EXECUTIVE SUMMARY

For

JAMUNANAGAR LIMESTONE MINE (35.0 Ha.)
INCREASE OF LIMESTONE PRODUCTION
FROM 0.28 TO 1.5 MTPA

AT

Jamunanagar New Umrangshu Village,
Umrangshu Tehsil, Dima Hasao District, Assam

OF

M/s. VINAY CEMENTS LIMITED.,
EXE CutIVE SUMMARY

1.0 INTRODUCTION

M/s. Vinay Cements Ltd is operating a limestone mine spread over an area of 35 ha located at Jamunanagar New Umrangshu Village, Umrangshu Tehsil, Dima Hasao District, Assam. Currently, VCL is operating the limestone mine with a production capacity of 0.28 Million Tonnes Per Annum (MTPA). VCL now proposes to increase the limestone production from 0.28 to 1.5 MTPA. The expansion of the existing mine is required to cater the limestone requirement of the interlinked clinkerisation unit which had been commissioned recently in April 2015.

The Mining Lease Area can be located on Survey of India Topo sheet No.83/C/14 (restricted) (1:50,000 scale). The site falls between 25° 30' 53" - 25° 31' 13" latitude & 92° 47' 07" - 92° 47' 25" East Longitude.

Dalmia Cement Bharat Ltd. (DCBL) now holds substantial stake of Calcom Cement India Ltd. (CCIL). CCIL is now a subsidiary of DCBL and so is VCL.

The project cost for proposed enhancement is estimated to be about Rs. 8.0 Crores

2.0 REQUIREMENTS OF THE PROJECT

LAND

The existing mine (35ha) is located in near Jamunanagar New Umrangshu Village and was owned by the then North Kachhar Hills District Autonomous Council and is leased to VCL.

WATER

The water requirement of the mine at 1.5 MTPA production is about 43m³/day. The water requirement will be met from Clinkerisation Unit which in turn obtains from Longlai river/Rain water.
POWER

The power required for illumination will be supplied by Clinkerisation Unit. Further, mobile tower lights exist for supplementing the illumination at mine faces

MAN POWER

Currently about 36 Persons are employed directly at the mine lease. Total manpower after expansion shall be 52. Besides, 60 residents are engaged on contract.

3.0 PROCESS DESCRIPTION

Limestone Mining is being carried out by conventional open-cast mechanised mining method. The same method will be adopted after expansion also. Materials are loaded and sent to the crusher located near the plant by Dumper and Excavator combination. Thereafter crushed limestone is transported by covered conveyor system.

The mine's operation including transportation of limestone to crusher is done in two shifts and same is proposed.

4.0 DESCRIPTION OF ENVIRONMENT

 vu Meteorology: Predominant Wind direction during the period was from NNE-NE-ENE-E sector accounting to about 17.54 % of the total time. Wind speeds during this period were varying between 1-15 kmph. The winds of less than 1.0 kmph were treated as calm, about 19.84 % of the time the winds were under calm condition.
 vu Ambient air quality monitored at six locations showed all values well within the limits of NAAQ standards specified for Industrial, Rural, Residential & Other areas.
### Summary of Ambient Air Quality ($\mu g/m^3$)

<table>
<thead>
<tr>
<th>Code No</th>
<th>Location Name</th>
<th>98th Percentile values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$PM_{10}$</td>
</tr>
<tr>
<td>A1</td>
<td>Mine Site</td>
<td>40.2</td>
</tr>
<tr>
<td>A2</td>
<td>500m Away from the Mine Site</td>
<td>39.1</td>
</tr>
<tr>
<td>A3</td>
<td>Dithur Karbi Basti</td>
<td>38.3</td>
</tr>
<tr>
<td>A4</td>
<td>Umrangso</td>
<td>39.2</td>
</tr>
<tr>
<td>A5</td>
<td>19 Kilo</td>
<td>37.3</td>
</tr>
<tr>
<td>A6</td>
<td>Lurulangso</td>
<td>39.3</td>
</tr>
<tr>
<td><strong>NAAQ Standards For Industrial, Residential, Rural And Other Areas</strong></td>
<td><strong>100</strong></td>
<td><strong>60</strong></td>
</tr>
</tbody>
</table>

- Six monitoring locations were selected to assess the noise levels in the study area. Noise levels recorded were found to be in the range of 47.9-54.3 dB (A) during daytime and in the range of 40.7-43.5 dB (A) during night time.

- Water samples collected from seven locations within the study area. All the samples showed compliance of all parameters with the drinking water standard of IS 10500.

- Five soil samples collected showed low to medium fertility.

- Socio economic status of the study area is found to be moderate.

There are no wild life sanctuaries, national parks, elephant/tiger reserves within 10-km radius of the study area. There are no endangered, threatened, rare plants species observed or recorded during study period.

Nearest Major Settlements from the mine site are

- Umrangshu – 4.8 km – W
- Tujionte – 5.2 km – WSW

Krungming RF is the nearest Reserved Forests from the mine site at 4.0km in NW direction
5.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

A) AIR ENVIRONMENT

The air borne particulate matter is the main air pollutant contributed by opencast mining. Various emission sources are identified from the mining operations for the proposed 1.5 MTPA limestone production.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drilling</td>
<td>Point source</td>
</tr>
<tr>
<td>Blasting, Excavation and Loading of limestone</td>
<td>Area source</td>
</tr>
<tr>
<td>Transport of limestone from working pit to crusher</td>
<td>Line source</td>
</tr>
<tr>
<td>Crusher</td>
<td>Point source</td>
</tr>
</tbody>
</table>

Incremental ground level concentrations are estimated considering emissions from limestone mine including fugitive dust due to transport of material in the mines.

The Overall Scenario with predicted cumulative ground level concentrations over the baseline is shown below.

PREDICTED GROUND LEVEL CONCENTRATIONS AND OVERALL SCENARIO, $\mu g/m^3$

<table>
<thead>
<tr>
<th>24-Hourly Concentrations</th>
<th>Particulate Matter - 10 (PM$_{10}$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline concentration, max*</td>
<td>40.20</td>
</tr>
<tr>
<td>Max . Predicted Incremental Ground level Concentration at 0.5km,</td>
<td>2.16</td>
</tr>
<tr>
<td>Overall Scenario</td>
<td>42.36</td>
</tr>
<tr>
<td>NAAQ STANDARD</td>
<td>100</td>
</tr>
</tbody>
</table>

*max of 98th percentile values

Values in parenthesis are National Ambient Air Quality (NAAQ) standard limits

AIR ENVIRONMENT – ENVIRONMENTAL MANAGEMENT PLAN

The environmental control measures which are proposed to control the fugitive dust released are given below:

- Wet drilling to suppress the dust emission from the drill machines at its source by inbuilt water injection system
Regular water sprinkling on blasted heaps and haul roads with water tankers.

20 m³/day of water will be used for dust suppression operations at mine.

Use of sharp drill bits for drilling holes and arrangements for bit regrinding. Charging the holes by using optimum charge and using time delay detonator.

Avoiding blasting during high windy periods and during night times.

Regular grading of haul roads and service roads to clear accumulation of loose material.

Avoiding overfilling of tippers and consequent spillage on the roads.

The vehicles and machinery are kept in well-maintained condition so that emissions will minimize.

Afforestation for control of dust. To arrest the amount of airborne dust, plantation is being carried out within the mines.

Operator cabins in all major HEMM equipment are air conditioned to minimize dust exposure of the operators.

B) NOISE ENVIRONMENT

Noise is produced at the mine due to movement of machinery, drilling, blasting and transport etc. The noise generated by the mining activity dissipates within a small zone around the mines. There will be no major impact of the mining activity on the vicinity. However, pronounced effect of above noise levels was felt only near the active working area.

The impact of noise on the villages is negligible as the villages are far located from the mine site.

NOISE POLLUTION CONTROL MEASURES

The following noise abatement measurements are implemented for control of noise.

Proper and regular maintenance of vehicles, machinery and other equipment.

Carrying out blasting only during day time and not on cloudy days.

The noise generated by the machinery is reduced by proper lubrication of the machinery and equipment.
The workers employed are provided with protection equipment, earmuffs and ear-plugs, as a protection from the high noise level generated at the mine site wherever required.

Proper and timely maintenance of mining machinery.

C) WATER ENVIRONMENT

The estimated water requirement for the mining project is 30 m³/d on an average level and 43 m³/day as peak requirement in extreme summer. The water requirement will be met from clinker manufacturing plant which in turn obtains from Longlai river/Rain water. It is estimated that about 20m³/day of water shall be used for dust suppression.

No wastewater will be generated from the mining lease area. The treated sewage from the mines office, which is routed to Septic tank/soak pit. Workshop effluents are being treated at Oil & Grease Trap and treated water is utilized for Dust Suppression/Green belt Development.

D) SOLID WASTE MANAGEMENT

There is no topsoil available in the lease area as it is mostly an operating mine.

The total quantity of waste generation during the life of mine is 16,93,218 m³ (11,39,789 m³ waste & 5,53,429 m³ Mineral rejects).

Management:-

- Overall slope of reposes would be kept natural
- The proposed dump shall be suitably terraced, sloped and raised to a height of 10m in each step. Maximum height of the dump shall be kept at 30m with two terraces.
- Terraces provided will be having inward slope so that water can be passed through, without affecting the walls of the waste dump.
- Each terrace shall have provision of berms at the outer end to reduce gully formation due to rainwater wash offs.
- Dump bench slopes shall be vegetated with grass for binding soil and to arrest erosion.
• Retaining walls and garland drains with a settling tank shall be built and maintained regularly.

• The existing dump on mineralized area shall be reclaimed afterwards to recover the blocked limestone.

• Stacking of mineral rejects will be of temporary nature and part of the materials shall be sorted out and blended with usable limestone as and when required, if found suitable.

E) **Ground Vibrations control & measures.**

• Boards displaying (in local language & English) blasting time will be kept at the places where required.

• Blasting time will be fixed and intimated to all concerned.

• At the time of blasting, security guards will be deployed in order to block the vehicle movement on the road.

• The Blasting area is being demarked with red flags and well-protected. The men and machinery are cleared up to a distance of minimum 100 m during blasting to safe / protective place.

• Entry is restricted to authorized personnel only.

• Any type of electrical / fire / spark creation appliances will not be allowed into blasting area.

• The blasting area is declared as “Non-Smoking” zone.

• Usage of cell phones and walkie-talkies are prohibited up to the radius of minimum 15 m.

• Siren is provided.

• Blasting shelters are provided within the blasting zone

• Accidents due to explosion of explosives are being minimized by strictly following all regulations and precautions prescribed by Metalliferrous Mines Regulations 1961.

• Fire extinguishers are provided in the explosive van and maintained periodically.

• Water tanker with fire tender facility is provided.

F) **GREEN BELT DEVELOPMENT**

VCL already developed Green belt in an area of 1.769 ha. At the conceptual stage total area under afforestation is proposed to be 2.863 ha.
The native species of the area which are tolerant to dust will be planted as per CPCB guidelines.

7.0 CSR PLAN WITH PROPOSED EXPENDITURE

DCBL, the parent company, earmarked Rs 2.54 crore towards the Social Welfare Measures for the period 2016-20 for nearby villages. The CSR activities are being directly implemented by Dalmia Bharat Group Foundation (DBGF) at all locations in a project-mode, with specified timelines and deliverables.

CSR FOCUS AREAS OF THE GROUP FOR THE REGION

- Ensuring environmental sustainability and ecological balance, Protection of Flora and Fauna, animal welfare agro forestry, conservation of Natural Resources & maintaining quality of soil, air and water (Soil & water conservation & Renewable Energy)
- Promoting Education including special education and employment enhancing vocation skills especially amongst children, women, elderly, and the differently abled and livelihood Enhancement projects (Livelihood Skill Training)
- Eradicating hunger, poverty and malnutrition, promoting preventive health care and sanitation and making available safe drinking water (Social Development).

ACTIVITIES UNDERTAKEN IN THE AREA

- 4 ring wells have been constructed, 1 per village, in Langcherui, Miyungpur, Longrung and Dithur, bringing huge relief in the matter of daily water sourcing to over 280 households and impacting the lives of over 1800 people - nearly 280 households.
- Deepening of a village pond and construction of one earthen dam has been completed in Dithur village, directly impacting all the 55 households in the village.
- DBGF has initiated a rubber plantation project with the support of the Rubber Board in three villages of Umrongso. 60 farmers from Dithur and Miyungpur village have given their consent to be part of the project in its first year and will be working collectively under two rubber grower society.
- Fuel Efficient Stoves and Solar Study kits Distributed across 4
Villages. 150 households were provided fuel-efficient stoves. These are being promoted by DBGF at the target villages.

- SHGs with a membership of 168 members, were formed with the support of the DBGF team at Umrongso. These groups have built a cumulative savings approaching Rs. 75000. A training program for women’s SHGs was organized at Langcherui village.

- To increase the employability options of the youth in the programme villages of Umrongso, a series of focus group discussions were organized among the school dropout youths on livelihood skill training in Dither, Miyungpur, Langcherui, Longrung and Govinda-Nagar village. Twenty eight youths expressed their interest for driving training. The 28 interested youths were provided Heavy Transport Vehicle driving training through ITI Nagoan.

- An awareness event on sanitation was organized at Lovely Well Memorial School in Umrongso, for the formal launch of our 'Swachh Vidyalaya' project.

- A 2000 sq.ft. Community hall has been constructed for the community of 65 households at Langcherui.

- To promote sports and fitness among the youth, four football grounds were constructed, one each in Dither, Miyungpur, Longrung and Langcherui villages.

**BUDGET ALLOCATION FOR WELFARE & INFRASTRUCTURE DEVELOPMENT IN NEARBY VILLAGES UNDER CSR**

<table>
<thead>
<tr>
<th>Sector / Activities</th>
<th>Actual Spent</th>
<th>Amount Proposed (Lakhs) for next 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil and Water Conservation</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Energy Conservation and Climate Change Mitigation</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Livelihood &amp; Skill Training</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Social Activities</td>
<td>24</td>
<td>14</td>
</tr>
<tr>
<td>Program Execution Cost</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>36</strong></td>
<td><strong>46</strong></td>
</tr>
</tbody>
</table>

*It is proposed that the company will take up various socio-economic development activities to have the positive impact on the surroundings.*
10.0 OCCUPATIONAL HEALTH MEASURES

Occupational health and safety hazards occur during the operational phase of mining and primarily include the following:

- Respiratory hazards
- Noise
- Physical hazards
- Explosive storage and handling

Excessive dust, noise and vibration are the major health hazards for the miners. The health of the workers is regularly checked. There is one dispensary with qualified doctor and staff to take care of any emergencies and routine checkup of employees and residents. Highest safety is ensured in the working conditions of the miners.

Safety shoes, helmets and PPE like nose filter / mask, ear plug / muff, safety goggles, gum boots, etc. are issued to workers depending on the nature of the job.

Advisory Slogans are painted at prominent places in the office premises and in the mine area.

11.0 ENVIRONMENTAL MONITORING PROGRAMME

**VCL** will ensure the implementation of the measures within the mine area and carryout efficient monitoring.

VCL continue to monitor the environmental parameters as per ASPCB / IBM / MoEF&CC guidelines.

12.0 ENVIRONMENTAL MANAGEMENT PLAN

VCL has proposed the following budget for implementation of the Environmental Management Plan for this expansion project.
## BUDGET OF EMP

<table>
<thead>
<tr>
<th>S. NO.</th>
<th>CAPITAL COST</th>
<th>RECURRING COST PER ANNUM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Air Pollution Control</td>
<td>--</td>
</tr>
<tr>
<td>2</td>
<td>Water Pollution Control</td>
<td>5.0</td>
</tr>
<tr>
<td>3</td>
<td>Noise Pollution Control</td>
<td>--</td>
</tr>
<tr>
<td>4</td>
<td>Environment Monitoring and Management</td>
<td>2.0</td>
</tr>
<tr>
<td>5</td>
<td>Greenbelt development</td>
<td>3.00</td>
</tr>
<tr>
<td>6</td>
<td>Occupational Health</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10.00</strong></td>
<td><strong>15.0</strong></td>
</tr>
</tbody>
</table>