

कार्यालय प्रमुख अभियन्ता एवं विभागाध्यक्ष
उत्तराखण्ड लोक निर्माण विभाग,
देहरादून।

भू - गर्भीय निरीक्षण आख्या एस0जी0- 632/सड़क/पुल समरेखण/ गढ़वाल/2014

**Geological assessment of the alignment corridor
proposed for Khajurikhal to Niglani-Timulpani-
Goganani-Damdad motor road, Distt. Chamoli.**

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(66) (8)

Geological assessment of the alignment corridor proposed for Khajurikhal to Niglani-Timulpani-Goganani-Damdad motor road, Distt. Chamoli.

Vijay Dangwal
09.12.2014

1- Introduction:- The Construction Division, Public Works Department Gairsain has proposed the new construction of 6.00 km long motor road namely Niglani-Timulpani-Goganani-Damdad motor road in Gairsain Block, Distt. Chamoli Garhwal. On the request made by Er. C.S. Arya, Executive Engineer I carried out the geological assessment of the proposed alignment corridor of this road on 10.11.2014. Er. Kishore Kumar, Asst Engineer and Er. Prem Pant, Jr. Engineer also accompanied the site visit.

2- Location:- The proposed alignment corridor of this road originates from km 3.00 of Kalyana -Durgadevi motor road located in Gairsain Block, Chamoli Garhwal.

3- Geological Assessment:- Geologically the alignment corridor of the proposed motor road lies in the inner belt of Garhwal Lesser Himalaya exposed with the quartzites belonging to Berinag formation and granitoides, granodiorites, quartz mica schists belonging to Almora Group. The cross slopes of the proposed alignment are oriented in low to moderate angle inclined in N120 through N030 direction. The quartzites exposed along the alignment corridor are thinly foliated, hard, compact and slightly weathered in nature while the rock masses belonging to Almora Group are extremely weathered and oxidized to the near surface, this is mainly due to the presence of mineral plagioclase which is highly susceptible for weathering/oxidation. It has been observed that village Timulpani is severely eroded by the cross drains in its either side directions therefore any type of anthropogenic unscientific activity may lead to the land sliding particularly in the section passing across it.

By and large the alignment for this road is prepared nicely and put across the most suitable grounds from the stability point of view.

The slopes across which the alignment passes are covered by the thick forests and the slope forming material do not contain any soft /dispersive soils except the reach between village Timulpani.

Largely the cross slopes of this alignment are exposed with the overburden material comprised of angular rock fragments firmly embedded in the clay matrix. These slope forming soils are naturally dense, compact and largely non dispersive in nature .

Presently the large part of the alignment slopes looks stable and except few stretches these are free from mass wasting activities. It has been advised to the site engineers to construct the road along the sliding susceptible sections by walling only. By and large the terrain containing the proposed alignment do not manifests any signature of mass wasting like prominent erosion.

The relief of the up slopes of proposed alignment is low to moderate and the upslopes are inclined at low angle

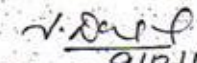
On the basis of the geological / geotechnical studies carried at the site and the facts mentioned above the following recommendations are being made for the construction of the proposed road, failing to these this report will be automatically treated as cancelled.

4- Reccomendations:-

1. Construct the road by half cut and half fill techniques and compact the fill material properly by dynamic compaction. Any type of loose filling will allow the rain water to percolate inside and aggravate the road and slope to fail.
2. The entire section of the road passing in the vicinity of Timulpani must be constructed by walling only, any type of excavation in this section is geologically restricted.
3. The hill side slopes of the entire road must be protected by suitably designed retaining walls/ breast walls, this work shall be carried out simultaneously with the advancement of the road cutting. This is very important for the stability of the hill side slopes.
4. The entire surface of the road from outer edge to inner edge must be sealed immediately after the excavation, this is so as to check the water infiltration into the sub soil, otherwise the slope will fail and threat the safety of the village on its lower slopes.
5. Construct extra large lined drain all along the hill side of the road and make adequate cross drainage arrangements. The rain water run-off from the upslope

- catchment should not allow to flow on or along any weak strata, otherwise it must be disposed on the safe/ stable ground.
6. Do not dispose the excavated waste on the down hill slopes.
 7. Any type of blasting by explosive is restricted geologically.
 8. The HP Bends must be constructed on flatter and stable grounds and arrangements for disposal of run-off water around it must be made properly.
 9. Protect the either side slopes of the road by bio-engineering methods especially by plantation of eco-friendly plants.
 10. All the construction activity must be carried out as per the standard codes of practice laid by the BIS and MORTH.

5- Conclusion:- On the basis of the geological / geotechnical studies carried at the site and with the above recommendations, the site was found geologically suitable for the construction of 6.00 km long motor road namely Niglani-Timulpani-Goganani-Damdad motor road in Gairsain Block, Distt. Chamoli Garhwal.


9/12/14
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