



Dalmia Cement (Bharat) Limited

Khairulabad Limestone Mine under Rc. No. 17783
(Captive Mine since 2004 & Not in Operation since Feb. 2017)

Extent : 2.25 Ha

Minerals : Limestone & Ferruginous Limestone
Proposed Maximum Production : 6,028 Tonnes ROM per Annum

S.F. Nos. 455/1, 456/2 and 456/3 of Khairulabad Village,
Ariyalur Taluk & District, Tamil Nadu

ML Validity : 13.08.2004 to 12.08.2034 (for 30 Years)
(Valid till 12.08.2054 as per MMDR Amendment Act, 2015)

Review of Mining Plan & Progressive Mine Closure Plan Approval by
IBM, Chennai vide Letter No. TN/ALR/LST/ROMP-1523.MDS dated 13.11.2018
(ROMP Period 2019-20 to 2023-24)

Environmental Clearance under EIA Notification 2006
Schedule Sl. No. 1(a); Category 'B1' (Mining in <250 Ha)
'Violation Proposal' (as operated the Mine after 15.01.2016 without EC)

Summary Environmental Impact Assessment Report
(after TOR for Public Hearing)

Awarded TOR : SEIAA-TN/F.No. 6568/TOR-389/2018 dated 24.05.2018

April 2023

EIA Consultant

ABC Techno Labs India Private Limited, Chennai
Accreditation Certificate : NABET/EIA/1922/RA0155
Validity extended till 23.04.2023 vide Letter QCI/NABET/ENV/ACO/23/2646
(Sl. No. 4 of QCI/NABET List dated 04.04.2023)
NABL Certificate No. TC-5770 dated 03.04.2022 valid till 02.04.2024
Lab Recognition : MoEF&CC vide Letter F. No. Q-15018/04/2019-CPW dated 14.10.2019

Dalmia Cement (Bharat) Limited
Khairulabad Limestone Mine under Rc. No. 17783
Summary Environmental Impact Assessment Report

1.0 Introduction**1.1 Project Proponent**

M/s. Dalmia Cement (Bharat) Limited (DCBL) are operating Cement Plants at Dalmiapuram and Govindapuram in Ariyalur District of Tamil Nadu. With the recent Modernization & Expansion, Dalmiapuram Cement Plant Clinker production will be 3.23 Million Tonnes per Annum (MTPA) and Cement production will be 5.00 MTPA. Govindapuram Cement Plant Clinker production will be 2.50 MTPA and Cement production will be 4.00 MTPA. Dalmiapuram Cement Plant requires 5.00 MTPA Limestone and Govindapuram Cement Plant requires 4.00 MTPA Limestone. Limestone demand of both Cement Plants are met from existing captive mines of DCBL viz. Kallakudi-Kovandakurichi (KLK-KVK) Mines, Periyathirukonam (PTK) Mines and amalgamated Periyanalur, Aminabad & Khairulabad (PNR Group) Mines.

The communication address is as follows :

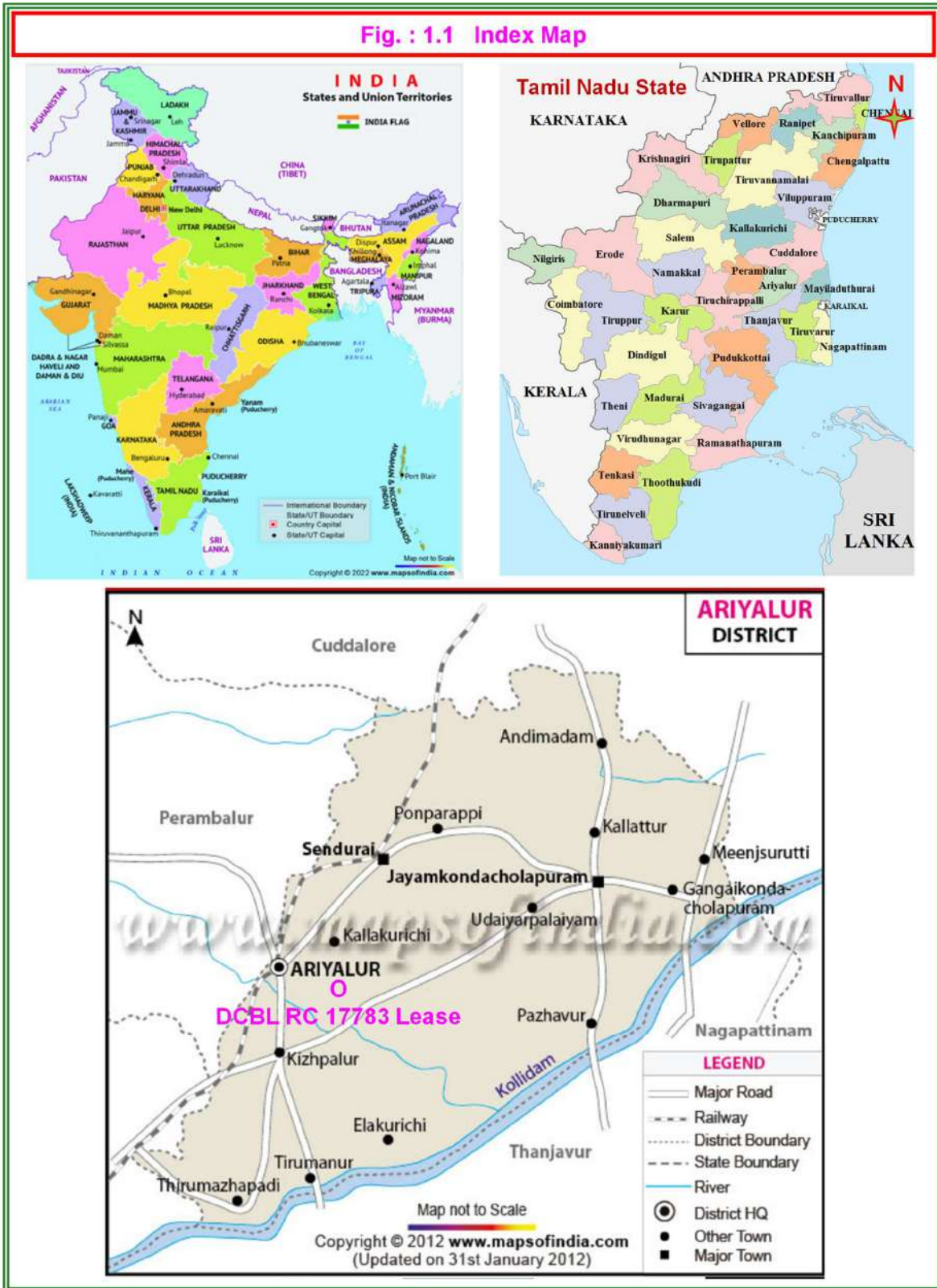
The Unit Head,
Dalmia Cement (Bharat) Limited,
Dalmiapuram,
Lalgudi Taluk, Tiruchirapalli District,
Tamil Nadu-621 651.
Telephone Nos. : 04329-235123; Fax : 04329-235111
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1.2 Project Profile

PNR Group Mines are being operated in 3 Leases for the last 52 years over an extent of **167.605 Ha** (under GO No. 179 over an extent of 70.01 Ha in Periyanalur; under GO No. 2 over an extent of 95.345 Ha in Aminabad & Khairulabad Villages and under **Rc No. 17783 over an extent of 2.25 Ha** in Khairulabad Village) for the total Production of 1.90 MTPA Limestone. DCBL has also applied and obtained a Lease vide GO (MS) No.106 dated 12.05.2015 for an extent of 0.845 Ha in Aminabad and will be amalgamated with GO No. 2 on obtaining all statutory clearances.

Khairulabad Limestone Mine is one of the Leases of DCBL in PNR Group. Total extent of the Lease area is 2.25 Ha of own **Patta Lands** in S.F. Nos. 455/1 (0.390 Ha), 456/2 (0.695 Ha) and 456/3 (1.165 Ha) of Khairulabad Village, Ariyalur Taluk & District, Tamil Nadu (**Fig. 1.1**). Mining Lease is granted for 30 Years from 13.08.2004 to 12.08.2034 vide RC No. 17783/MM4/2002 dated 27.01.2004. Lease Deed executed on 21.07.2004 and registered on 13.08.2004. The mining operations were commenced in this Lease on **25.08.2004** and stopped in February 2017 for want of Environmental Clearance.

Fig. : 1.1 Index Map



The present Review of Mining Plan (**ROMP**) & Progressive Mine Closure Plan has been approved by IBM, Chennai vide Letter No. TN/ALR/LST/ROMP-1523.MDS dated 13.11.2018 for the Period 2019-20 to **2023-24**. Approved Surface Plan is given as **Fig. 2.1**.

The mine is located at a distance of about 8 km from Ariyalur Town (in west) and can be reached by Ariyalur-V.Kaikatti Section of State highway (SH)-139 which runs about 1.8 km from southern boundary of the lease. No R&R is involved in this existing mine. There is litigation/case against the Project.

The mining operation was carried out by fully mechanized Conventional Opencast Mining Method with Drilling & Blasting. Excavated limestone was transported by 30 Tonnes Taurus Tippers to Dalmiapuram & Ariyalur Cement Plants at a road distance of 19 km and 40 km respectively. Since commencement in 2004-05, about 4,90,048 Tonnes of Limestone was mined out from the Mine. The maximum production was 1,25,671 Tonnes per Annum (TPA) during Year 2005-06. Present Pit depth is 14 m BGL.

The assessed balance Reserves in UNFC '111' Category is 48,000 Tonnes of Limestone & '211' Category 2,22,000 Tonnes of Ferruginous Limestone, total 2,70,000 Tonnes ROM (as on 01.10.2018). There is no Top Soil and Over Burden material available at the mine. It is proposed now to mined out 3,004 Tonnes Limestone & 3,024 Tonnes sub grade Ferruginous Limestone, thus, total 6,028 Tonnes ROM during balance ROMP Period i.e. during 2023-24 (**Table 1.1**). Ore:OB/Waste Ratio is 1:0. Balance Reserves will be mined out during subsequent Plan Periods,

Conceptual Stage Ultimate Pit depth will be 26.5 m BGL. As Ground Water-table in the vicinity is ranging between 40-45 m BGL, mining will not intersect the ground water-table. With the proposed production rate, the Life of the Mine is for another 45 Years.

Mine Profile :

Mining Pit Size	:	169 (L) x 133 (W) x 14 (D) m
Mineral	:	Limestone & Ferruginous Limestone
Mineral Resources	:	2,70,000 Tonnes ROM
Production- ROMP Period	:	6,028 TPA ROM
No. of working days per annum	:	330 (3 shifts)
Life of the Mine	:	45 years (balance)
Ore:OB Ratio-Plan Period	:	1:0
Bench Parameters	:	Height-5 m & Width 10 m
Ultimate Pit Depth-Conceptual	:	26.5 m BGL (Top RL 80.5 m; Bottom RL 54 m)
Ground Water-table	:	40-45 m BGL

Mining will not intersect the ground water-table.

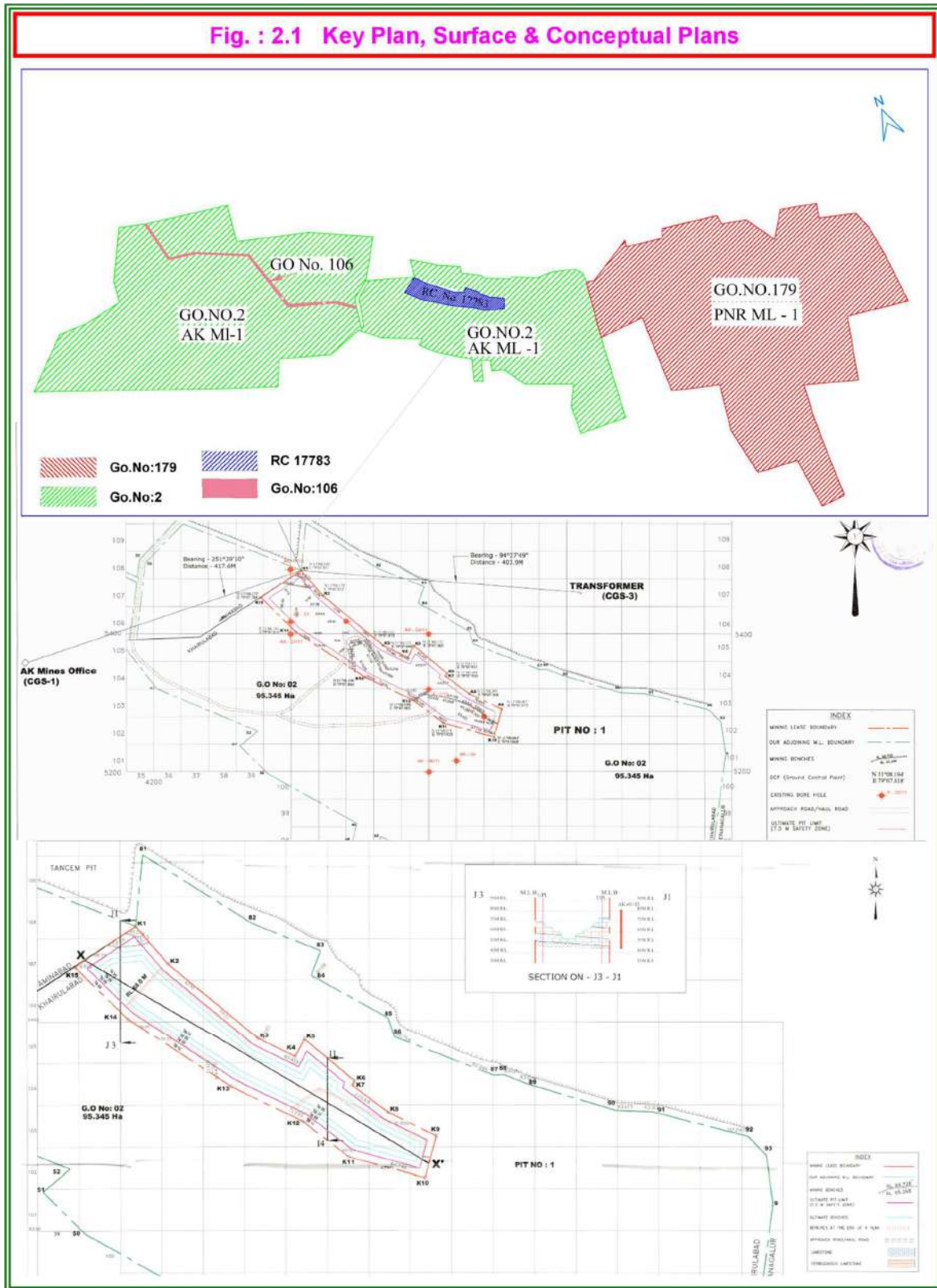


Table : 1.1 Proposed Production during ROMP Period

Period	Working RLS, m (3 rd Bench)	Top Soil, cu.m	OB, cu.m	Production, Tonnes			Mineral Rej., Tonnes	Ore:OB Ratio
				Limestone	Ferruginous Limestone	Total ROM		
2019-20	70-65.5	0	0	3,015	3,033	6,048	0	1:0
2020-21	70-65.5	0	0	3,003	3,042	6,045	0	1:0
2021-22	70-65.5	0	0	3,012	3,042	6,054	0	1:0
2022-23	70-65.5	0	0	3,024	3,006	6,030	0	1:0
2023-24	70-65.5	0	0	3,004	3,024	6,028	0	1:0
Total		0	0	15,058	15,147	30,205	0	1:0

'No prior Environmental Clearance (EC) is required for the Mines with <5 Ha Extent, in the context of the Ministry of Environment, Forest and Climate Change (MoEF&CC), Office Memorandum (OM) No. J-11013/182/2012-IA-II(M) dated 04.01.2013. However, the existing Mining Lease requires EC as per MoEF&CC Notification SO 141(E) dated 15.01.2016 under EIA Notification 2006. As per MoEF&CC, 'the mine leases which continue to operate without obtaining EC after 15.01.2016 shall be considered as Violation Cases and the leases which were in operation till 15.01.2016 and stopped production after 15.01.2016 shall be considered for EC.

DCBL has operated Khairulabad Limestone Mine under RC No. 17783 after 15.01.2016 till January 2017 and produced 14,945 Tonnes of Limestone. Operating the Lease without EC is in Violation of EIA Notification 2006 (as amended). Though 12.5 months period is there after 15.01.2016, the production from the Mine was carried out during 2 months only in that period viz. March 2016 (9,590 Tonnes) & January 2017 (5,355 Tonnes). As per CPCB Guidelines, No. of days violation took place have to be considered for Violation & Ecological Damage Assessment. Thus, the Violation Period has been considered as 2 months. The mining activities were stopped in February 2017 and there is no production from this Mine.

Meanwhile, DCBL has received Demand Notice from the District Collector, Ariyalur for 100% cost of Mineral value of Limestone quantity produced without EC vide Rc. No. 346/G&M/2018 dated 26.07.2019 for Rs.60,34,910/- (Doc-1). Accordingly, DCBL has remitted Rs.60,34,910/- on 30.07.2019 vide TNTC9 Chalan through State Bank of India, Ariyalur (Doc-2). Now, the Mine will be operated only after obtaining all Statutory Clearances.

DCBL has applied for EC to SEIAA-TN vide Online Proposal No. SIA/TN/MIN/24620/2018 on 12.04.2018. The Proposal under Sl. No. 1(a), Category B1 was deliberated under Violation Category in State Level Expert Appraisal Committee-Tamil Nadu (SEAC-TN) in its 111th Meeting held on 17.05.2018 and in 306th SEIAA-TN Meeting held on 24.05.2018. Terms of Reference (TOR) has been awarded vide Letter SEIAA-TN/F.No.6568/TOR-389/2018 dated 24.05.2018 with Public Hearing for preparing Environmental Impact Assessment (EIA) Report.

Baseline Data (BLD) collected during Winter 2021-22 Season i.e. **December 2021-February 2022** has been utilised for the EIA Study in compliance with MoEF&CC Office Memorandum No. J-11013/41/2006-IA-II(I)(Part) dated 29.08.2017. EIA Report has been **prepared in compliance with awarded TORs** and submitted as per generic structure proposed in Appendix-III of EIA Notification 2006 with the **Additional Chapter No. 13** for Ecological Damage Assessment, Remediation Plan and Natural Resource Augmentation & Community Resource Augmentation Plan. The violation falls under **Low Level Ecological Damage** category. An amount of Rs.3.72 Lakhs towards Ecological Remediation Plan and Natural & Community Resource Augmentation Plans is allotted for approval.

The Summary EIA Reports (both in English and Tamil) along with Draft EIA Report are submitted for the Public Consultation & Public Hearing within TOR Validity Period in compliance with MoEF&CC Notification SO 221(E) dated 18.01.2021.

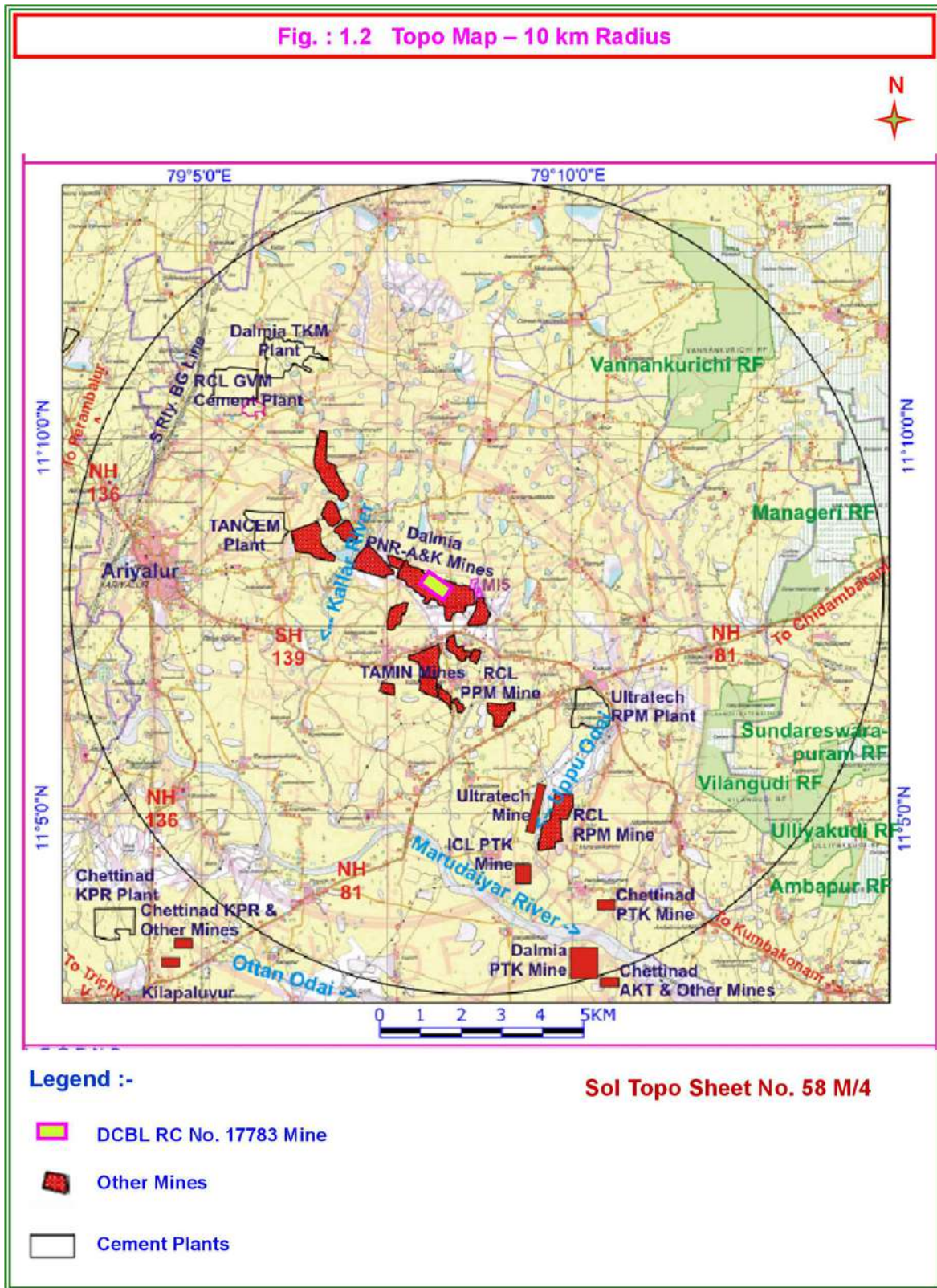
The EIA Consultant, M/s. ABC Techno Labs India Private Limited, Chennai has been accredited for various Sectors including Sector-1 (Mining Projects) for Category 'A' by the National Accreditation Board for Education & Training (**NABET**), Quality Council of India vide Certificate NABET/EIA/1922/RA 0155 with validity extended till **23.04.2023** vide Letter QCI/NABET/ENV/ACO/23/2646 (Sl. No. 4 of QCI/NABET List dated 04.04.2023) which will also be extended further by NABET. The ABC Techno Labs India Private Limited Laboratory is accredited by the National Accreditation Board for Testing and Calibration Laboratories (**NABL**) vide Certificate No. TC-5770 dated 03.04.2022 with validity till 02.04.2024. The Lab is also recognised by the Ministry of Environment, Forest and Climate Change (**MoEF&CC**) vide Letter F. No. Q-15018/04/2019-CPW dated 14.10.2019 with validity of 5 years.

2.0 Description of the Environment

2.1 Environmental Setting

Mine area falls in Survey of India Topo Sheet No. 58 M/4 and between the Coordinates 11°08'03.6" to 11°08'11.5" North Latitude and 79°07'47.2" to 79°07'58.5" East Longitude (**Fig. 1.2**). There are **no eco sensitive areas** National Parks, Wildlife Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar Sites, Tiger/Elephant Reserves, etc. (existing as well as proposed) within 10 km from the Mine. There are five Reserved Forests (RFs) in the Study Area. Karaivetti Bird Sanctuary is at 18 km in SW direction. There is an Archaeological/Fossil Museum at Varanavasi (8.5 km in SW). The following Reserve Forests (RFs) exist in the Study area :

- ❖ Vannankurichi RF (mixed jungle) - 8.0 km in northeast.
- ❖ Managethi RF – 7.5 km (ENE).
- ❖ Vilangudi Extension RF-9.0 km (ESE)
- ❖ Vilangudi RF (Cashew Plantation) – 7.5 km (SE).
- ❖ Sundareswarapuram RF – 9.5 km (ESE).



Kallankurichi Kaliyuga Varadharaja Perumal Temple is at 2.0 km in NW direction from the Lease. There is **no nallah/stream crossing** at the Mine. There is no perennial river in the study area. Seasonal **Marudaiyar River drains** the region and flows at 5.8 km in SSW direction. Seasonal Kallar River flows at 2.0 km (WNW), Uppu Odai at 3.8 km (ESE), Vilangudi Odai at 4.8 km (E) and Vanchiyam Odai at 7.0 km (WNW).

From the Lease Area, Dalmia PNR Mine Pit is at 400 m (East), Ramco PNR-A Pit at 1.2 km (SE) and TANCEM, UltraTech PNR, Khairulabad & Kallankurichi Mines at 0.25-1.75 km are situated. Ramco Usenabad Mine is at 2.8 km (WNW). Ramco Kattupirangium, Pudupalayam & Reddipalayam Mines are at 2.3, 3.5 & 6.1 km (SW, S & SSE) respectively, Ultratech Vellipirangiyum Mine at 5.8 (SE) & Ottakovil Mine at 8.0 km (NNW), ICL Periyathirukonam & Chettinad Periyathirukonam Mines at 6.8 km (SSE) & 8.7 km (SE), Dalmia Periyathirukonam Mines 9.0 km (SSE), etc. along with other Mines in the Study area.

From the Lease, Ultratech Cement Plant-Reddipalayam is at 4.5 km & its Township at 3.3 km in southeast. TANCEM Cement Plant-Kallankurichi at 3.2 km (WNW), Ramco Cement Plant-Govindapuram at 5.7 km (NW) and Dalmia Cement Plant-Tamaraikulam at 5.8 km (NNW). Chettinad Cement Plant-Kilapaluvur is at 10.5 km (SW).

The nearest village Periyanalur is about 1.8 km in east. Kattupirangiyum (1.1 km in SW), Manakudi (1.0 km in NW) and Kovilankudikadu (2.0 km in NNE) are the other nearby villages. V.Kaikatti Junction is at 3.7 km distance in southeast. Taluk and District Headquarters Ariyalur Town is at a distance of 5.5 km in west. Ariyalur Railway Station is at 7.4 km in west.

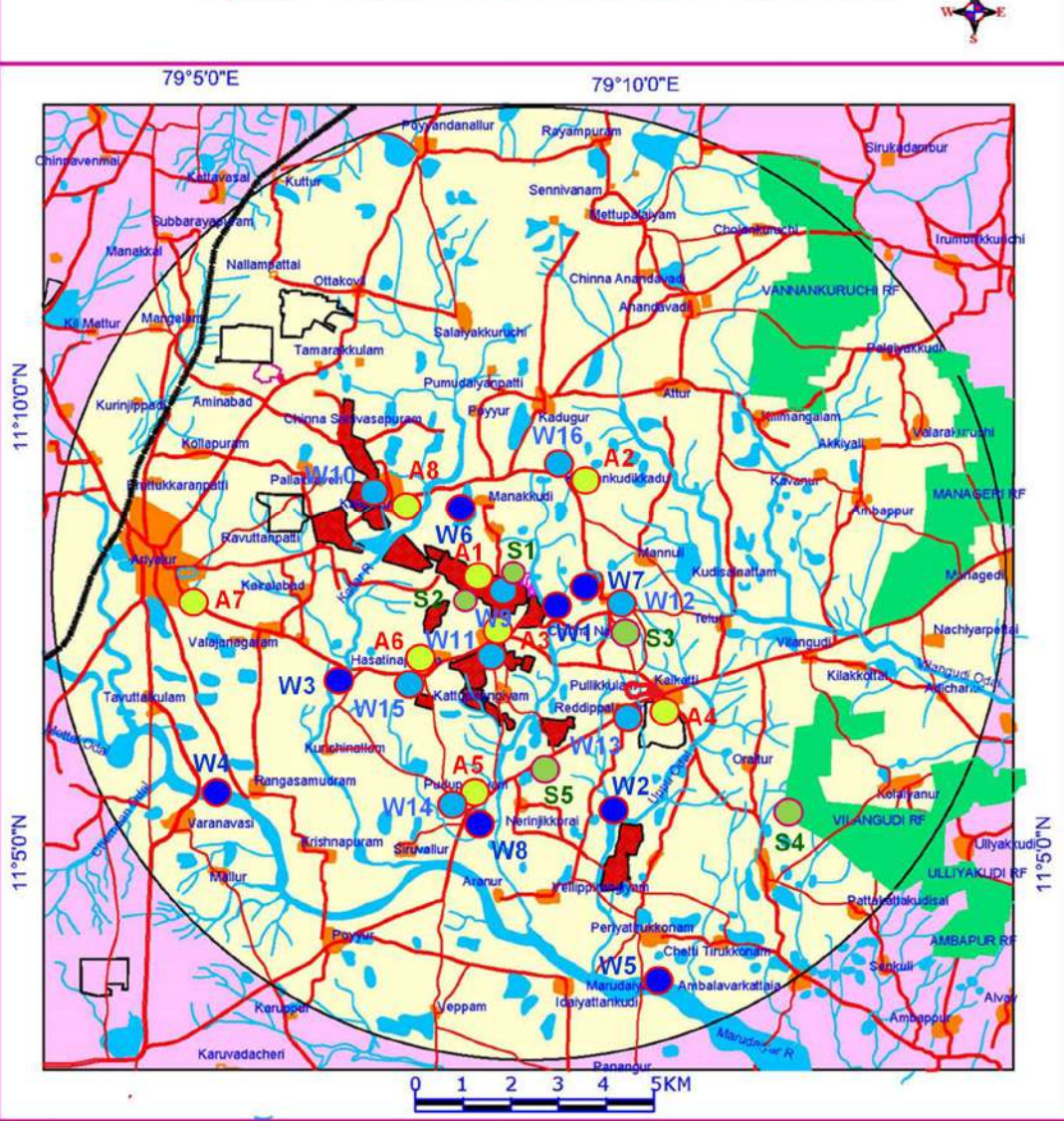
SH-139 (Ariyalur-Kumbakonam Section) runs at 1.4 km (S), NH-81 (Trichy-Chidambaram) at 4.3 km (SE) and NH-136 (Thanjavur-Ariyalur-Perambalur Section) at 5.0 km (W). Trichy Airport is at 60 km in SW direction and Chennai Airport is at 230 km in northeast. Karaikal Port is at 90 km in SE direction, Cuddalore port is at 90 km in NE direction from the Lease Area.

2.2 Baseline Environmental Status

The study area of **10 km radius (from boundary)** (**Fig. 3.1**) has been considered for assessing the baseline environmental status. Considering the environmental setting of the project, project activities and their interaction, environmental regulations and standards, following Environmental Attributes have been included in EIA Study.

- ❖ **Site specific Micro-meteorological Data** from Lease Area for a Season on wind speed, wind direction (wind roses), temperature, humidity, cloud cover, atmospheric pressure, rainfall, etc.
- ❖ **Ambient Air Quality Monitoring at 8 locations** on 24-hourly basis, continuously for 2 days in a week for 4 weeks in a month for 3 months in the season for all 12 parameters as per Revised NAAQ Norms.

Fig : 3.1 Environmental Quality Monitoring Stations



LEGEND

- | | | | |
|---|---|---|---|
| ● Ambient Air Quality & Noise Monitoring Stations | ● Surface Water Quality Monitoring Stations | ● Ground Water Quality Monitoring Stations | ● Soil Quality Monitoring Stations |
| A1-DCBL Mine | W1-Nalla near Mine | W9-AK Mine Pit | S1- Green Belt |
| A2-Kovilankudikadu | W2-Uppu Odai | W10-B/w, Kallankurichi | S2- Dump Area |
| A3-Kattupringiyam | W3-Kallar River | W11-B/w, Kattupringiyam | S3-Dry Agri. Land, Periyanalalur |
| A4-Kaikatti near UT Plant | W4-Marudaiyar River u/s | W12-B/w, Periyanalalur | S4-Forest Land, Vilangudi |
| A5-Pudupalayam | W5-Marudaiyar River d/s | W13-B/w, Reddipalayam | S5-Agri. Land, Pudupalayam |
| A6-Hastinapuram | W6-Manakudi Tank | W14-B/w, Pudupalayam | |
| A7-Ariyalur Bypass | W7-Pond, Periyanalalur | W15-B/w, Hastinapuram | |
| A8-Kallankurichi | W8-Pond, Pudupalayam | W16-B/w, Kovilankudikadu | |

- ❖ Noise Level Measurements at all air quality monitoring station for Leq, Lday and Lnight values once in the season.
- ❖ Water Quality Monitoring – grab sampling of Surface Water (**8 locations**) and Ground Water (**8 Locations**) including existing Pit Water - once in the Season.
- ❖ Soil Quality Monitoring at **5 locations** once in the Season for Textural & Physical Parameters, Nutrients, etc.
- ❖ **Land Use Pattern** based on recent available Satellite Imagery.
- ❖ Biotic Attributes for : **Flora & Fauna** in Core & Buffer Zones.
- ❖ **Socio-Economic** Profile, based on 2011-Census and Need Based Assessment, once in the study period for: Total Population / Household Size, Gender Composition, SC / ST Population, Literacy Levels, Occupational Structure, etc.

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	12	44	29.0	60
	PM10	22	68	51.9	100
	SO ₂	6	28	15.5	80
	NO _x	6	30	17.6	80
Ambient Noise, dB(A)	Leq-Day	41.7	47.4	44.2	55
	Leq-Night	40.1	44.7	42.2	45
Surface Waters	TDS, mg/l	300	440	-	500/2100
Ground Waters	TDS, mg/l	360	490	-	500-2000
Soil Status	EC, mmhos/cm	1.13	1.63	-	0.2-0.5
	SAR	2.16	3.31	-	<5

Legend : PM2.5-Particulate Matter size less than 2.5 um; PM10- Particulate Matter size less than 10 um; SO₂-Sulphur dioxide; NO_x-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 were 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 physical, biological and edaphic environments of the study area.

3.0 Anticipated Environmental Impacts

Being an existing Mine, it **does not involve any major establishment or construction**. Thus, Construction Phase Impacts are not there for Impact Assessment and Environmental Management Plan (EMP).

The impacts during Operation Phase have been divided into two categories, viz. **Localised and Cumulative**. There are Cement Plants and Limestone Mines in the Study Area. Following industrial activities are considered for **Cumulative Impact Assessment** for assessing their contribution (Table 3.1).

Table : 3.1 Industrial Activities considered for Cumulative Impact

Sl. No.	Industry / Mine	Extent & Consented Production	Bearing & Contribution during Study Period
1	UltraTech PeriyanaGalur Limestone Mine (ML5)	4.985 Ha (0.15 MTPA)	Adjacent Lease; Not in operation
2	Ramco Amalgamated Mining Lease	53.320 Ha (3.00 MTPA)	Adjacent Lease partly in operation. Downwind side & not contributing
3	Dalmia PeriyanaGalur & AK Limestone Mines	167.605 Ha (1.9 MTPA)	Adjacent Lease in operation. Downwind side & not contributing other than Traffic Volume
4	TANCEM PeriyanaGalur & Khairulabad, Mines	194.165 Ha 66.110 Ha	Adjacent Lease; Not in operation. Downwind side & not contributing
5	TANCEM Kallankurichi Mine	240.610 Ha (expansion 0.2 to 0.7 MTPA)	Downwind side & not contributing
6	Ultratech Cement Plant, Reddipalayam	1.6 MTPA	Plant located near the Lease and cumulative impacts are to be assessed

Cumulative Impact has been assessed for the identified Industries and assumed that the **pollution due to other existing Industrial/Mining activities have already been covered under baseline environmental status** and continue to remain same till the operation of the project.

Land Environment : Industrial/Mining activities are being carried out in an extent of **766.965 Ha** in the Impact Zone. **There is no additional Land requirement for the Proposal. Drilling and Blasting** is proposed. Also, as there is **no Solid Waste generation and no Waste Dump** proposed now, **there will not be any significant change to existing Land Environment** due to the Proposal.

Traffic Impact : For assessing the baseline status, the Traffic Survey based on Indian Road Congress-IRC: 64/106 Norms were carried out at NH81-Underpass Road Junction. The existing traffic volume in the Project vicinity was found to be **5,110 Passenger Car Units (PCUs)/day**. In the Post-Project Scenario, there will be an addition of **1 Vehicle** (in 2 ways) due to due to the Project. Cumulatively, the traffic volume in the Project vicinity will be **5,115 PCU/day**. **The net increase (cumulative) will be 5 PCU/day**. The existing Roads/NH are adequate to handle the proposed traffic volume due to the Project. Thus, there will not be any impact on the existing baseline traffic volume due to the Proposal.

Air Pollution : Mining, Drilling & Blasting, Loading and Transporting activities would generate both fugitive dust emissions and smoke from HEM Machineries/Equipments & Transporting Tippers. Fugitive emissions are predicted by using standard equations given in 'Indian Mine and Engineering Journal' and suggested by USEPA (Emission Factors as referred in AP-42) for Mining & Allied activities. **AERMOD View** Software is used for Predicting the maximum Ground Level Concentrations (GLCs) including **Transportation Impact**. The predicted GLC is given in **Table 3.2**.

Table : 3.2 Predicted GLC

Sl. No.	Pollutant	Background Concentration (24-hly. Avg.), ug/m ³	Max. Predicted Ground Level Concentration, ug/m ³	Distance from the Mines (max.), km	Total Concentration, ug/m ³	Revised NAAQ Norms, ug/m ³	Buffer Available in the Atmosphere
1	PM10	51.9	1.26	0.1	53.16	100	46.84

The predicted maximum GLC-PM10 for cumulative activities is 1.26 ug/m³ and found to be confined locally i.e. within 0.1 km radius from the boundaries. Also, **adequate Buffer Level available (46.84%)** in the Air Environment for the Proposal.

Noise Levels : In the Mines, Noise level due to Mining Equipments during operation, is being maintained at <90 db(A) at a distance of 1.5 m from the sources . The work force is exposed to <85 dB(A) levels during the 8-hours Shift. Noise level at the nearest Lease boundary will be <55 dB(A) during day times and <45 dB(A) during night times and which will be within the MoEF&CC

Norms for Residential and Rural Areas. The peak particle velocity (PPV) and noise levels during the blasting will be periodically monitored through 'Minimate' Instrument.

Water Environment : There will not be any impact on the Surface Water bodies. As per TWAD Data, 70 year Normal Rainfall of Ariyalur Rain Gauge Station is 1,096 mm. Surface Runoffs from the Plant Area is estimated as per Manual of Artificial Recharge of Ground Water (CGWB, 2007). **Pre-Project Runoffs** is 4,932 KL/Annum and **Post-Project Runoffs** will be 4,932 KL/Annum. About 750 KL/ Annum will be utilized as Raw Water for the Mine. Balance Quantity will be recharging the Ground Water-table in the Mine vicinity. Also, there will be no Ground Water-table Intersection due to the Mining and thus, **no significant impact on the Ground Water regime.**

Mine requires about 2.5 KLD which will be met by Mine Pit Water. There **will not be any water drawl from Surface or Ground Water Sources** in the Lease Area. Domestic sewage generation will be about 0.4 KLD which will be biologically treated in a Septic Tank followed by a Dispersion Trench. **No workshop** is proposed and thus, no effluent generation from the Lease.

Solid Wastes : Entire Top Soil quantity of **7,200 Tons** generated in the Mine was fully utilized for Green Belt development. OB/Rejects generated was stored in the permitted **Dump**. **No Top Soil or Over Burden waste is now envisaged** till the end of mining.

Biological Environment : There is no habitat fragmentation or blocking of migratory corridors due to Project activities since there is no wild life movement or migratory birds movement in the study area. Thus, there will not be any significant impact on the existing flora-fauna of the area. ML area is surrounded by Mines & Mineral bearing areas, barren lands and dry agricultural lands within 1.0 km area. As the baseline AAQ are in lower levels as well as Predicted GLC is very low/insignificant, there **will not be any impact on the surrounding dry agricultural lands** due to the Project.

Socioeconomics : Based on the CSR Committee and declared CSR Policy of the Company, the following CSR activities will be covered and Reported :

- ❖ Eradicating extreme hunger and poverty.
- ❖ Promotion of education & vocational skills.
- ❖ Ensuring environmental sustainability.
- ❖ Contribution to the Prime Minister's National Relief Fund or any other fund set up by the Central Government or the State Governments for socioeconomic development and relief.

Occupational Health : Occupational Health Centre (with qualified Occupational Health Specialist) is established at Dalmiapuram. The **first aid boxes** are made available for immediate treatment. **Occupational health surveillance programme** is being carried out for all the employees regularly. Adequate care will be exercised to detect early incidences of occupational diseases for prompt treatment and cure. Safety aspects are also ensured to reduce incidents, if any.

4.0 Environmental Monitoring Programme

DCBL has EMP Monitoring Cell. The quality of air, noise, water, soil, etc. are being monitored at the identified locations as per MoEF&CC, IBM & TNPCB Norms by appointing an accredited external agency. For the Lease, periodical monitoring of Ambient Air Quality (3 locations), Fugitive emissions/Workzone Air Quality (4 locations), Ambient & Workzone Noise Levels (4 locations), Water (4 Surface & 4 Ground waters along with Mine Pit water) and Soil Quality (3 Locations) shall be undertaken and reported to the Authorities.

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.

6.0 Project Benefits

Environmental Benefits : The proposal ensures the continuous limestone supply to the Cement Plants. Effective utilization of the Mineral for Cement manufacturing is a Mineral Conservation Measure.

Financial Benefits : As per MMDR Act 2015, 30% of Royalty Amount (about **Rs.64.80 Lakhs**) will be earmarked for **District Mineral Foundation (DMF)** and the amount will be spent for benefit of local villager in the Lease Area.

Social Benefits : Project will employ about 10 persons directly and 15 persons indirectly. 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

Environmental Management Plan (EMP) is suggested to mitigate the possible negative impacts that may be caused to various attributes of environment due to the proposed mining operations.

7.1 EMP for Construction Phase

Being existing Mine, there will be **no Construction Phase** for the Project.

7.2 EMP for Operation Phase

Land Use :

- ❖ Earthen bunds are to be strengthened along the boundaries to arrest wash-offs.
- ❖ Garland drains are to be maintained around the Lease.
- ❖ Green Belt has to be developed and maintained along Lease boundary and Safety Barriers.
- ❖ No. of **trees planted shall be numbered** and referenced for review.
- ❖ The mined out Pits shall be converted into a Water Reservoirs to harvest Rain Water and to recharge the Ground Water-table in the vicinity.

Traffic Impact :

- ❖ All Tippers are to be fully covered with Tarpaulin to avoid any spillage on transportation.
- ❖ Restriction of over loading of Tippers shall be enforced.
- ❖ Speed restrictions shall be enforced.
- ❖ Restriction of Truck parking in the Highway and Public Roads shall be enforced.
- ❖ Regular and preventive maintenance of transport vehicles are to be ensured.
- ❖ **Carbon sequestration** is the long-term storage of carbon in oceans, soils, vegetation (especially forests) and geologic formations. Adequate Green Belt shall be developed around the project for **carbon sequestration**. As trees grow, they store carbon in woody tissues and soil organic matter.

Air Environment :

- ❖ Conventional method of mining is adopted.
- ❖ Controlled Blasting is to be carried out and during day times only.
- ❖ No Blasting is carried out during overcast conditions.
- ❖ Water sprinkling on the Mining areas, loading point, haul roads, etc. has to be carried out.
- ❖ Covering of Trucks/Tippers with tarpaulin shall be ensured during Mineral transportation.
- ❖ Over loading of Tippers has to be avoided to control the spillages during transportation.
- ❖ Periodical maintenance and replacement of worn out accessories in the mine equipments.
- ❖ Tippers are to be maintained periodically.
- ❖ Periodical check up of vehicles for 'Emission Under Control' Certificate is to be ensured.
- ❖ Effective Green Belt with thick foliage has to be developed along boundaries and haul roads.
- ❖ Periodical Air Quality Monitoring shall be carried out and Reports submitted to the Authorities.

Noise Levels :

- ❖ The noise and vibration generated due to the blasting operations shall be kept well within the limits by using milli-second delay electric detonators and by using Non-electric initiation system of blasting which completely eliminates air-blasts and thus reduces noise due to blasting.
 - ❖ Deploying mining equipments shall be with in-built mechanism for reducing noise.
 - ❖ Provision of silencers to modulate the noise generated by the machines.
 - ❖ Providing sound proof operator's cabin of equipments.
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- ❖ Provision of ear muffs/ear plugs to the workers in higher noise zones.
- ❖ Green Belt with thick foliage along roads and around lease boundary will act as acoustic barriers.
- ❖ Periodical Noise Monitoring shall be carried out and Reports submitted to the Authorities.

Water Environment :

- ❖ Proper Mine Pit Water management shall be practiced.
- ❖ Earthen bunds are to be provided along the boundaries to arrest wash-offs.
- ❖ Garland drains are to be constructed around the Lease.
- ❖ Settling Pond has to be provided to garland drains, to settle the Suspended Solids.
- ❖ Periodical maintenance/desilting of garland drains shall be done.
- ❖ Green Belt shall be developed and maintained along the Lease boundaries and Safety Barriers.
- ❖ Mined out area shall be converted into a Water Reservoir to recharge the Ground Water-table in the vicinity.
- ❖ Periodical monitoring of mine pit water shall be carried out and Reports submitted.

Solid Wastes :

- ❖ Earthen banks shall be provided on non-operating side of dumps to arrest wash-offs.
- ❖ After the mine reaches the ultimate depth, developmental wastes and rejects stacked in the earmarked locations shall be backfilled and topsoil shall be spread and afforested.
- ❖ Organic wastes (dry leaves, food wastes, etc.) shall be subjected to vermi composting and used as manure for the Green Belt.
- ❖ Inorganic wastes (papers and other wastes) are to be properly disposed of.

Biological Environment :

- ❖ Effective Green Belt has to be developed and maintained. **With the guidance of DFO**, about **2,200 Trees** (@ 1,500 Trees/Ha), predominantly local species like Neem, Pungan, Teak, etc. will be planted @ **500 Trees/annum** and maintained with about **90% Survival Rate**.
 - ❖ Native species shall be preferred for Green Belt development.
 - ❖ Fruit bearing trees may also be preferred.
 - ❖ Afforestation in backfilled & reclaimed areas shall be undertaken.
 - ❖ Through the process of photosynthesis, plants assimilate carbon and return some of it to the atmosphere through respiration. The carbon that remains as plant tissue is then consumed by animals or added to the soil as litter when plants die and decompose. The primary way that carbon is stored in the soil is as **soil organic matter (SOM)**. SOM is a complex mixture of carbon compounds, consisting of decomposing plant and animal tissue, microbes (protozoa, nematodes, fungi, and bacteria), and carbon associated with soil minerals. Carbon can remain stored in soils for millennia, or be quickly released back into the atmosphere. Climatic conditions, natural vegetation, soil texture, and drainage all affect the amount and length of time carbon is stored.
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Social Measures : CSR activities shall be carried out by providing social and welfare measures for the local residents and nearby villages around the mine 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.

- ❖ Joining Hands with District Administration in implementing Govt. Schemes.
- ❖ Development of Infrastructure Facilities in the Region.
- ❖ Medical Camps and extending medical facilities.
- ❖ Contribution to Education.
- ❖ Drinking Water Supply.

Occupational Health Measures :

- ❖ All employees undergo check-up on recruitment and periodically during employment.
- ❖ Maintenance of Pre, during & Post Employment Records.
- ❖ Provision of all Personal Protective Equipments for the employees at Mines.
- ❖ Provision of illumination facilities at proper places for ease of working during night times.
- ❖ Work comfort and its periodic review by a committee.
- ❖ Provision of Rest Shelter at mines.

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 : The capital cost of the Project is **Rs. 10.00 Lakhs**. An amount of **Rs.5.00 Lakhs is earmarked as Capital EMP Budget** and **Rs.15.32 Lakhs per Annum is Operating Cost towards EMP** measures, Green Belt maintenance, Environmental Monitoring, etc. Also, an amount of Rs. 3.00 Lakhs per Annum has been earmarked for Occupational Health & Safety Measures. Also, about **Rs.10.00 Lakhs** has been allotted as **Corporate Environmental Responsibility (CER) Budget** in compliance with MoEF&CC OM dated 01.05.2018 for execution within 2 years period.

The violation falls under **Low Level Ecological Damage** category. An amount of Rs.3.72 Lakhs towards Ecological Remediation Plan and Natural & Community Resource Augmentation Plans is allotted for approval.
