



The Ramco Cements Limited

Proposed Pandalgudi Lime Kankar Beneficiation Plant

(Based on both Dry & Wet Process Separation Technology)

Stand Alone - Throughput Capacity 2.00 MTPA

Production - Clean Kankar 1.150 MTPA (on Dry Basis)

Sub Grade Kankar 0.165 MTPA & (-)6 mm Material 0.539 MTPA

Village Thummakkundu, Taluk Aruppukottai, District Virudunagar, Tamil Nadu

Environmental Clearance under EIA Notification 2006

Schedule Sl. No. 2(b) (Stand Alone)

Category 'A' (\geq 0.5 MTPA Throughput)

Summary Environmental Impact Assessment Report

(after TOR; for Public Hearing)

Awarded TOR : MoEF&CC F. No. J-11011/176/2020-IA-II(I) dated 18.09.2020

February 2022

EIA Consultant

ABC Techno Labs India Private Limited, Chennai

Certificate No.: NABET/EIA/1922/RA0155 valid till 22.05.2022

(Sl. No. 3 of QCI/NABET List dated 05.01.2022)

NABL Certificate No. TC-5770 dated 03.04.2020 valid till 02.04.2022

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1.0 Introduction**1.1 Project Proponent**

Ramco Group is one of the leading, highly reputed and Second Largest Industrial Group in South India. The total employees of the Group is about 15,700 and Turnover is Rs.8,000 Crores. **M/s.The Ramco Cements Limited-RCL** (formerly M/s. Madras Cements Limited-MCL) is the flagship company of Ramco Group. RCL operates Cement Plants in Tamil Nadu (3 Plants), Andhra Pradesh (1) and a mini Plant in Karnataka. RCL Cement Grinding Units are also located in Tamil Nadu (2 Units), Andhra Pradesh (1), Odisha (1) and West Bengal (2). The cement production of RCL is about 17.70 Million Tonnes per Annum (MTPA) from their Cement Plants. The Company is the Second Largest cement producer in South India and sixth largest manufacturer of cement in the Country.

RCL is producing Ordinary Portland Cement (OPC), Portland Pozzolana Cement (PPC), Slag Cement (PSC), Composite Cement (CC), Masonry Cement (MC), etc. The cement produced by RCL is marketed in the brand name of 'RAMCO'. The market centers are mainly in Tamil Nadu, Andhra Pradesh, Telangana, Kerala, Karnataka, Odisha and West Bengal States.

RCL which has always been striving for Total Quality, possesses International Certificate ISO:9001, ISO:14001, ISO:45001 and ISO:50001. The company has achieved various awards for 'Best Performance' in the Cement Industry. RCL has the well laid down Safety, Health and Environmental (SHE) Policy and the units are having their Integrated Management System (IMS). Environment & Social Governance (ESG) is functioning at Corporate Office. Environment Management Cell is functioning under the Unit Head.

The Contact information of RCL Corporate Office is :

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Executive Director (Operations),
The Ramco Cements Limited,
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M/s. The Ramco Cements Limited (RCL) is operating its Ramasamy Raja Nagar (RR Nagar) Cement Plant of 2.0 MTPA (being expanded to 2.7 MTPA) cement capacity at Tulukkappatti, Thammanayakkanpatti and Vachchakkarappatti Villages, Taluk & District Virudhunagar, Tamil Nadu State. The Plant has 25 MW Captive Thermal Power Plant (CPP), Occupational Health Centre (OHC) and a well established Township within its Complex. About 40-45% of cement produced from RR Nagar Cement Plant is being dispatched to the marketing centres in Southern Districts of Tamil Nadu and about 55-60% to the marketing centres in South Kerala including Thiruvananthapuram.

RR Nagar Cement Plant's Limestone requirements are met from the Captive Limestone Mines in Pandalgudi Region viz. Pandalgudi, Sivalarpatti, Melvenkateswarapuram Limestone Mines and a Lime Kankar Mine at Maravarperungudi. These Captive Mines are located at a distance of 17-32 km in southeast direction from the Cement Plant. Production from these Mines is about 2.44 MTPA of Low to High Grade Limestone. The common centralised Crushing Plant with Optical Ore Sorting Facility (2.0 MTPA Throughput & 1.88 MTPA Clean Ore capacity) is located at Pandalgudi. There are 2 Colonies along with a Middle School and a Community Hall located at Pandalgudi.

The Cement Plant & CPP, Captive Mines and Crusher operations are in compliance with conditions/Norms stipulated in the Environmental Clearances (ECs) and Consents to Operate (CTOs) by Tamil Nadu Pollution Control Board (TNPCB). Periodical EC Condition Compliance Reports are being submitted to the Regional Office, Ministry of Environment, Forest and Climate Change (MoEF&CC), Chennai. The Contact Information of RR Nagar Cement Plant is as follows:

The Sr. Vice President (Mfg.),
The Ramco Cements Limited,
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1.2 Project Profile

RCL has recently received the Precise Area Communications for Five (5) Nos. Lime Kankar Quarry Leases (Minor Mineral) in Virudhunagar District from the State Government which have about 22.42 Million Tonnes Kankar Reserves. Raw-Ore-Mined (ROM) Kankar is occurring with impurities of Siliceous Clay and Quartz. It has low quality with 25% Silica (max.) and 32% CaO. (ROM) Lime Kankar has to be Upgraded/Beneficiated for blending it with high grade Limestone for Raw Mix (Silica at 12-15% and CaO at 41-44%) in the Cement Plant. Thus, RCL has proposed the **Lime Kankar Beneficiation Plant at Pandalgudi (PLKBP)** near existing common Crusher Facility. It will be a Stand Alone Unit with **Throughput Capacity 2.00 MTPA**.

The proposed Unit will be located over an extent of **7.085 Ha, Company owned Patta Land**, at in Survey Nos. Parts of 75, 76 & 77 of Thummakkundu Village, Taluk Aruppukottai, District Virudhunagar of Tamil Nadu State (**Fig. 1.1**). The land area is in complete possession. No Govt./Forest land is involved. Entire Site is Non-Agricultural Land falling under Waste Land Category. The existing common Infrastructures like dedicated Haul Road, Water & Power Sources, Mined out Pits/voids for Disposal of Tailings, etc. will be utilised for the Plant. No Resettlement & Rehabilitation (R&R) issue and also, there is no litigation against the Proposal.

The proposed Beneficiation Plant will be based on Dry & Wet Process Separation. ROM Kankar (2.0 MTPA @ 6300 TPD) will be screened and washed for quality enrichment. The Process is comprising of various stages viz. Feeding, Sizing, Dry Screening, Rotary Scrubbing, De-Sliming, Dewatering, Thickening and Separation of Products and Rejects. Clean Kankar will be recovered @ 1.15 MTPA (on Dry Basis) and Subgrade Kankar @ 0.165 MTPA will be transported to the Cement Plant. Dry Rejects of (-)6 mm material (0.539 MTPA) is clay bearing mineral which can be better used as a Supplementary Cementitious Material (SCM) by Calcination. Till conceptualization & finalization of the Calcination Process at the Site or RR Nagar Plant, it will be dumped/stored in the mined out voids of Pandalgudi Mine Pit No. 6 for future utilization. Wet Rejects of about 0.146 MTPA will be pumped as Tailing Slurry through 150 mm dia pipeline to the mined out voids of Pit No. 6 (3.5 km) for backfilling and reclamation.

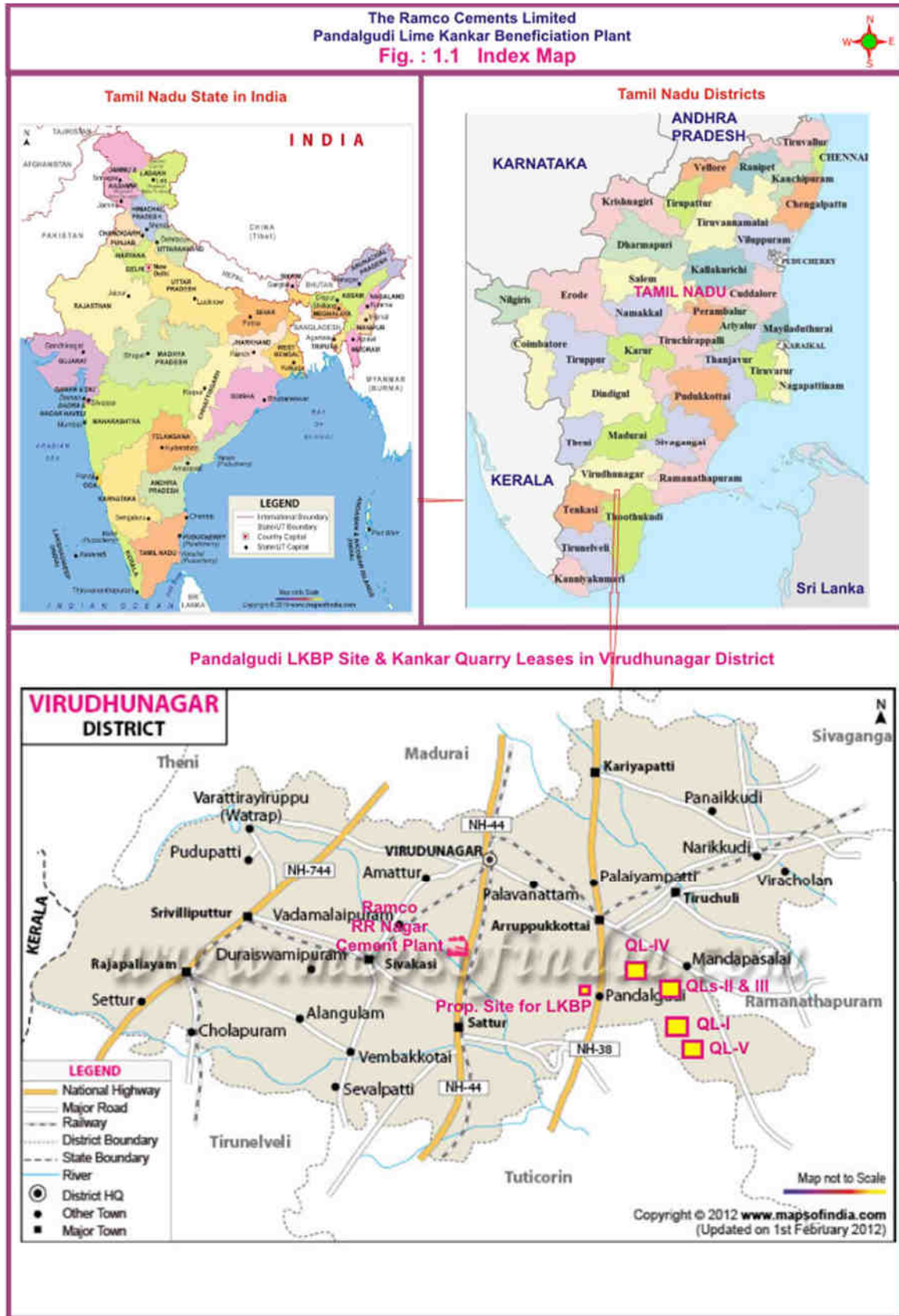
The proposed Layout is shown as **Fig. 2.1**. Electrical Building will be the main Building. Others will be mainly Structurals like Hoppers, Conveyors, Hydro Cyclones, Thickener, etc. will be installed upto +25 m above Ground Level. In the total extent of 7.085 Ha, Builtup area has been proposed for 2.75 Ha. Green Belt will be developed in an extent of 2.40 Ha (**33.87% Coverage**).

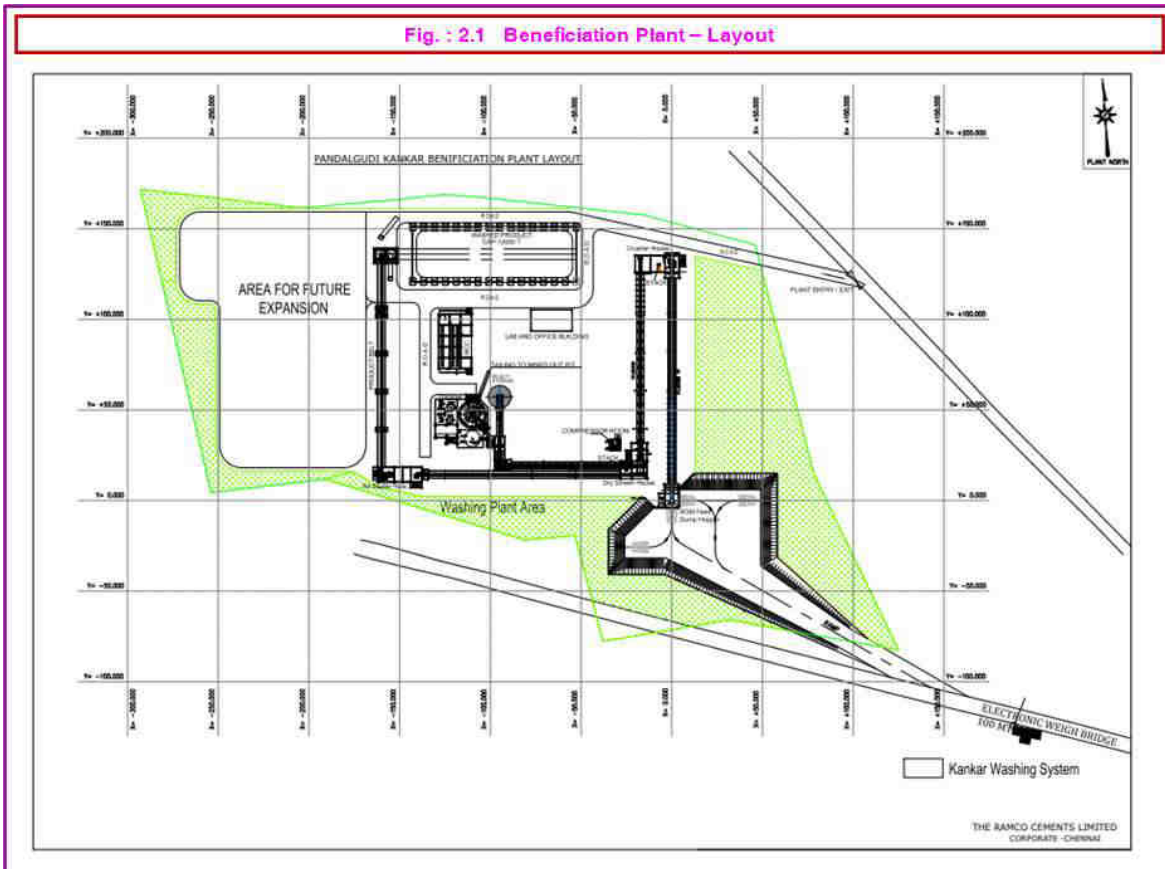
The Unit will require Water 1300 KLD as Make-up Water for Process, 10 KLD for Domestic Use, 40 KLD for Green Belt and 50 KLD for Dust Control Measures, thus, total **1400 KLD**. Entire Water Demand will be met from nearby Pandalgudi Mined out Pit Nos. 1 & 3 where rain/surface waters are being harvested and utilized for years together. **No ground water abstraction** has been proposed for the Project.

The Wet Process will generate 5,933 KLD Wastewater which will be treated in a Thickener and Clarified Water @ 4,999 KLD will be recycled and reused in the Process. Hydro clones at the Mine Pit will recover additional 121 KLD from the Tailings and will also be recycled and reused in the Process. Thus, the total **recycled and reused water** will be **5,120 KLD (86.30% Recovery)**.

Indian Bureau of Mines (**IBM**) **Approval has been obtained** vide Letter TN/VRD/LST/ROMP-1644.MDS dated 18.03.2021 for disposal of Rejects into the mined out voids in Pandalgudi Mine Pit No. 6 for backfilling and Reclamation.

The estimated Power Demand of the Plant would be **1.25 MW** which will be met from the existing Source at Centralised Crusher. There will be **no Fuel Demand and thus, no Fuel Storage** at the Plant.





2.0 Description of the Environment

2.1 Environmental Setting

The proposed PLKBP Site is located in-between the Coordinates 09°23'43"-09°24'03" N Latitudes and 78°05'05"-78°05'20" E Longitudes- Survey of India **Topo Sheet No.58 K/3 (Fig. 1.2)**. There is no environmental issue about the location. There are **no eco sensitive areas like National Parks, Wildlife Sanctuaries, Biosphere Reserves, Reserved Forests, Elephant Corridor, Mangroves, Archaeological/Historical Monuments, Heritage sites, etc. within 10 km from the site boundary**. Seasonal **Melkarandai Odai** drains the region (flows at 6.2 km in West). Seasonal **Uppu Odai** drains the QL Areas and flows in the East at 9.0 km distance.

The site is free from seismic effects (Seismic Zone III). The general elevation of the Site area is 72-81 m above Mean Sea Level (aMSL). Pandalgudi Centralised Crusher is located adjacent to the Site in West. RR Nagar Cement Plant is located at a distance of 18 km in WNW direction.

Madurai-Thoothukudi Section of NH-38 (with Pandalgudi Bypass) passes at a distance of 2.0 km in Northeast. Southern Railway Line of Virudhunagar-Aruppukottai-Manamathi Section runs at 10.2 km distance in North. Madurai Airport is at 47.0 km in North direction, Thoothukudi Airport is at 75.0 km in South and Chennai Airport is at 452 km in Northeast. VOC Port at Thoothukudi is at 62 km in South direction from the Site.

Pandalgudi is at 1.0 km in the East. Taluk Headquarters Aruppukottai Town is at 10.0 km in north and District Headquarters Virudhunagar is at 22 km in NW direction from the Site. The nearest village Chinna Thummakkundu is at 2.5 km in Southwest.

2.2 Baseline Environmental Status

Considering environmental setting of the project, activities and their interaction, environmental regulations and Standards, following Environmental Attributes have been included in EIA Study.

- ❖ Site specific Micrometeorological Data (hourly readings) from Core Zone for a Season on wind speed, wind direction (wind roses), temperature, humidity, cloud cover, atmospheric pressure, rainfall, etc.
- ❖ Ambient Air Quality Monitoring at 12 locations (**Fig. 3.1**) 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 NAAQ Norms, revised as per GSR 826(E) dated 16.11.2009.
- ❖ Noise Level Measurements at all air quality monitoring station for Leq, Lday and Lnight values once in the season.
- ❖ Water Quality Monitoring – grab sampling once in the Season for Surface Waters (8 locations) as per CPCB Norms & Ground Waters (8 Locations) as per IS:10500 Norms.
- ❖ Soil Quality Monitoring at 6 locations in the study period for Textural & Physical Parameters and Nutrients.
- ❖ Land use pattern based on Satellite Imagery.





- ❖ Biotic Attributes for : Flora & Fauna.
- ❖ Socio-Economic Profile, based on 2011-Census and also Household Survey once in the study period for : Total Population, Household Size, Age, Gender Composition, SC/ST, Literacy Level, 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	10	36	17.9	60
	PM10	16	68	33.3	100
	SO ₂	6	21	10.1	80
	NO _x	6	24	11.7	80
Ambient Noise, dB(A)	Leq-Day	41.4	47.2	43.9	55
	Leq-Night	40.1	44.3	41.8	45
Surface Waters	TDS, mg/l	360	440	-	500/2100
Ground Waters	TDS, mg/l	270	1050	-	500-2000
Soil Status	EC, mmhos/cm	1.27	1.92	-	0.2-0.5
	SAR	2.16	3.54	-	<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 baseline environmental data reflects the **Cumulative Impact of existing Industries/Mines** in the Study area viz. Pandalgudi & Maravarperungudi Mines and Pandalgudi Crusher.
- ❖ 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 National Ambient Air Quality (NAAQ) 24-hourly Norms for Industrial, Residential, Rural and other areas.
- ❖ **Study Area is falling under Low Pollution Category** as monitored Pollutant Levels were <0.5 Exceedance Factor.
- ❖ Ambient equivalent Noise Levels (Leq) during day and night times were found to be well within the MoEF&CC Norms for Residential Areas.
- ❖ The water quality of surface waters were found to be in compliance with CPCB/BIS 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.

- ❖ **Schedule-I Fauna**, Peafowl are found inhabiting the Study area. Accordingly, the approved Peafowl Conservation Plan has been submitted
- ❖ 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

Environmental Impacts are categorized as Primary and Secondary Impacts. **Primary Impacts** are those which are attributed directly to the project and **Secondary Impacts** are those which are indirectly induced by the Project. Any Project would create impact on the environment in two distinct phases viz. Construction Phase which may be regarded as temporary & short term and Operation Phase which would have long term effects. The impacts have been divided into two categories, viz. **Localised and Cumulative**. The impacts have been assessed for the Project assuming that the **pollution due to the existing mining and industrial activities have already been covered under baseline environmental status** and continue to remain same till operation of the project.

3.1 Construction Phase

Pandalgudi Lime Kankar Beneficiation Plant will be located in RCL's own Patta Land over an extent of 7.085 Ha near Pandalgudi Crusher. Entire Site is Non-Agricultural Land falling under Waste Land Category. There is no tree cutting at the Site due to the Proposal. Site is vacant and no building is there. Thus, there will be no demolition works.

About **17,712 cu.m will be excavated earth** which will be stored, preserved and fully utilised for Green Belt development. Construction materials as available locally such as sand (from **approved quarries**), steel, (own) cement, metal will be sourced.

On an average, 2 Truck loads/day (for transporting all construction materials) will be visiting the site during the construction period. Due to existence of NH-38 and own Haulage Road, there will not be any adverse impact to existing traffic volume in the vicinity.

The construction water requirement of about 5 KLD will be met from Pandalgudi Mine Pit water storage. Local Labourers of about 25-50 persons will be engaged during the Construction Phase. Local Labourers will be provided with all Personal Protective Equipments (PPEs) like Mask, Gloves, etc. Sanitization will be ensured at all workplaces. Water, electricity, toilet facilities, etc. will be provided for Construction Labours during the Construction Phase.

Thus, the Construction Phase activities will not cause any significant adverse impact on the environment. Plant construction activities will be completed within **12 months**, after obtaining all statutory approvals. Life of the Plant will be for about **25-30 years**.

3.2 Operation Phase

Land Use : The Land Use of the Site will have cumulative impact with Pandalgudi Mine and Crusher. In the total extent, 2.95% of area will be under Industrial Use for the Project. In total, 67.480 Ha will be under Green Belt-including the Mine and Industries. Agricultural Fallow Lands (60.90%) followed by Barren Lands (30.66%) are the predominant Land Use of the Area. Thus, the Proposed Project will not have any significant impact to the present Land Use of the Area.

Traffic Volume : As stated earlier, the existing Mines and Pandalgudi Crusher are connected to RR Nagar Cement Plant with Company owned Tar road. There is a Road-over-Bridge on the NH-38 for the dedicated Haulage Road which crosses Pandalgudi village Road. The public roads intersection is manned by RCL's Security Personnel. For assessing the baseline status, the Traffic Survey based on Indian Road Congress-**IRC:106 Norms** at the Haul Road-Pandalgudi Road Junction. The existing traffic volume in the Project vicinity was found to be **1712.4 PCU/day @ 71.35 vehicle/hour**. In the Post-Project Scenario, there will be an addition of 788 vehicles (1734 PCU/day) to the existing traffic in the vicinity. **The net (cumulative) traffic volume will be 3,384.7 PCU/day only @ 141.03 vehicle/hour**. The existing Haulage Road will also be adequate to handle the proposed addition of traffic volume.

Air Quality : The main pollutant expected from the Unit will be Particulate Matter (PM). Emission from Sizer and Dry Screen will be controlled by Bag Houses for **PM emission <30 mg/Nm³**. Other gaseous Pollutants like SO₂ and NO_x emission will also be insignificant from the Unit. **AERMOD View** Software is used for the Prediction Modelling. The **maximum incremental GLC** for PM₁₀ **cumulatively** from existing Pandalgudi Mine and proposed Beneficiation Plant is **6.21 ug/m³**. The maximum impact is found to be confined locally i.e. within 0.7 km radius from the boundaries. Also, **adequate Buffer Level exists** in the Air Environment for the proposed activities.

Noise Levels : The noise level within the plant at a distance of one meter from the source shall be maintained at <85 db(A) for 8-hours exposure. Noise level at nearest plant boundary will be <55 dB(A) during day times and <45 dB(A) during night times. Thus, the noise levels will be well within the permissible MoEF&CC Norms for Residential Areas.

Water Quality : The Unit will require **1400 KLD** water. Entire Water Demand will be met from nearby Pandalgudi Mined out Pit Nos. 1 & 3 where rain/surface waters are being harvested and utilized for years together. **No ground water abstraction** has been proposed for the Project. The Wet Process will require 6420 KLD Water and will generate **5,933 KLD Wastewater** which will be treated in a **Thickener by adding Polyelectrolytes** and Clarified Water @ 4,999 KLD will be recycled and reused in the Process. Hydro Clones at Mine Pit will recover additional 121 KLD from Tailings which will also be recycled and reused in the Process. Thus, the total **recycled and reused water** will be **5,120 KLD (86.30% Recovery** of Wastewater generated). About 813 KLD effluent will be pumped as Tailing Slurry into the Mine Pit. Domestic Sewage of 9 KLD will be generated which will be biologically treated in a Septic Tank followed by Dispersion Trench. It will be operated on '**Zero Liquid Effluent-ZLD**' Disposal practice.

The entire Roof Top Collection (RTC) of 5,159 KL/Annum will be harvested and stored in **100 KL** (10x5x2 m) capacity **sump** and will be fully utilised as Raw Water. Balance Surface Runoffs of 14,456 KL/Annum will also be sent to Mine Pit No. 1, the Raw Water Source.

Solid Wastes : The dust collected from Air Pollution Control Measures viz. Bag Filters will be totally recycled in the process. During Operation Phase, (-6) mm Material of 0.539 MTPA quantity shall be safely dumped in mined out voids in Pit No. 6 which will be effectively utilized. **Wet Rejects** (460 TPD on dry basis-1394 TPD with 67% water) will be directly pumped as Tailing Slurry through 150 mm dia pipeline to mined out voids of Pit No. 6 (3.5 km). The settled clayey materials **will not allow water to infiltrate or allow seepage from bottom or sidewalls**. Thus, the **lining of mined out void is not required** as there will not be any leaching from the Mine Pit.

Biological Environment : The plant will not have any significant impact on surrounding ecology and biodiversity and 33% green belt in and around the plant boundary are proposed.

Socioeconomics : There are 465 Direct Employees working in the Cement Complex. Indirect Employment to about 600 persons has been provided. The Mines in Pandalgudi Region provide Direct Employment to about 152 Persons and Indirect Employment to about 273 Persons. Out of 425 total Employees in these Mines, more than 80% are from local villages. The proposed project would also help in generation of direct and indirect employment for the local people.

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, the following CSR activities will be covered and Reported (& also displayed in the Company website) :

- ❖ 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 : RCL is operating an **Occupational Health Centre at Factory and Mines** 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. No incidence of occupational related diseases observed during the observation of staff so far. RCL is committed to provide a safety & healthy working conditions and continually improve the occupational health and safety performances.

4.0 Environmental Monitoring Programme

For effective implementations of Environmental Management Plan, RCL has the Environment Monitoring Cell headed by the Unit Head. The quality of air, noise, water, soil, etc. are being monitored at the identified locations as per MoEF&CC/TNPCB Norms by appointing an accredited external agency. The status reports are being submitted to MoEF&CC RO Monitoring Cell and TNPCB periodically. The practice will be continued for PLKBP also.

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 : Effective utilization of Minor Mineral Lime Kankar for blending with Low/High Limestone in Cement Manufacturing is a Mineral Conservation Measure. Safe disposal of Rejects in the nearby Mine out Pit Voids at Pandalgudi will be there or otherwise **disposal of tailings would be an environmental hazard**. On 5% moisture content basis, about **59.57%** of total ROM Kankar will be recovered as Clean Kankar, **6.02%** as Subgrade Kankar, **26.73%** as Dry Screen Rejects (-) 6 mm Material and **7.68%** as Tailings.

Financial Benefits : The Project will bring Rs.74.00 Crores investment to the Region and improve the local and regional economy.

Social Benefits : Local Labourers of about 25-50 persons will be engaged during the Construction Phase. The Plant would **employ about 30 persons** under Direct Employment and another 50 persons under Indirect Employment categories during Operation Phase. A budget of 2% of the Project Cost will be allotted as CSR Budget.

7.0 Environmental Management Plan

An Environmental Management Plan (EMP) is formulated for mitigation of adverse impacts and is based on present environmental status and impact appraisal. It is mandatory to comply with the various regulatory Norms for Prevention and Control of Pollution. The environmental management plans are proposed for mitigation of impacts on the environment during Construction and Operation Phases.

7.1 Construction Phase

The following EMP measures shall be undertaken during the Construction Phase :

- ❖ It shall be ensured that no change due to the constructions to the natural drainage of the area.
- ❖ All the **topsoil excavated shall be stored and maintained for use in horticulture/landscape** development within the project site.
- ❖ The construction materials like sand, stone chips, etc. shall be obtained only from approved quarries.
- ❖ Proper placement of construction machineries shall be ensured to eliminate vibrations and noise.
- ❖ High Speed Diesel with low sulphur content shall be used for running construction machineries.
- ❖ Cement handling shall be supervised properly to check fugitive emissions.
- ❖ Empty cement bags, debris, etc. shall not be disposed off at the site.
- ❖ On completion of construction, all debris and extraneous materials shall be cleared off and no residuals should be left at the site.

7.2 Operation Phase

Land Use:-

- ❖ Optimum Layout shall be framed.
- ❖ Structural shall be earthquake tolerant facilities.
- ❖ Green Belt (@ minimum 33% Coverage) shall be developed and maintained effectively.
- ❖ Local species and fruit bearing trees shall be preferred.

Traffic Volume :

- ❖ Adequate parking will be provided in the Plant. Facilities for drivers (rest room, toilet, etc.) will also be provided.
- ❖ Security Guards will be there at the Plant-Road Junction to handle the inward and outward vehicles from the Plant.
- ❖ All Trucks will be fully covered with Tarpaulin to avoid any spillage on transportation.
- ❖ Restriction of over loading of Trucks/Tippers will be implemented.
- ❖ Truck parking in the Highway and Public Roads will be restricted.
- ❖ Regular and preventive maintenance of transport vehicles will be ensured.
- ❖ Compliance to 'Pollution under Control' Certification will be ensured and will be checked periodically.

Air Environment:-

- ❖ Stacks with adequate Bag Filters to control PM emission <math><30 \text{ mg/Nm}^3</math>.
- ❖ Periodical maintenance of APC Equipments like Bag Filters, etc.
- ❖ Charter on Corporate Responsibility for Environmental Protection (CREP) Guidelines for Fugitive Emission Control in Cement Industries will be fully complied.

- ❖ All sources of dust generation in the Plant will be well designed for producing minimum dust and provided with high efficiency Bag Filters.
- ❖ Fully covered sheds for Product storages.
- ❖ All the roads in the Plant will be paved.
- ❖ Good House Keeping will reduce the Fugitive Emissions from the Plant.
- ❖ No overloading of transport vehicles with materials will be permitted.
- ❖ Loaded trucks will be covered with tarpaulin.
- ❖ Vehicles with valid 'Pollution under Control' Certificates will be allowed.

Noise Levels :-

- ❖ Provision of ear muffs/ear plugs to the Workers in higher noise zones.
- ❖ Green Belt with thick foliage along the boundaries.

Water Environment :-

- ❖ Water consumption shall not be more than the consented quantity.
- ❖ No trade effluent shall be discharged from the Plant.
- ❖ 'Zero Effluent Discharge' shall be practiced.
- ❖ Effective Rain Water Harvesting Systems shall be adopted and harvested water shall be utilized for the industrial needs.
- ❖ Existing Borewells nearby will be identified for monitoring the Water Level and Quality periodically
- ❖ Periodical Water Quality shall be carried out.

Land Environment – Solid Wastes:-

- ❖ The disposal of (-)6 mm Materials and Tailings to the mined out voids shall be done effectively.
- ❖ There shall not be any leaching from the Mine Pit.
- ❖ Slurry Pipes will be joined at every 12 m. It shall be ensured that there should not be any leak from the joints.

Biological Environment :-

- ❖ Green Belt (33% Coverage) shall be developed and maintained effectively.
- ❖ Local species and fruit bearing trees shall be preferred.
- ❖ Approved Pea fowl Conservation Plan shall be implemented.

Occupational Health :-

- ❖ RCL shall provide a safety & healthy working conditions and continually improve the occupational health and safety performance.
- ❖ Its objectives shall be to achieve zero accident and safe work environment, to improve moral and health of all employees.

Social Measures :-

- ❖ As per the Companies Act 2013, Companies should spend at least 2% of the Profit after Tax of the previous year for CSR activities but not lower than 2% of average of previous three years Profit after Tax.
- ❖ RCL shall carry out various Social Measures for the local as well as regional populations as per CSR Norms.
- ❖ As per OM dated 30th Sept., 2020, & OM dated 20th Oct., 2020 Socio-Economic Developmental activities will be formulated on the basis of the issues raised during Public hearing which will be addressed in EMP and implemented in a time bound manner with the start of the industrial activities.

Plastic Waste Management : There will be ban on one time use and throw away Plastic usage in the Plant in compliance with Tamil Nadu, Environment and Forests (EC-2) Department, G.O.(D) No. 84 dated 25.06.2018. DBGVL will encourage the use of eco friendly alternative 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 will be **Rs.74.00 Crores**. A budget of Rs.50.00 Lakh has been earmarked as Capital Cost for EMP and 10.00 Lakh per Annum as Operating Cost. The proposed **budget for Peafowl Conservation Plan will be Rs.21.00 Lakhs for the first ten years period.**
