

परियोजना का नाम:- राज्य योजना के अन्तर्गत जनपद बागेश्वर में देवलधार-  
माईथान-लेटी-गिरेछीना मोटर मार्ग का निर्माण।

भू-वैज्ञानिक की आख्या

संलग्न है।

नोट- प्रयोक्ता एजेन्सी द्वारा भू-वैज्ञानिक की आख्या प्राप्त कर प्रस्ताव के साथ संलग्न की जायेगी।



2.28

कार्यालय प्रमुख अभियन्ता ,  
लोक निर्माण विभाग, देहरादून।

भू - गर्भीय निरीक्षण आख्या एस0जी0-134 / सड़क समरेखण / कुमाऊँ / 2013

**Geological Assessment of the alignment proposed for  
Maithan to Garchina via Leti, Distt. Bageshwar**

16-अगस्त-2013



## Geological Assessment of the alignment proposed for Maithan- to Garchina via Leti Distt. Bageshwar

Vijay Dangwal

16-08-2013

**1- Introduction:-** The Provincial Division Public Works Department Bageshwar has proposed the construction of 12.650 km long motor road namely Maithan to Garchina via Leti in Distt Bageshwar. On the request of Er. Mahendra Kumar, the Executive Engineer P.D. Bageshwar the undersigned carried out the geological assessment of the proposed alignment corridor on 15.06.2013 in presence of Er. K.K. Tilara, Asst Engineer and Er. G.C. Joshi, the concerned Junior Engineer.

**2- Location:-** The alignment corridor of the proposed road originates from the hamlet Leti and it ends at km 9 of Ansarkot-Dhari, Dobha-Gaircheena motor road, Distt. Bageshwar.

**3- Geological assessment:-** The alignment proposed for the Maithan to Garchina motor road geologically lies in the inner lands of the Kumaon Lesser Himalaya Belt and mostly the shale /slate rocks are exposed in and around the proposed alignment corridor. These rocks exposed at the site are thinly bedded and jointed in nature and the slopes bearing these rocks are partially covered with the overburden material. These rocks exposed along the alignment corridor are partially weathered ( $W_1$  Grade) in nature and at places they are sheared and shattered in nature. The rock fragments mostly of all sizes comprising overburden material are embedded in the clay matrix. The rockmass exposed along the alignment corridor is traversed by four prominent linear rock defects and at the site they are tight and sealed with the secondary inclusion

The details of the joint set received at the site are given in the following table.

TABLE

S.No.	FEATURES	DIP AMOUNT	DIP DIRECTION	REMARKS
1	Joint ( $J_2$ )	$25^0$	N040	Bedding joint
2	Joint ( $J_3$ )	$79^0$	N110	Random Joint set
3	Joint ( $J_4$ )	$64^0$	N250	
4	Joint ( $J_5$ )	$65^0$	N320	



The slopes through which the alignment passes are inclined at moderate angle and bears angles ranging between  $25^{\circ}$  to  $30^{\circ}$ . The rockmass exposed at the site is slightly weathered in nature and bears good physical competency, its "Uniaxial Compressive Strength" has been estimated ranging between 50 M Pa to 100M Pa .These values comes under the Rock Mass Rating category "Strong Rock".

Prima facie; the slopes across which the proposed alignment passes are free from any slide /mass wasting and looks stable.

The soils comprising the overburden material do not contain any alkali substance /soft soils. The rock defects do not form adverse geometry for wedge /planner failure.

On the basis of the study carried 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. The muck should be disposed on the pre-identified suitable dump yard.
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 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 recommend7ations, the site was found geologically suitable for the construction 12.650 km long motor road namely Maithan to Garchina via Leti in Distt Bageshwar.

Dr. G. P. Shukla

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