

कार्यालय प्रमुख अभियन्ता एवं विभागाध्यक्ष
लोक निर्माण विभाग, देहरादून।

भू - गर्भीय निरीक्षण आख्या एस0जी0-136 / सड़क समरेखण / कुमाऊँ / 2013

**Geological Assessment of the alignment proposed for
Bohala to Nandigaon motor road, Distt. Bageshwar.**

(Actual length - 5.00 KM)

27-अगस्त-2013

Geological Assessment of the alignment proposed for Bohala to
Nandigaon motor road, Distt. Bageshwar.

Vijay Dangwal

27-08-2013

1- Introduction:- The Provincial Division Public Works Department Bageshwar has proposed the construction of 3.00 Km long link motor road in Jila Yojna from Bohala to Nandigaon in Distt. Bageshwar. On the request of the Er. Mahendra Kumara, Executive Engineer, I carried out the geological assessment of the proposed alignment of the road on 15-06-2013 in presence of Er. K.K. Tilara, Asstt. Engineer and Er. G.C. Joshi, Additional Asstt. Engineer.

2- Location:- The alignment of the proposed road is located in the Bageshwar Block, Distt. Bageshwar. It originates from Bohala hamlet located at km 6.00 of Kathpudiyacheena-Seraghat motor road and link at Nandigaon in 3.00 km.

3- Geological assessment:- Guhala –Nandigaon and its environs, geologically lies in the inner lands of Kumaon Lesser Himalyan Belt. The entire area of the proposed road is occupied by the dolomites of Tejan Group which all along the slopes of the alignment corridor are well exposed at places and are covered with the hill wash material. These rocks at the site are fresh, hard, compact and slightly weathered (W_0 - W_1 Grade) in nature and are traversed by four prominent joint sets.

The slopes across which the alignment passes are inclined at moderate angle ranging between 20° to 30° and are oriented in N 300 to N 350 direction. The entire alignment slopes bear a low to moderate relief and are drained by small drains/gullies. Most of the alignment slopes are covered by thick envelop of overburden material comprised of angular rock fragments ranging between boulders to pebbles which are embedded in clay matrix.

The overburden material is naturally well compacted and dense and it do not contain any soft/dispersive soils.

The “undrained Shear Strength” of the clayey material deposited on the alignment slopes has been assessed ranging between 350 K Pa to 400 K Pa. These values of consistency come under the category of “soft soils”.

The “Uniaxial Compressive Strength” of the rock mass exposed on the alignment slopes has been estimated ranging between 50 M Pa to 100 M Pa which falls under “fair rock” category/description

Four prominent and one random joint sets are recorded on the exposed rock mass are described in the following Table:-

TABLE

S.No.	FEATURES	DIP AMOUNT	DIP DIRECTION	REMARKS
1	J ₁ (Joint)	25 ⁰	N010	Bedding/foliation Joint
2	J ₂ (Joint)	58 ⁰	N065	
3	J ₃ (Joint)	81 ⁰	N120	Random Joint set
4	J ₄ (Joint)	52 ⁰	N190	
5	J ₅ (Joint)	45 ⁰	N320	

All the joint sets dissecting the rock masses are tightly sealed and the surfaces of these joints are occasionally coated by the silica.

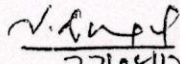
On the basis of the walkover survey study carried out at the site and the facts mentioned above the following suggestions are being made for the construction of the above road.

4- Recommendations:-

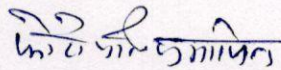
1. Form the road by half cut-half fill technique and compact the fill material properly.
2. Do not blast on the rocks, otherwise excavate the rocky material manually.
3. Construct large size hill side drain in order to collect the run-off from the upslope and the road.
4. The road must have adequate provision of cross drainage arrangements.
5. The drained water must be disposed on the safe/stable ground preferably on the rocky slopes.
6. Do not dispose the excavated waste on the lower slopes.
7. The road and its either side slopes must be protected by the suitably designed retaining/breast walls.
8. Seal the entire top surface of the roadway, inner edge to outer this is so as to check the infiltration of water.


9. All the constructions activities should be carried out as per the norms and standard laid by the IRC/MORTH, for the similar structure constructed in the Himalyas.

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 3.00 Km long motor road from Bohala to Nandigaon in Distt. Bageshwar.


27/08/15
(Vijay Dangwal)

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प्रान्तीय खण्ड लोड डि० वि०
बागेश्वर 27/08/15