

## **THE PLAN FOR THE TRANSPORTATION OF THE MINERALS PROPOSED TO BE RAISED FROM THE MINING LEASE**

Limestone from the proposed captive mine will be transported to Cement plant at Umrangshu and at Lanka.

1. Umrangshu Plant is about 8 km from the proposed mine. It is estimated that 12 trips/hour with 20 tones capacity vehicles will be required. A dedicated two lane illuminated haulage road will be constructed for transportation of limestone. This road will pass through Unclassified Forest area (4.2444 ha, 1.17 km length with a width of 0.036 km) for which diversion proposal is under consideration along with ML de-reservation forest proposal. Hence, public road will not be affected during operation of the proposed Limestone Mine. It is also proposed to lay a conveyor belt along the road.
2. Lanka plant is about 70 km from the proposed mine. It is estimated that 60 trips/hour with 20 tones capacity vehicles will be required. This road will pass through Unclassified Forest area (3.7416 ha, 3.118 km length with a width of 0.012 km) for which diversion proposal is under consideration along with ML de-reservation forest proposal. This road will connect the mining lease with State Highway at 19 kilo. It is an existing kacha village road which will be enforced as per the requirement at company's cost.

IIT, Guwahati had been engaged by Calcom Cement India Ltd. (CCIL) to assess the traffic load of the different operations of the CCIL which includes the proposed mining project and study report was submitted in Dec. 2008. Copy of abstract of final study report is enclosed herewith. We will facilitate the implementation of survey report along with the Government.

We envisage that the recommendations of the study report will be implemented till our Lanka plant is commissioned to its full capacity.

### **Further the following facilities are under development stage which may further reduce the impact of transportation:-**

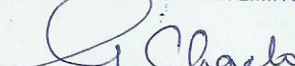
- A. Public works (NH) Department, Govt. of Assam, has proposed construction of 2-lane alternate route between Barak Valley (Silchar) Guwahati via Harangajho —Turuk at an estimated cost of Rs. 1700 Crores. This road will connect Umrangshu. This proposal is under Special Accelerated Road Development Project (SARDP-NE) of the Govt. of India. As on date the DPR has been prepared and submitted to Ministry of Road Transport and Highways (MoRTH), Govt. of India. The MoRTH in the meanwhile has approved pre-construction activities. The road is expected to be ready within next two years.
- B. Additionally, the Ministry of Railways has completed the survey of a new BG rail link between Lanka (Assam) and Sakhain (Meghalaya) via Lyngkhat-Umrangshu-Samer. The total estimated cost of the same is Rs. 4144 cr. The work on this is expected to be announced.

By the time the Cement Plant at Lanka will be fully commissioned at peak capacity, load of transportation can be partly shifted through Railway line. In addition to this, proposed 2-lane alternate route between Barak Valley (Si'char) Guwahati via Harangajho —Turuk would help in reducing the impact.

In addition to this, following measures will be immediately implemented:-

- Strengthening/maintenance of road through assistance to PWD.
- Relief van round the clock for clearing off any vehicles under break down.
- Covering of transportation vehicles by tarpaulin.
- Regular maintenance of vehicles and preventing overloading
- Plantation along both side of road in consultation with Forest Department.

CALCOM CEMENT INDIA LIMITED

  
Authorised Signatory



**Traffic Study and Development of a Traffic Management Plan for the Calcom Expansion and Development Projects Located in  
Umrangso and Lanka in State of Assam**

by:

**Dr. Ashish Verma (PI)<sup>1</sup>**

**Dr. Akhilesh Kumar Maurya<sup>2</sup>**

**Abstract of Final Report**

The need for the proposed study arises due to various Calcom expansion and development projects located in Umrangso and Lanka in state of Assam. These expansion and development projects of Calcom will result in; changes in Origin-Destination (O-D) pattern between the existing and proposed plants and mines of Calcom. The objective of this study is to assess the impact of possible changes in O-D pattern on the road infrastructure as well as the settlements, and prepare a traffic management plan to minimize the negative impacts. In order to quantify and assess the possible changes and their impact, the data collection was done through various primary and secondary sources. The primary sources were; Road Network Inventory Survey, Traffic Volume Survey, Turning Movement Survey, Pedestrian Movement Survey, Origin-Destination Survey, Parking Survey, and Driver Interview Survey.

The road network inventory survey was carried out on the roads connecting existing and proposed sites of Calcom in Lanka and Umrangsho. From the visual assessment, the condition of all the connecting roads was found to be poor. The road surface is mostly bituminous type, but at some locations it is only Water Bound Macadam (WBM). All the connecting roads were found to be un-divided and have intermediate lane of 5.5m width, with two-way flow of traffic. From the traffic volume analysis, the V/C ratio is found within acceptable limits for all locations (except VC5) and for all day's, therefore, widening of the road is not required from hourly traffic volume point of view. For VC5, widening of the road is required, however, this road is part of east-west expressway and is likely to be expanded to 15 m width, very soon. However, from the comparison of ADT with daily capacity, it was found that ADT for present is well within the capacity value. For 2009, the ADT for both directions at VC4 and VC5 is exceeding the capacity. For 2010, the ADT for both directions at all locations is exceeding the capacity with the highest being 8775 PCU/day at VC2. Hence, the road width needs to be widened to at least full 7.0 meters (2-lane) for VC4 in 2009 and for all locations in 2010. From the pedestrian count survey at Diyanmukh town, it was observed that large no. of pedestrian are present along the road, for a considerable period of the day. Therefore to ensure the safety of pedestrians, some measures are needed to segregate the movement of pedestrians from vehicular movement. From the OD survey, it was figured out that the majority of traffic uses full stretch of road between Lanka and Umrangsho. A physical observation of the complete road between Umrangsho and Lanka was done to identify blind spots where the sight distance available is less than the minimum Stopping Sight Distance (SSD) required at the design speed. Based on the data analysis, the following measures are proposed:-

- The complete road of length 70 km. (approx.) between Lanka and Umrangsho site, be re-surfaced (overlaid) with adequate thickness of bituminous pavement, before the 2009 operations of Calcom. Also, Water Bound Macadam (WBM) shoulder of width 1m on both sides of road should be maintained, for full 70km length of the road, except for small portions at Diyanmukh and Lanka town, where other type of shoulder surface is recommended.
- Before the start of 2009 operations of Calcom, road widening should be done to full 7.0 meters (2-lane) for the road stretch of 40km (approx.) from Umrangsho site up to the junction where road coming from Haflong meets.
- Before the start of 2010 operations of Calcom, road widening should be done to full 7.0 meters (2-lane) for the complete road of length 70 km. (approx.) between Lanka and Umrangsho site.
- The small wooden bridge present at a distance of 21 kms. (approx.) from the Umrangsho plant, should be re-constructed as full 7.5m RCC or steel bridge, after doing a detailed engineering design for the same.
- The narrow bridge of 5.5m located at a distance of 31.4 kms. (approx.) from the Umrangsho plant, should preferably be widened to 7.5m width. In case the widening is not possible, then it should have cautionary signage on both sides indicating "narrow bridge ahead" and "one-way movement at a time".
- Strength checking of all existing bridges/culverts on the complete road stretch of 70 km between Lanka and Umrangsho plant.
- "Single broken line" marking (in white) should be provided along the center of the road for the complete stretch of 70 kms from Lanka to Umrangsho plant, except for the portions where solid marking is proposed.
- "Single solid line" marking (in white) should be provided at the center of road, for at least 100m around every blind spot.
- Cautionary Signage indicating "go slow" and "sharp turn ahead" should be provided at both the ends of the blind spot for respective directions.
- In Diyanmukh and Lanka town, speed breaker at the start and end of the 200m problem stretch.
- Imposing speed limit of 20 kmph for the 200m problem stretch at Diyanmukh and Lanka town, by using Speed limit signage showing "speed limit 20".
- Providing shoulder of width 1.5m for the complete 200m problem stretch at Diyanmukh and Lanka town, with surfacing of paver (concrete) blocks.
- Adequate provision of parking as per the realization of actual case, should be made preferably near the entrance of the plants (both at Lanka and Umrangsho).

<sup>1</sup> Principal Investigator and Assistant Professor, Dept. of Civil Engg., IIT Guwahati. E-mail: [ashishv@iitg.ernet.in](mailto:ashishv@iitg.ernet.in)

<sup>2</sup> Assistant Professor, Dept. of Civil Engg., IIT Guwahati. E-mail: [maurya@iitg.ernet.in](mailto:maurya@iitg.ernet.in)

