

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

भू - गर्भीय निरीक्षण आख्या एस0जी0- 656 /सड़क/पुल समरेखण/ गढ़वाल/2014

**Geological assessment of the alignment corridor
proposed for Km. 8 of Parkhal-Dungri motor road to
Paintoli and Paintoli Udhyan motor road, Distt.
Chamoli**

22-दिसम्बर-2014

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Km. 8 of Parkhal-Dungri motor road to Paintoli and Paintoli
Udhyan motor road, Distt. Chamoli**

Vijay Dangwal

22.12.2014

1- Introduction:- The Temporary Division, Public works Department Tharali has been entrusted for the construction of 2 km long motor road i.e, Parkhal dungri motor road Km. 8 to Pintoli Udhyan motor road in Tharali Block ,Distt.Chamoli. Consequent upon the request made by Shri Dhan Singh Kutiya, Executive Engineer for carrying out the geological assessment of the proposed alignment of the above said road ,a joint visit to the site was made on 13.12.2014. Er.D.K.Loshli, Astt. Engineer and Er. Prasoon Nautiyal, Jr.Engineer, and Er. Jagmohan Singh Mehra, Jr. Engineer, PWD, Tharali also accompanied the site visit.

2- Location:- The alignment corridor proposed for the construction of above said road falls within the boundry of Tharali Block, Distt. Chamoli.

3- Geological Assessment:- Located in the inner belt of Garhwal Lesser Himalaya the area around Parkhal,Narayanabagar including the alignment corridor are mostly comprised of the quartzites of Garhwal Group which are thrust under the rocks belonging to Almora Group along the South Almora Thrust. The quartzites exposed in the area of this alignment are thinly foliated ,fresh hard and compact in nature and are exposed only in the small section i.e.from CH.00 to CH.0/4 .Most of this alignment is covered by the thick envelope of overburden material comprised of the composite soils i.e. rock fragments of varying sizes embedded in the clayey matrix. The cross slopes of the alignment are inclined at very steep angle for 100m reach only which abruptly becomes low to very low for the remaining part. It passes through the close upslopes of Primary School and GIC Paintoli. Most of this alignment passes across the ground comprised of residual soils which has been altered in the form of stepped like fields near Paintoli Udhyan.The cross slopes of the alignment corridor bear a general orientation towards the northwest direction. The rock mass exposed at the begning of this alignment before Primary School are thinly bedded and moderately weathered in nature and it has been dissected by many prominent linear discontinuities which are given in the following table.

The land form of the cross slopes along the alignment corridor is mostly formed of terrace like slopes.The soils comprising the ground are almost residual soils which contains very high percentage of plastic clays. It has been observed that the soils deposited on the alignment slopes are stiff and hard under dry state and these are naturally well compacted and moderately dense in nature. As the slope

forming soils contain high percentage of clay minerals which are highly susceptible for water absorption, adequate arrangements for rainwater run off needs to be made along and across of this proposed road.

By and large the alignment slopes are stable and free from any mass wasting activities.

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 bridge failing to these this report will be automatically treated as cancelled.

3- Recommendations:-

- 1- Construct the road by half cut and half fill techniques and compact the fill material properly by dynamic compaction.
- 2- Excavate the starting 100 m rocky part of the road manually. Any type of blasting in this section will generate slope failure.
- 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 road must be formed by cement concrete and the surface of the road from outer edge to inner edge must be sealed immediately after the excavation.
- 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. Please note that the soils nearby Paintoli Udhyan are dispersive and easily erodible.
- 6- Do not dispose the excavated waste on the lower hill' slopes otherwise it will threat the safety of villages located between the road.
- 7- Protect the either side slopes of the road by bio-engineering methods especially by plantation of eco-friendly plants.
- 8- All the construction activity must be carried out as per the standard codes of practice laid by the BIS and MORTH.

4- 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 8 to pintoli Udhyan 2 km long motor road in Tharali Block , mDistt.Chamoli.

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सहायक अभियन्ता ज्येष्ठ
ज. सं. च. सो. नि. वि. च. देहरादून (चमोली)

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