

Ratkhet to Jhadkot motor road, District- Almora,
Uttarakhand.

24
2.28

Vijay Dangwal
16-01-2013

1. **Introduction:-** The Construction Division, Public Works Department Ranikhet has proposed the construction of 4.0 km long Ratkhet to Jhadkot motor road in Bhikyasain Block, District- Almora. On the request of Er. Manoj Bisht, Executive Engineer, I carried out the geological Assessment of the proposed alignment on 07-11-2012 in presence of Er. U.C. Panti, Asst. Engineer and Er.M.C Joshi, Additional Asst. Engineer, C.D., P.W.D Ranikhet.
2. **Location:-** The Proposed alignment of Ratkhet to Jhadkot motor road originates of Bhatrochkhan- Bhikyasain- Chaukhutiya motor road in Bhikyasain Block District- Ranikhet.
3. **Geological Assessment:-** Geologically the alignment of the proposed road is located in the middle lands of Kumaon Lesser Himalayan Belt, bounded by the Main Central Thrust (MCT) in the north and Main Boundary Thrust (MBT) in the south. Another prominent thrust namely North Almora Thrust (NAT) runs in between this belt which separates the rocks of Almora Thrust Sheet form the rocks of Berinag Group. The proposed alignment is located the close vicinity of North Almora Thrust and two different lithological units are exposed on its either direction. The effect of North Almora Thrust (NAT) is clearly manifested on these rocks hence they are sheared and shattered in nature. Most of these rocks i.e. Chlorite- Schist which are thinly foliated, folded, partially weathered and dissected by five prominent joint sets.

The entire alignment corridor passes on the right bank slopes of Nainkana gadhera and most of it passes through civil and Benap land. The envelope of overburden material deposited on the slopes of alignment is naturally dense and well compacted. The "Undraine Shear Strength" of this composite material has been assessed 300 k Pa to 450 k Pa. this value corresponds to very Stiff consistency of the soils. As per the test performed

Photo copy attested

CV

वहायक अभियन्ता (सि.वि.)
निर्माण विभाग, सो.नि.वि.
रानिकेत (अल्मोड़ा)

on the rocks exposed on the alignment slopes the "Uniaxial Compressive Strength" of the rock has been estimated between 50 M Pa to 100 M Pa.

The rock defects do not form structural wedges dipping outwards to the slope face.

The entire alignment corridor of Ratkhet to Jhadkot motor road passes across the slope inclined at 35° in N 270 direction to 15° in N 180 direction and the alignment slopes are covered with the thin cover of overburden material comprised of angular rock fragments embedded in clay- silt matrix. The slope forming overburden material is naturally well compacted and dense. Its "Undrained Shear Strength" at the site has been assessed ranging between 300 k Pa to 500 k Pa which corresponds to the consistency "Very Stiff" soils. The slope forming material do not contain any alkali content or dispersive / soft soil.

Prima facie; the alignment slopes are stable and free from land slides/ mass wasting.

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.

4. Reccomendation:-

- (i) Form the road by full excavation of the hill slopes.
- (ii) Construct suitably designed retaining walls/ brest walls all along the road, it is essential for the overall stability of the hill slope.
- (iii) Construct large size lined long drain with the adequate cross drainage arrangements.
- (iv) Dispose the drained water on the safe/ stable ground.
- (v) The drainage work must be taken up immediately after the excavation of the hill slopes.

Photo copy attested

CH
 सहायक अभियन्ता (स.स.)
 निर्माण विभाग, को.नि.वि.
 धनीखेत (बनसरोवर)

- (vi) Do not dump/ dispose the excavated waste on the down hill slopes.
- (vii) The excavated bench should not be rendered exposed for long period, the formation of the road must be taken up immediately, it is so as to check the erosion of the excavated surface.
- (viii) Plantation works on the either side slopes will enhance the overall stability of the hill slope.
- (ix) All the construction activity must be carried out as per the standards and norms following the BIS codes prescribed for the similar civil construction in Himalayan Zone.

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 4.0 km long Ratkhet to Jhadkot motor road in Bhikyasain. District- Almora. Uttarakhand.

Photo copy attested



सहायक अभियन्ता (सि.सि.)
विभागीय कार्यालय, सो.नि.वि.
बावीखेत (अल्मोड़ा)

16/11/23

(Vijay Dangwal)
Sr. Geologist
Office of the Engineer in Chief,
PWD Dehradun