

स्थल निरीक्षण

कार्य का नाम — मा0 मुख्यमंत्री घोषणा संख्या-2294/2015 के अन्तर्गत जनपद अल्मोड़ा के वि०स० क्षेत्र सोमेश्वर के अन्तर्गत धामस-ज्योली मोटर मार्ग के विस्तार का समरेखण प्रस्ताव।

प्रमाणित किया जाता है कि उपरोक्त कार्य हेतु सुझाया गया समरेखण का कार्य स्थल पर मेरे द्वारा नीचे दर्शायी गयी तिथि के अनुसार निरीक्षण कर लिया गया है।

पदनाम

निरीक्षण दिनांक

हस्ताक्षर

कनिष्ठ अभियन्ता

03.08.2017



सहायक अभियन्ता

05.08.2017



अधिशारी अभियन्ता

5.8.2017



Geological Assessment of 11.2 Km long extension of Someshwer-Khut-Dhamas-Basar-Joili motor road Almora District.

Priya Joshi

04/08/2017

1- Introduction- Provincial Division, Public Works Department Almora entrusted in construction of 11.2 Km long extension of Someshwer-Khut-Dhamas-Basar-Joili motor road Almora District. On the request of Shri Harish Pandey, Executive Engineer, Provincial Division, Almora I carried out geological assessment of the above said motor road on dated 03/08/2017. Junior Engineer Shri P. C. Pant accompanied during the site visit.

2- Location- The extension Someshwer-Khut-Dhamas-Basar-Joili link motor road starts from Km 13 which is the end point of Someshwer-Khut-Dhamas-Basar-Joili motor road. 2 HP bends are proposed at 5.350-5.400 and 5.700-5.750 chainage respectively. Total length of the motor road is 11.2 Km while the sanctioned length of the road is 10.00 Km. General Gradient of the road is 1:20, 1:24 and at some portion 1:17. Bhatgalbhatt, Basar, Dharmar, Kurchon, Dhaili, and Joili village's falls along the proposed alignment.

The co-ordinates of starting and end points taken from hand held GPS are as follows-

Starting Point

Latitude- 29°37'33.14"N

Longitude- 79°33'1.53"E

End Point

Latitude- 29°37'31.22"N

Longitude- 79°34'40.03"E

Geological Assessment- The alignment corridor proposed for the above said motor road lies in part of Kumaun Lesser Himalayan. Geologically the site in question lies in Almora Nappe of Kumaun Lesser Himalaya. Almora Nappe is bounded by South Almora Thrust (SAT) in South and by North Almora Thrust (NAT) in the North. It comprises rocks of Almora Group. Almora Group comprises of two different lithological units which are Biotite Mica Schist, and Micaceous Quartzite of Saryu Formation and Granite-Granodiorite plutonic bodies.

Topography of the area overall is gentle to moderately steep. Area is mostly barren. Rock type observed on the site is Micaceous Quartzite and Schist which belongs to Saryu Formation. The quartzite is moderately hard and compact in strength while the schist is weak in strength. The strength of the rock is estimated by manual test. Some manmade terraces were also observed near to the villages which are mostly cultivated. Three sets of joints were observed in Quartzite. Joints are closely spaced and the opening between the joint planes is close to open up to 1-2mm. In-between the opening clayey soil is filled. Largely the rocky strata along this alignment are capped by thin overburden

material which varies in thickness from place to place. At some places schist outcrop is also observed having phyllitic content. The foliation in the schist dips in 270° direction with gentle amount. The soil material has silty content and the matrix is fine to very fine. The soils are good cohesive, dense and hard in dry conditions but these converts into soft clays under the wet/saturated conditions. Weathering condition is moderate to high in the schist and moderately lower in quartzite. Slope angle varies from 20° - 50° . One prominent nala is observed which is perennial in nature and flows in $N170^\circ$ direction at 9.525 chainage in which 10 m span bridge is proposed. On both side of the nala rock is exposed. Water level is only high during the rainy season. Water seepage is observed along the alignment near to the starting point. The joints data observed at the site are as follows-

Table 1

S.No.	Feature	Dip angle	Azimuth
1	Joint J1	40°	N 340°
2	Joint J2	55°	N 230°
3	Joint J3	65°	N 130°
4	Slope	35°	N 290°

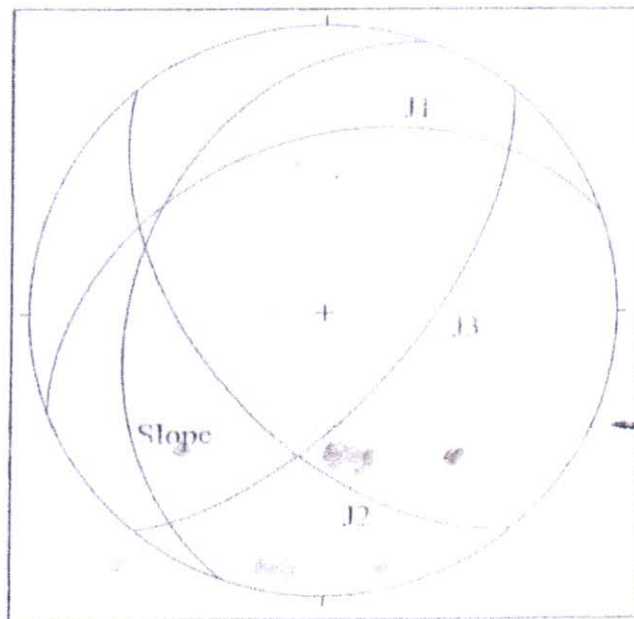


Figure 15 Stereographic projection of joints and slope data observed in quartzite

From the above stereographic projection (Fig 1) it is clear that joints J1 & J2 are forming a small wedge in the slope direction. If any joint or tension crack acts as a releasing surface along the alignment the failure can occur.

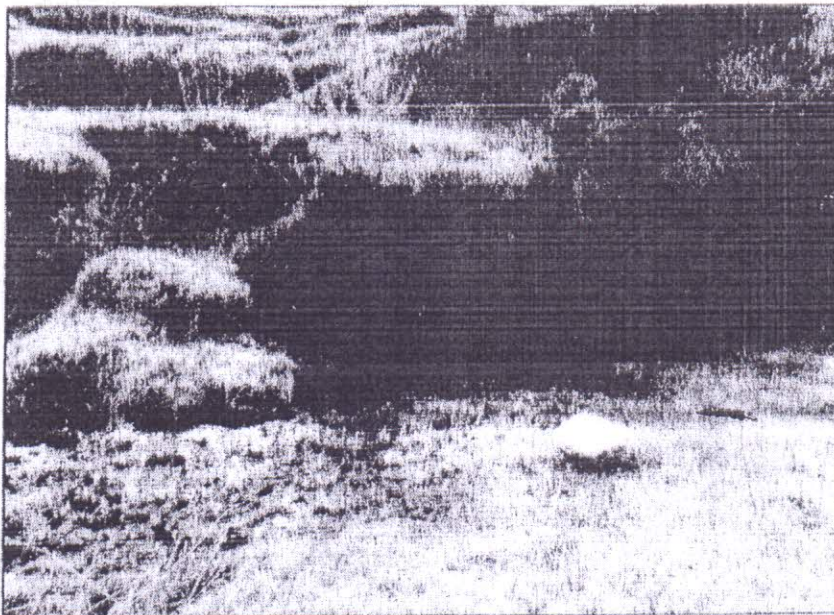


Figure 2 Water seepage from the ground observed at the 1st km of the road.



Figure 3 General topography of the area



Figure 4 Micaceous Quartzite rock observed along the alignment

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

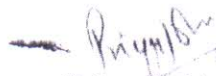
4- Recommendations-


- 1- Do not blast heavily by explosives. It is recommended that the blasting shall be carried out by controlled method i.e. by leaving large volume of dummy holes.
- 2- The entire hill and valley side slope along the whole length of the road must be protected by suitably designed retaining/ breast walls. This work should be done simultaneously with the advancement of the road cutting. It is advised to leave sufficient weep holes in the walls; this is so as to facilitate the subsurface drainage.
- 3- Properly designed culvert/bridges must be constructed over the nala whichever is suitable.
- 4- Construct U shaped lined drain all along the hill side of the road and made adequate cross drainage arrangements. The accumulated rain water from upper reaches of the hill must not allow to flow freely over the road constructed and its lower hill slopes.
- 5- Disposal of muck and excavated waste on the lower slopes of this road is to be strictly avoided. It is advised to dispose the muck on the identified site for muck disposal.

- 6- For bridge construction foundation of both the banks must be placed wisely on fresh, hard, compact and intact rock mass after removing Overburden/weathered top portion and RBM.
- 7- Banks on the either side must be protected with the suitably design retaining and flood protection walls. Foundation of these retaining and flood protection walls must be placed below the scouring level.
- 8- The height of deck level of the bridge must be high above the HFL of the nala.
- 9- The portion of the road which passes through the cultivated field where water seepage from the ground is high; RCC should be done.
- 10- All the construction activities must be carried out as per the prescribed norms and the standard codes of the practice laid by BIS and MORTH.

Letter No: 2179/01 संभूतै/17

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लगातार जमि पदस्थपित

 सहायक प्रसिपता
 प्राप्तीय खाड, लो.नि.वि.
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