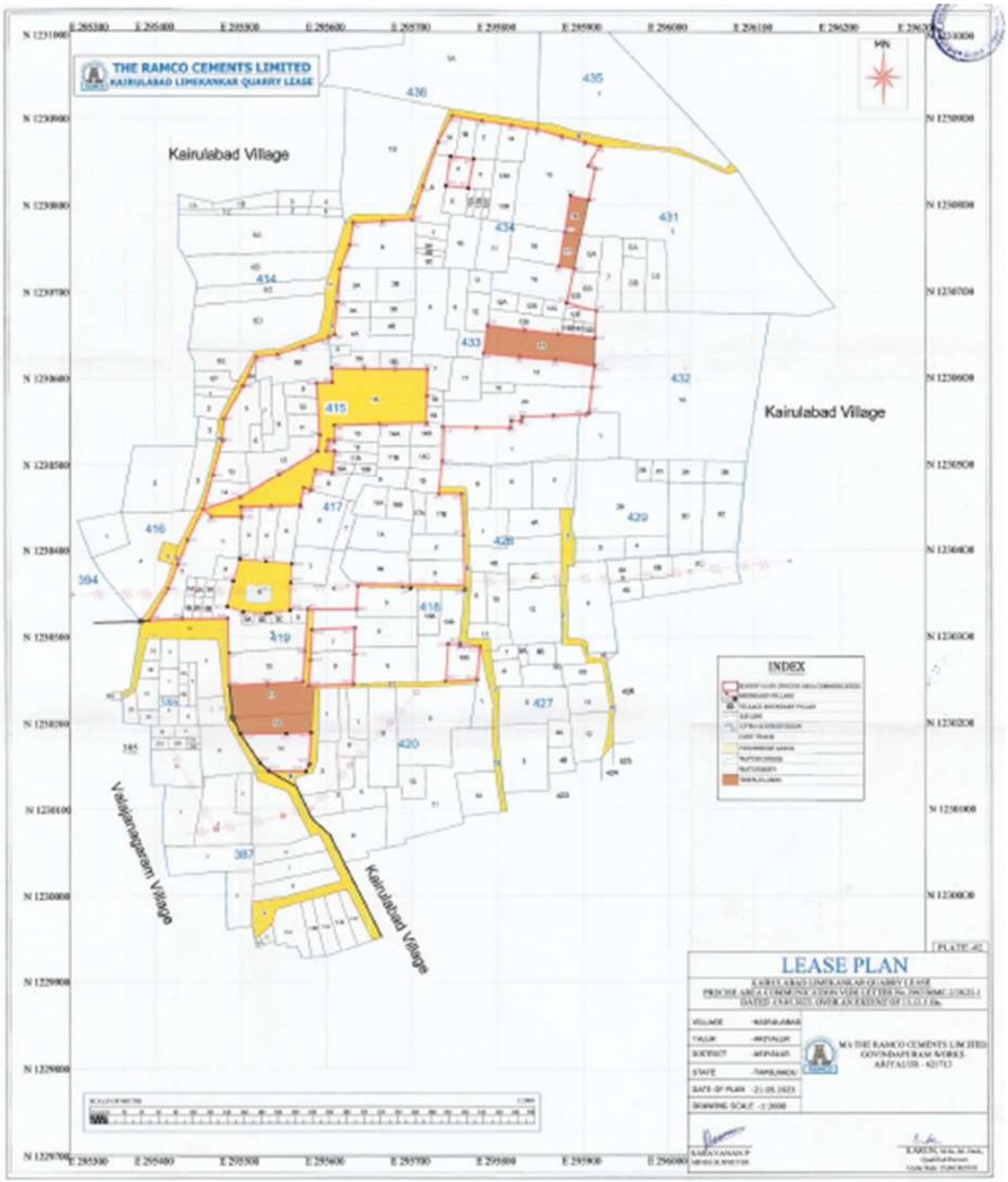
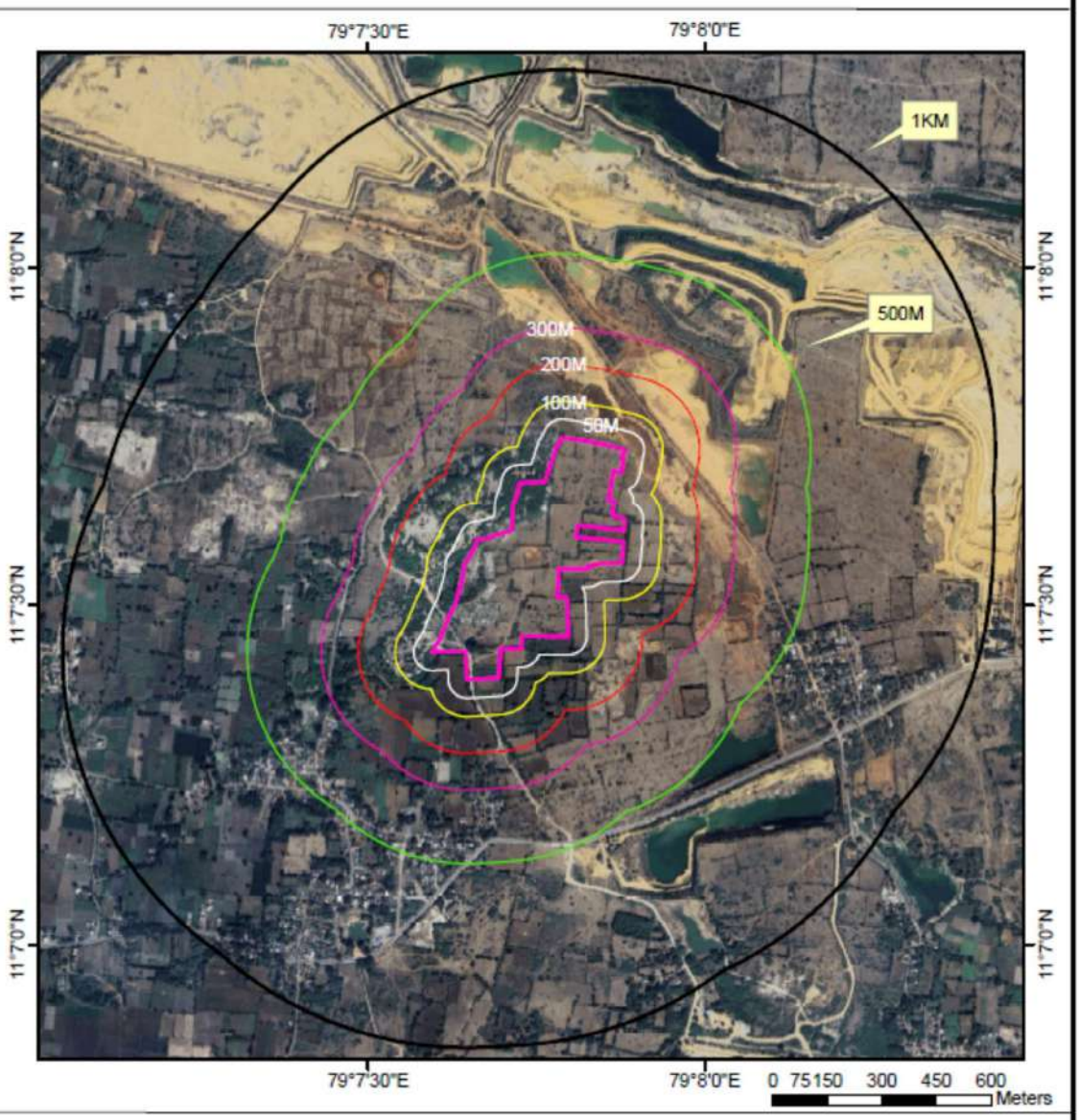


Plate : II Kairulabad Kankar QL & its Environs (1 km)



QL Coordinates : 11°7'20.18"-11°7'44.93" North Latitudes & 79°7'35.70"- 79°7'52.95" East Longitudes

1.2 Project Profile

Project Name : Proposed Kairulabad Lime Kankar Quarry Lease over an Extent of 15.135 Ha & Production in Plan Period of 3,66,300 Tonnes @ Maximum 1,99,800 Tonnes per Annum (TPA) at Kairulabad Village, Ariyalur Taluk & District, Tamil Nadu by M/s. The Ramo Cements Limited.

Project Location : SF Nos. 414/8A, 414/8B, 415/5, 415/6, 415/7, 415/8, 415/9, 415/10, 415/11, 415/12, 415/13, 415/14, 416/7, 417/1, 417/2, 417/3, 417/4, 417/5, 417/6, 417/7, 417/8, 417/9, 417/10A, 417/10B, 417/11A, 417/11B, 417/11C, 417/12, 417/13, 417/14A, 417/14B, 417/15, 417/16A, 417/16B, 417/17A, 417/17B, 418/1A, 418/1B, 418/2, 418/3, 418/7, 418/8, 418/10C, 419/1A, 419/1B, 419/2A, 419/2B, 419/3A, 419/3B, 419/4, 419/5A, 419/5B, 419/5C, 419/7, 419/8, 419/9, 419/10, 419/13, 433/2A, 433/2B, 433/3A, 433/3B, 433/4A, 433/4B, 433/5, 433/6A, 433/6B, 433/7, 433/8, 433/9, 433/10, 433/11, 433/12A, 433/12B, 433/12C, 433/12D, 433/12E, 433/13A, 433/13B, 433/13C, 433/13D, 433/15, 433/16, 433/17, 433/18, 433/19, 433/20, 434/1A, 434/1B, 434/2, 434/3, 434/5, 434/6, 434/7, 434/8, 434/9A, 434/9B, 434/9C, 434/10, 434/11, 434/12A, 434/12B, 434/12C, 434/13A, 434/13B, 434/14, 434/15, 434/18 & 434/19 of Kairulabad Village, Ariyalur Taluk & District, Tamil Nadu. **There is no other Kankar Quarry within 500 m radius area**.

Statutory Approvals : Precise Area Communication (PAC) has been issued vide Industries Department Letter No. 2963/MMC.2/2022-1 dated 19.05.2023. Mining Plan has been approved by the Directorate of Geology & Mining, Chennai vide Letter Rc. No. 1271/MM7/2021 dated 17.08.2023.

Proposal : The **effective quarrying area will be 8.140 Ha** after leaving the safety barriers of 6.995 Ha. Mineable Reserves is 3,66,300 Tonnes of Lime Kankar. Mechanized **Non-Conventional Opencast Mining, without Drilling and Blasting**, with deployment of Excavators & Dozers-Tippers combination will be adopted. The average depth of Over Burden (OB) in the form of Top Soil is 0.30 m. Below the Top Soil, Lime Kankar exists up to a depth of 2.0 m BGL. The depth of the quarry will be **2.30 m BGL only**. **Quarrying activities will not intersect the ground water-table.** Also, there will be **no Solid Waste Dump** in the Lease.

To win the 3.663 Lakh Tonnes of Lime Kankar in the Plan Period (@ maximum 1,99,800 TPA in the First Year), about 0.24 Lakh m^3 of OB will be removed and utilized for periphery bund & Green Belt development. The Ore:OB ratio will be 1:0.067. The ROM Lime Kankar produced from the quarry will be transported by 25 T Tarus Tippers through SH-139 to Govindapuram Cement Plant for Cement manufacturing.

The Quarry Layout, with Green Belt development, is given as **Fig. 2.1**. Quarry Particulars are detailed in **Table 1.1**. Proposed Production during the Plan Period is given in **Table 1.2**.

Fig. : 2.1 Layout / Conceptual Plan & Section

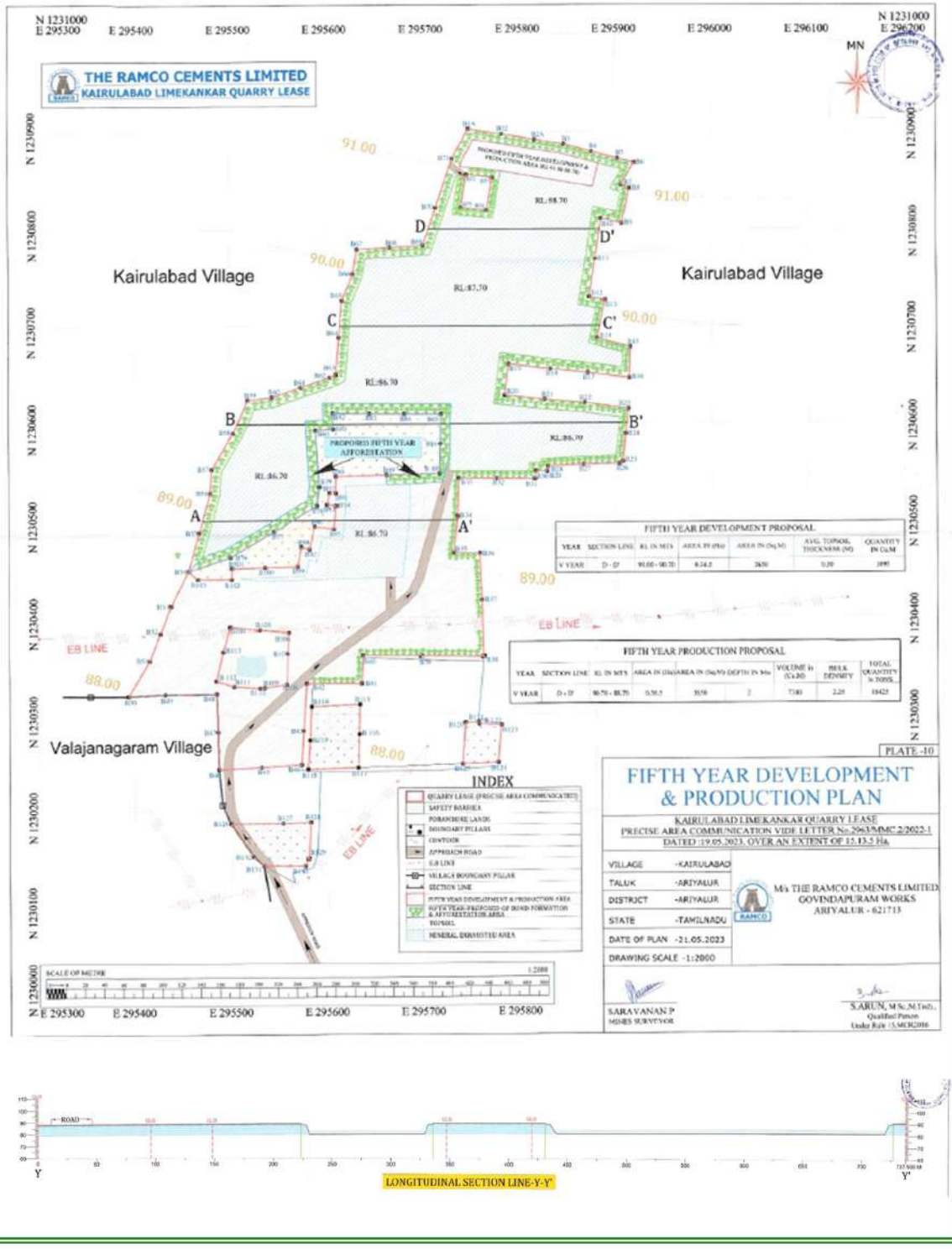


Table : 1.1 Quarry Particulars

Sl. No.	Details on	Particulars
1	Name of the Lease	Kairulabad Lime Kankar Quarry Lease
2	Lease Owner	The Ramco Cements Limited (RCL)
3	Extent of Lease	15.135 Ha
4	Deed Execution	New Lease; to be executed after obtaining EC
5	Lease Validity	5 Years from date of Lease Deed Execution
6	Lease Location	Kairulabad Village, Ariyalur Taluk & District, Tamil Nadu
7	**Land Ownership**	**Own Land of RCL**
8	**Lithology**	Top Soil : 0-0.3 m BGL Lime Kankar : 0.3-2.3 m BGL (max. depth of 2.3 m BGL).
9	Permitted Minerals	Lime Kankar
10	Commencement on	New Lease; commencement will be after obtaining all statutory approvals.
11	Mining Plan / Scheme Approvals	Mining Plan has been approved by the Directorate of Geology & Mining, Chennai vide Letter Rc. No. 1271/MM7/2021 dated 17.08.2023
12	Past Production (since Commencement)	Not Applicable; New Lease
13	Assessed Reserves	Lime Kankar - 6,81,075 Tonnes
14	Mineable Reserves	Lime Kankar - 3,66,300 Tonnes
15	**Production so far**	**Nil**
16	Dispatch Quantity	Nil
17	**Process Description**	Mechanized **Non-Conventional Opencast Mining, without Drilling and Blasting**, with deployment of Excavators & Dozers-Tippers combination will be adopted. ROM Lime Kankar produced from the quarry will be transported by 25 T Tarus Tippers through SH-139 to Govindapuram Cement Plant for Cement manufacturing.
18	Proposed Production	The entire Reserves of 3,66,300 Tonnes will be quarried during the **Plan Period itself with a maximum production of 1,99,800 TPA** in the First Year.
19	Ground water table intersection	The total depth of quarrying will be to a maximum of **2.3 m BGL** only. As ground water-table fluctuates between 40-45 m BGL in the vicinity, thus, **no ground water-table intersection**.
20	**Project Cost**	**Rs.4.65 Crores**
21	**Project Schedule**	**Life of the Lease is 5 Years**.
22	**R & R Issue**	Nil
23	**Litigation/Case Details**	Nil
24	**CER Budget**	**Rs.9.30 Lakhs**
25	Financial Assurance	Not applicable now
26	**Violation, if any**	**Nil**

Quarry Profile :

Mineable Reserves	:	3,66,300 Tonnes
Proposed Lime Kankar Production	:	1,99,800 TPA (maximum)
Ore : OB Ratio	:	1: 0.067
Bench Height & Width	:	- (No benches)
Life of the QL	:	5 years
No. of working days/annum	:	300 (2 shifts)
Ultimate Pit Limit-Conceptual	:	2.3 m (BGL)
Ground Water-table at	:	Pre monsoon - 45 m BGL & Post monsoon - 40 m BGL

Quarrying activities will not intersect the ground water-table.

Table : 1.2 Proposed Development & Production Plan

Year	Area, Ha	Development			Production			Ore:OB Ratio
		RL, m	Depth, m	OB, cu.m	RL, m	Depth, m	Lime Kankar, Tonnes	
I	4.440	89.0-88.7	0.3	13,320	88.7-86.7	2.0	1,99,800	1:0.067
II	2.225	90.0-89.7	0.3	6,675	89.7-87.7	2.0	1,00,125	1:0.067
III	0.555	90.0-89.7	0.3	1,665	89.7-87.7	2.0	24,975	1:0.067
IV	0.555	91.0-90.7	0.3	1665	90.7-88.7	2.0	24,975	1:0.067
V	0.365	91.0-90.7	0.3	1095	90.7-88.7	2.0	16,425	1:0.067
Total	**8.140**	**-**	**-**	**24,420**	**-**	**-**	**3,66,300**	**1:0.067**

EIA Study : The Lime Kankar to be quarried out from this Lease is **Minor Mineral over an extent of 15.135 Ha** and falls in **Category 'B1'** of Sl. No. 1(a) of EIA Notification 2006**,** as amended, for prior EC from State Level Environmental Impact Assessment Authority (SEIAA), Tamil Nadu. Accordingly, TOR Application/Form-1 (Form 1M is Not Applicable) has been submitted by RCL vide Parivesh Online proposal No. **SIA/TN/MIN/495135/2024 on 02.09.2024**. After paying Online Scrutiny Fees, the File has been accepted by SEIAA on 06.09.2024. The Proposal was deliberated in 502nd SEAC Meeting held on 03.10.2024 and in 765th SEIAA Meeting held on 18.10.2024. Terms of Reference (TOR) for carrying out EIA Study has been awarded vide **TOR Identification No. TO24B0108TN5653629N dated 22.10.2024** under **File No. 11231**/2024, with Public Hearing.

EIA Consultant, M/s. ABC Techno Labs India Private Limited, Chennai has been accredited for various Sectors including **Sector-1 (Mining Projects) for Category 'A'** by the National Accreditation Board for Education & Training (**NABET**) vide Certificate NABET/EIA/2225/RA0290 dated 11.06.2023 with validity till 16.11.2025 (Sl. No. 5 of List). ABC Laboratory is accredited by the National Accreditation Board for Testing & Calibration Laboratories (**NABL**) vide Certificate No. TC-5770 dated 03.04.2024 - valid till 02.04.2026.

Baseline Data (BLD) has been collected during **Mar.-May 2025 (Summer Season)** for Environmental Impact Assessment (EIA) Study. Draft EIA Report has been prepared in compliance with awarded TORs and submitted along with Summary EIA Reports (both in English and Tamil versions) for Public Consultation & Public Hearing.

2.0 Description of the Environment

2.1 Environmental Setting

Kairulabad Quarry Lease is located in Survey of India Topo Sheet No.58 M/4 and in-between the Coordinates 11°7'20.18"-11°7'44.93" North Latitudes and 79°7'35.70"- 79°7'52.95" East Longitudes (**Fig. 1.2**). The site is free from seismic effects (Seismic Zone III). The Lease area is having almost a gentle topography with elevation in the range 88-91 m aMSL. There are **no eco sensitive areas** like National Parks, Wildlife Sanctuaries, Biosphere Reserves, Elephant Corridor, Mangroves, Historical Monuments, Heritage sites, etc. within 10 km from the Lease boundary. Parts of **Vannankurichi RF** (7.8 km in NE), **Managethi RF** (8.6 km in east), **Vilangudi Extn. RF** (7.4 km in ESE) and **Vilangudi RF** (7.6 km in SE) fall in the Study Area.

Seasonal **River Marudaiyar** drains the region which flows at 4.6 km in the south. Seasonal Nallah Kallar River flows at 1.7 km in west-northwest.

State Highway (SH)-139 (Ariyalur-V.Kaikatti-Jayamkondam Section) runs at 0.4 km in south. National Highway (NH)- 81 connecting Trichy-Kilapaluvur-Chidambaram runs at 3.3 km (in SSE), NH-136 connecting Tanjore-Ariyalur-Perambalur runs at 4.9 km (W). Southern Railway BG Line runs through Ariyalur at a distance of 7.0 km in the west-northwest. The nearest Airport Trichy is at 60 km in southwest. The nearest Ports are at Chennai (300 km) and Cuddalore (95 km).

QL Area is about 0.15 km from nearby Hastinapuram village in south and 0.6 km Kattupirangium village in the east. Valajanagaram is at 2.5 km in the west. The nearest Town & District Headquarters is Ariyalur at a distance of 5.1 km in the west.

RCL Govindapuram Cement Plant is located at a distance of 6.2 km aerial distance (13 km by road) in northwest. From the Lease, Ultratech Cement Plant-Reddipalayam is at 4.4 km (SE), TANCEM Cement Plant-Kallankurichi at 3.5 km (WNW), Dalmia Ariyalur Plant at 6.5 km (NW) and Chettinad Kilapaluvur Cement Plant at 9.5 km (SW). These Cement Plants & other have Limestone Mines & Quarries in the Region. The Lease is adjacent to TAMIN-PNR Mine @ 0.5 km (SSE) and Dalmia Cement Periyanagalur-AK Limestone Mines @ 0.5 km (N).

From the Lease, UltraTech Periyanagalur Limestone Mine is @ 1.6 km (NE), TANCEM PNR & Kallankurichi Mines @ 0.8-1.3 km (NE) and RCL Mines viz. Usenabad South @ 3.8 km (NW), Kattupirangium @ 1.3 km (SE), Pudupalayam-North @ 2.8 km (SE) & Reddipalayam Mines @ 5.4 km (SE) are existing.

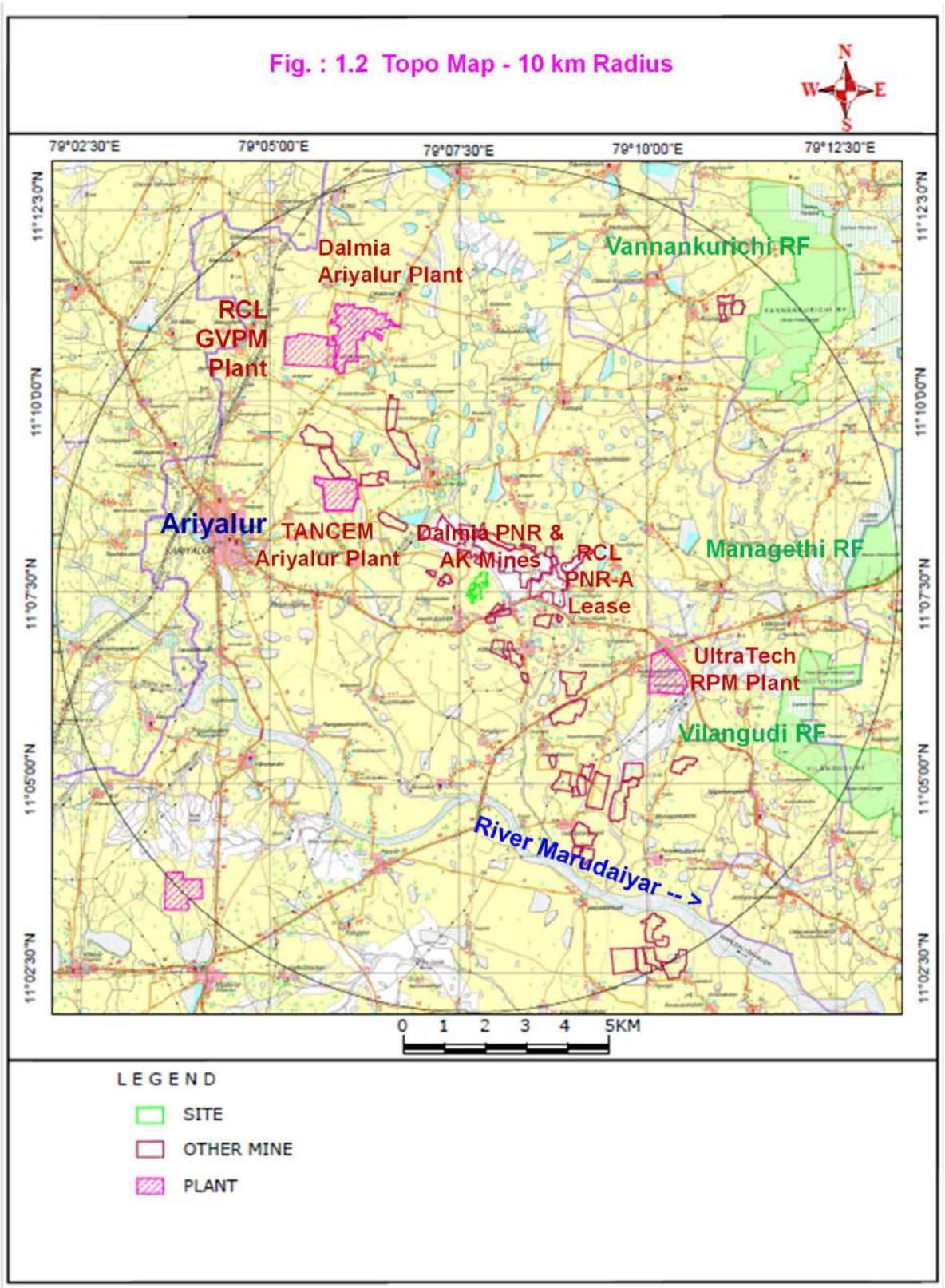


Fig. : 1.2 Topo Map - 10 km Radius
N
W
E
S
79°02'30"E
79°05'00"E
79°07'30"E
79°10'00"E
79°12'30"E
11°12'30"N
11°10'00"N
11°07'30"N
11°05'00"N
11°02'30"N
Dalmia
Ariyalur Plant
Vannankurichi RF
RCL
GVPM
Plant
Ariyalur
TANCEM
Ariyalur Plant
Dalmia PNR &
AK Mines
RCL
PNR-A
Lease
Managethi RF
UltraTech
RPM Plant
Vilangudi RF
River Marudaiyar -- >
0 1 2 3 4 5KM
LEGEND
SITE
OTHER MINE
PLANT

2.2 Baseline Environmental Status

The study area of 10 km radius (from ML boundary) (**Fig. 3.1**) has been considered for assessing the baseline environmental status. The monitoring stations are selected in such a way that baseline data reflects the **Cumulative Impact of existing Mines & Plants** in the Study area. The summary of baseline status is given in **Table 2.1**.

Table : 2 .1 Environmental Baseline Status

Envl. Component	Main Parameters	Minimum	Maximum	Mean	Desirable Norms
Ambient Air Quality, ug/m^3	PM2.5	15	48	**25.4**	**60**
	PM10	32	78	**49.1**	**100**
	SO_2	7	28	**15.9**	**80**
	NOx	9	33	**19.6**	**80**
Ambient Noise, dB(A)	Leq-Day	40.4	48.8	**44.0**	**55**
	Leq-Night	39.8	44.8	**42.5**	**45**
Surface Waters	TDS, mg/l	390	550	-	**500/2100**
Ground Waters	TDS, mg/l	440	620	-	**500-2000**
Soil Status	EC, mmhos/cm	1.53	1.90	-	**0.2-0.5**
	SAR	1.28	2.99	-	**<5**

Legend : PM2.5-Particulate Matter size less than 2.5 um; PM10- Particulate Matter size less than 10 um; SO_2-Sulphur dioxide; NOx-Oxides of Nitrogen; Leq-Day & Leq-Night - Equivalent Noise Levels during Day & Night Times; TDS-Total Dissolved Solids; EC-Electrical Conductivity & SAR-Sodium Absorption Ratio.

The findings of baseline environmental status of the study area are summarized below :

- The collected meteorological data during this season represented the local weather phenomena.
- The monitored ambient air quality in the study area was found to be in compliance with the Revised National Ambient Air Quality (NAAQ) 24-hourly Norms for Industrial, Residential, Rural and other areas.
- Ambient equivalent noise levels (Leq) during day and night times were found to be well within the MoEF&CC Norms.
- The water quality of surface waters was found to be in compliance with CPCB Norms.
- The ground water quality was found to be in compliance with the IS:10500-2012 Norms.
- The soil in the study area would very well support vegetation after amending it suitably.
- There is no eco sensitive area exists in the study area and only domesticated animals exist.
- The area is thinly populated and basic amenities are available almost in all villages.

Thus, there is **adequate buffer** for the proposed Project in the study area.

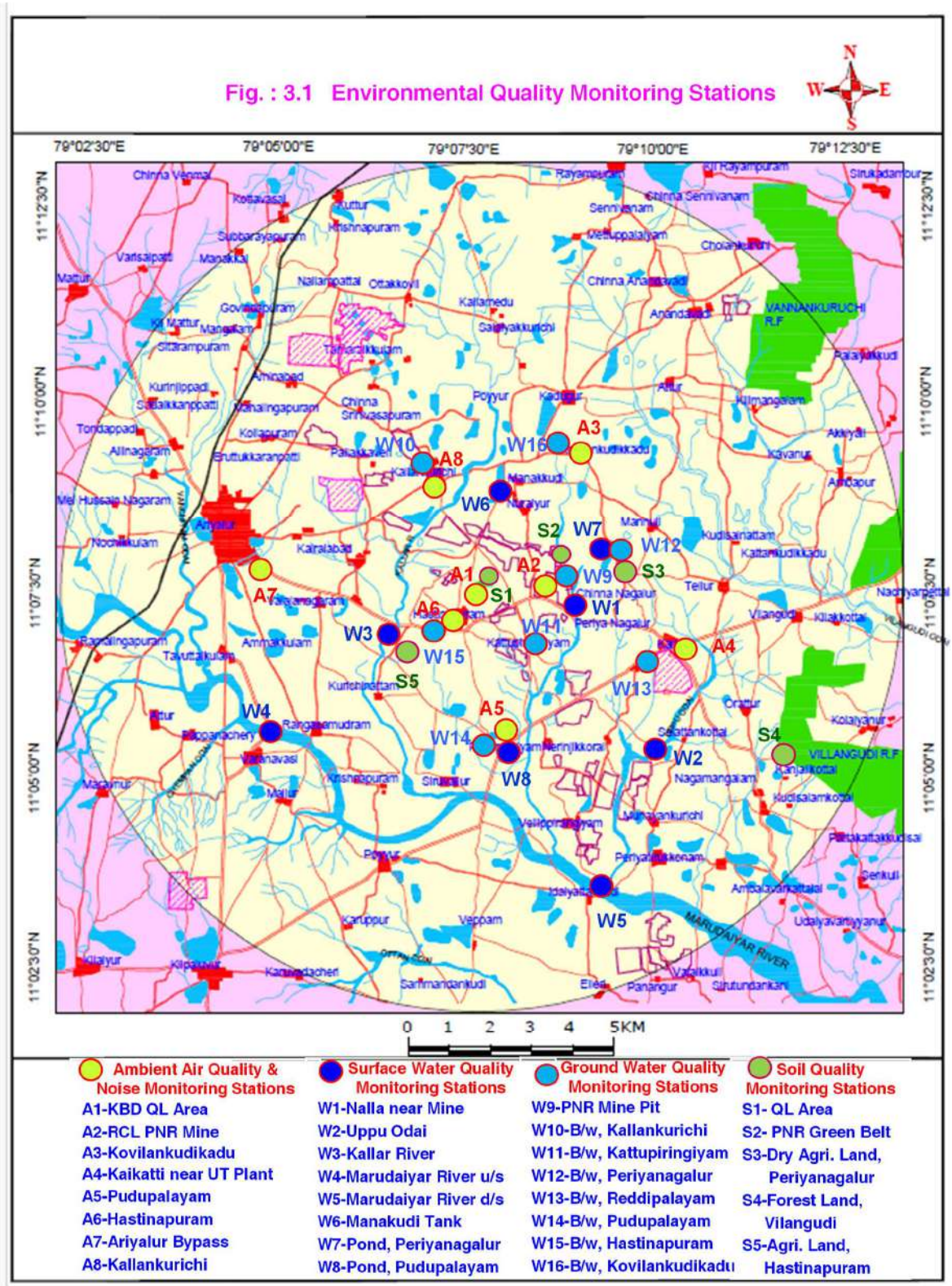


Fig. : 3.1 Environmental Quality Monitoring Stations
N
W
E
S
79°02'30"E
79°05'00"E
79°07'30"E
79°10'00"E
79°12'30"E
11°12'30"N
11°10'00"N
11°07'30"N
11°05'00"N
11°02'30"N
A1
A2
A3
A4
A5
A6
A7
A8
W1
W2
W3
W4
W5
W6
W7
W8
W9
W10
W11
W12
W13
W14
W15
W16
S1
S2
S3
S4
S5
VANNANKURUCHI R.F
VILLANGUDI R.F
MARUDAIYAR RIVER
0 1 2 3 4 5KM
Ambient Air Quality & Noise Monitoring Stations
A1-KBD QL Area
A2-RCL PNR Mine
A3-Kovilankudikadu
A4-Kaikatti near UT Plant
A5-Pudupalayam
A6-Hastinapuram
A7-Ariyalur Bypass
A8-Kallankurichi
Surface Water Quality Monitoring Stations
W1-Nalla near Mine
W2-Uppu Odai
W3-Kallar River
W4-Marudaiyar River u/s
W5-Marudaiyar River d/s
W6-Manakudi Tank
W7-Pond, Periyanagalur
W8-Pond, Pudupalayam
Ground Water Quality Monitoring Stations
W9-PNR Mine Pit
W10-B/w, Kallankurichi
W11-B/w, Kattupiringiyam
W12-B/w, Periyanagalur
W13-B/w, Reddipalayam
W14-B/w, Pudupalayam
W15-B/w, Hastinapuram
W16-B/w, Kovilankudikadu
Soil Quality Monitoring Stations
S1- QL Area
S2- PNR Green Belt
S3-Dry Agri. Land, Periyanagalur
S4-Forest Land, Vilangudi
S5-Agri. Land, Hastinapuram

3.0 Anticipated Environmental Impacts

Being a Quarry Project, it **does not involve any major establishment or construction**. A small Mine Office will be constructed on **temporary structures**. The identified Impacts during Operation Phase are given in **Table 3.1**.

Table : 3.1 Identified Impacts

Sl. No.	Environmental Component & Anticipated Impacts
1	**Land Environment :** In the total Lease Area of 15.135 Ha, effective quarry area will be 8.14 Ha. At the end of life of the quarry, the **entire pit of 8.140 Ha will be converted as a water reservoir.** About 2.50 Ha of Safety Zone will be under **Green Belt with a Coverage of 16.51%** at Conceptual Stage.
2	**Traffic Volume** : The existing traffic volume in the Project vicinity was found to be **6,410.7 Passenger Car Units (PCUs)/day**. In the Post-Project Scenario, there will be an addition of **54 Vehicles (118.8 PCU/day)** (in 2 ways) due to the Project. Cumulatively, the traffic volume in the Project vicinity will be **6,529.5 PCU/day**. The existing SH is adequate to handle the proposed traffic volume due to the Project. Adequate parking area will be provided in the Lease. Facilities for **drivers (rest room, toilet, etc.)** will also be provided.
3	**Air Quality** : Quarrying, Loading and Transporting activities would generate both fugitive dust emissions and smoke from HEM Machineries/Equipments & Transporting Tippers. AERMOD View Software is used for Predicting the maximum Ground Level Concentrations (GLCs) **including Transportation** Impact. The predicted maximum GLC-PM2.5 for cumulative activities is 0.20 ug/m^3 and GLC-PM10 for cumulative activities is 0.68 ug/m^3 and found to be confined locally i.e. within 0.04 km radius. Also, adequate Buffer Level available in the Air Environment for the Proposal.
4	**Noise Levels** : There is **no Drilling and Blasting in this Quarry and thus, no vibration.** Excavation, Loading and Transportation activities are the sources of Noise. In general, work force will be exposed to <85 dB(A) levels during 8-hours Shift. Noise level at nearest Lease boundary will be <55 dB(A) during day times and <45 dB(A) during night times as stipulated by MoEF&CC- Leq Noise Norms for Residential & Rural Areas.
5	**Water Environment** : **Impact on Surface Waters :** The Surface run-offs due to the rain in the Lease Area are drained by natural courses i.e. first order streams. There are 3 first order streams in the southern parts of QL Area and a channel in the eastern boundary. As directed in the PAC Order & approved Mining Plan, the **safety barrier of 50 meter from the streams & channel are provided** and its flow will be maintained as such till the Conceptual Stage.

Sl. No.	Environmental Component & Anticipated Impacts
	The Normal Rainfall of the Site is 1,096 mm. Pre-Project and Post Project Surface Runoffs from the Quarry Area are estimated as per Manual of Artificial Recharge of Ground Water (CGWB, 2007). Pre-Project Runoffs from Quarry Area will be 2,30,672 KL/Annum and Post Project Runoffs will be 2,13,546 KL/Annum. There will be less Runoffs in the Post-Project Scenario due to more green belt area. This is the impact on Surface Waters due to the Project. There is **no Quarry Pit Water Discharge**. **Impact on Ground Waters :** The QL requires about 5 Kilo Liters per Day (KLD) water towards domestic consumption (1 KLD), Dust Control Measures (1 KLD) and Green Belt development (3 KLD) which will be brought by own Tankers from the Cement Plant. There **will not be any water drawl from Surface or Ground Water Sources** in the QL Area. Domestic sewage generation will be about 0.8 KLD which will be biologically treated in a Septic Tank followed by a Dispersion Trench of adequate size. No workshop is proposed and thus, no effluent generation from the QL. Thus, the impact on the Ground Waters would be minimum.
6	**Biological Environment** : There is no Eco Sensitive Area/Zone (ESA/ESZ) in the Region. Only Native Flora and Fauna exists. With natural vegetation and domestic fauna predominant in the Study Area, impact on the existing flora-fauna would be nil/minimum. QL area is surrounded by barren lands, dry agricultural lands & Mines/Industries within 10 km area. As the baseline AAQ are in lower levels as well as Predicted GLC is very low/insignificant, there will be **no impact on the surrounding dry agricultural lands** due to the Project.
7	**Socio-economics** : Project will employ 14 persons directly and 20 persons indirectly. A budget of **Rs.9.30 Lakhs** (2% of the Project Cost) will be allotted **as CER Budget** to Kairulabad Village. DMF amount @ 10% Royalty & Green Fund on Seigniorage Fees will also be spent for Kairulabad. RCL is carrying out number of social activities in and around the villages of its Mines and Factory under the **Corporate Social Responsibility (CSR)** Budget. RCL has the CSR Committee as per the provisions notified by the Ministry of Corporate Affairs on February 27, 2014. Based on the CSR Committee and declared CSR Policy of the Company, CSR activities are carried out and reported. The direct & indirect employment, CER & CSR activities, etc., will have a positive impact on the Socioeconomic Structure of the area.
8	**Occupational Health :** RCL is operating an **Occupational Health Centre at Factory** for supporting the health care needs of employees & their families. Periodic Health tests (Pulmonary test, Audiometric test, blood test, chest x-ray examination etc.) have been conducted every year for the employees. Supported by test observations, adequate and need based treatment has been offered to employees. RCL is committed to provide a Safety & Healthy working conditions in the QL. The **first aid box**es will be made available in the Site Office for immediate treatment.

Sl. No.	Environmental Component & Anticipated Impacts
	Occupational health surveillance programme will be carried out for all the employees regularly.
9	**Climate Change :** About 50 KVA industrial supply for lighting is required which will be met from TANGEDCO Grid. For operating the mining equipments, High Speed Diesel (HSD) is required @ 2,500 Liters/day. A licensed fuel storage tanks is established at the Factory and the daily requirement of HSD and other lubricants will be met by a licensed mobile bowser. There will be **no standby DG** set. About 2.50 Ha of Safety Zone will be under **Green Belt with a Coverage of 16.51%.** About, 3,750 local tree species like Neem, Pungan, Teak, etc. will be planted @ 1,500 Trees/Ha with a Survival Rate of about 90%.

4.0 Environmental Monitoring Programme

Periodical monitoring of the Ambient Air Quality (at 4 locations) as per NAAQ Norms, Fugitive/Workzone Air Quality/emissions (4 locations), Noise Levels (Ambient & Workzone areas), Water (4 Surface & 4 Ground waters) and Soil Quality (3 Locations) shall be undertaken as per MoEF&CC/TNPCB Norms by appointing an accreditated external agency. The status reports will be submitted periodically to TNPCB on monthly basis, IBM on quarterly basis and SEIAA & IRO, MoEF&CC Chennai on six monthly basis.

5.0 Additional Studies

Detailed Risk Assessment and mitigative measures are delineated and an effective Disaster Management Plan, for natural and man-made disasters, is also submitted. Safety aspects will also be ensured to reduce incidents, if any.

6.0 Project Benefits

Environmental Benefits : The proposal ensures continuous Raw Material supply to the Cement Plant. Effective utilization of the Minor Mineral for Cement manufacturing is a Mineral Conservation Measure.

Financial Benefits : Project cost is **Rs.4.65 Crores**. Mineable Reserves from the Lease is 3,66,300 Tonnes. As per MMDR Act 2015, DMF amount @ 10% Royalty & Green Fund on Seigniorage Fees to the Exchequer will improve local and regional economy.

Social Benefits : Project will employ 14 persons directly and 20 persons indirectly. A budget of **Rs.9.30 Lakhs** (2% of the Project Cost) will be allotted **as CER Budget** to Kairulabad Village. DMF amount @ 10% Royalty & Green Fund on Seigniorage Fees will also be spent for Kairulabad. The direct & indirect employment, CSR/CER activities, etc., will have a positive impact on the Socioeconomic Structure of the area.

7.0 Environmental Management Plan

There will be **no Construction Phase** for the Project. Environmental Management Plan (EMP) is suggested to mitigate possible negative impacts that may be caused to various attributes of environment due to proposed mining operations. EMP Measures proposed are given in **Table 7.1**.

Table : 7.1 Proposed EMP Measures

Sl. No.	Environmental Component & Proposed EMP Measures
1	**Land Environment :-** ❖ Earthen bunds are to be strengthened along the boundaries to arrest wash-offs. ❖ Garland drains are to be provided and maintained periodically around the Lease. ❖ Green Belt has to be developed and maintained along the Lease boundary. ❖ No. of **trees planted shall be numbered** and referenced for review. ❖ The land shall be restored to its original conditions at the end.
2	**Transportation :-** ❖ Regular wetting of haul roads has to be undertaken to arrest fugitive emissions. ❖ Tippers are to be fully covered with Tarpaulin to avoid any spillage. ❖ No overloading of Tippers is allowed strictly. ❖ A strict Speed Limit of 30 km/hr. has to be enforced and monitored continuously. ❖ Compliance to 'Pollution under Control' Certification has to be ensured. ❖ Restriction of Truck parking in the Public Road has to be implemented. ❖ Security Guards to be posted at the public road junction.
3	**Air Quality** :- ❖ Eco friendly quarrying (with out Drilling & Blasting) shall be adopted. ❖ Green belt shall be developed along the periphery, haul roads, waste dumps, etc. ❖ Water sprinkling at excavation areas, loading, haul roads, etc. has to be carried out periodically. ❖ Periodical maintenance of mining equipments has to be carried out. ❖ Periodical Air Quality Monitoring & Fugitive Emissions shall be carried out and Reports submitted.
4	**Noise Levels** :- ❖ Deploying equipments shall be with in-built mechanism for reducing noise. ❖ Providing sound proof operator's cabin of equipments. ❖ Provision of ear muffs/ear plugs to the workers in higher noise zones. ❖ Green Belt with thick foliage shall be maintained around lease boundary as acoustic barriers. ❖ Ambient Noise Levels at boundaries shall comply MoEF&CC Norms for Residential Areas. ❖ Periodical Noise Monitoring shall be carried out and Reports submitted to the Authorities.
5	**Water Environment** :- ❖ Natural drains or nallas should not be disturbed. ❖ The existing Pre-Project Drainage Pattern should be maintained to the extent

Sl. No.	Environmental Component & Proposed EMP Measures
	possible so that Post Project Runoff distribution is not affected. ❖ Runoffs from Quarry and Waste Dump should be regulated by constructing garland drains. ❖ Garland Drains and Settling Tanks are to be maintained and desilted periodically. ❖ Ground Water Levels and Water Quality are to be periodically monitored at identified Borewells & Dugwells in the Project vicinity. ❖ Monitored Water Quality data are to be periodically submitted to IBM, SEIAA-TN & IRO-MoEF&CC, Chennai.
6	**Biological Environment** :- ❖ Effective Green Belt has to be developed and maintained with 90% Survival Rate. ❖ Native species shall be preferred for Green Belt development. ❖ Fruit bearing trees may also be preferred. ❖ The primary way that carbon is stored in the soil is as **soil organic matter (SOM).** Climatic conditions, natural vegetation, soil texture, and drainage all affect the amount and length of time carbon is stored.
7	**Socio-economics** :- CSR activities shall be carried out by providing social and welfare measures for the local residents and nearby villages around the Lease area. The prime focus will be on the creating and maintaining of drinking water facilities for the students at the nearby Government Schools, establishing toilets especially for girl students at the schools, setting up of computer centres, maintenance of village roads & ponds, providing solar street lights, conducting free medical camps, etc.
8	**Occupational Health :-** ❖ All employees are to undergo Medical Check-up on recruitment and periodically during employment. ❖ Maintenance of Pre, during & Post Employment Records are to be kept for periodical review. ❖ Required Personal Protective Equipments for the employees are to be provided. ❖ Provision of ergonomically designed seats for drivers/operators has to be ensured.

Plastic Waste Management : There will be ban on one-time use and throw away Plastic usage in the Lease. Encourage the use of eco friendly alternatives such as banana leaf, areca nut palm plate, stainless steel glass, porcelain plates / cups, cloth bag, jute bag etc.

EMP Budget : Project cost is **Rs.4.65 Crores**. An amount of **Rs. 7.00 Lakhs** has been earmarked **as EMP Capital Budget** and **Rs. 10.20 Lakhs per Annum as EMP Operating Cost** towards Green Belt maintenance, Environmental Monitoring, etc. A budget of **Rs.9.30 Lakhs** (2% of the Project Cost) will be allotted **as CER Budget** to Kairulabad Village. DMF amount @ 10% Royalty & Green Fund on Seigniorage Fees will also be spent for Kairulabad.

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