प्रारुप–2.28

परियोजना का नाम :– राज्य योजना के अर्न्तगत जनपद टिहरी गढवाल के विकास खण्ड भिलंगना में कर्णगांव से राजराजेश्वरी मन्दिर तक मोटर मार्ग का नव निर्माण कार्य। (लम्बाई–5.00 कि0मी0)

भू–वैज्ञानिक की आख्या

(प्रस्तावित स्थल की भू–वैज्ञानिक द्वारा निर्गत अद्यतन निरीक्षण आख्या प्राप्त कर संलग्न की जाय।)

संलग्न है

ह0/
प्रयोक्ता एजेन्सी

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

मू – गर्भीय निरीक्षण आख्या एस0जी0– 583/सड़क/पुल सर्वेक्षण/गढ़वाल/2014

Geological Assessment of the alignment corridor proposed for Chativara to Rajrajeshwari Mandir motor road in Bhilangana Block, Distt. Tehri Garhwal.

Item III

24.9.14

23/9/14

23–सितम्बर–2014

Attested

अधिशासी अभियन्ता
लोक निर्माण विभाग
रुद्रप्रयाग

Geological Assessment of the alignment corridor proposed for Chatiyara to Rajrajeshwari Mandir motor road in Bhilangana Block, Distt. Tehri Garhwal.

Vijay Dangwal
23.09.2014

1- Introduction:- The Temporary Division, Public Works Department Ghansali has proposed the construction of 5.00 km long motor road namely Chatiyar to Rajrajeshwari Mandir motor road in Bhilangana Block, Distt. Tehri Garhwal under Chief Minister's notification. On the request of Er. Madan Mohan Kala, Executive Engineer, I carried out the geological assessment of the proposed alignment of this road on 06.06.2014 in presence of Er.S.S.Rawat, Astt. Engineer and Er.Sunil Kumar, Jr. Engineer, Temporary Division, PWD, Ghansali.

2- Location:- The alignment of the proposed road originates from km 9.00 of Chatiyar-Khawada motor road, located in Bhilangana Block, Distt. Tehri Garhwal.

The following are the co-ordinates recorded by the GPS at the starting point and middle point.

Starting Point	N- 30^0 30'19.6''
	E- 78^0 39'1.4''
Middle Point	N- 30^0 30'2.4''
	E- 780^0 39'2.4''

3- Geological Assessment:-:- Geologically the alignment corridor of the proposed road lies partially in the Higher and partly in the Lesser Himalayan Belt which are located in the north and south direction respectively and are demarcated by a prominent tectonic plane named as Main Central Thrust (MCT). By virtue of the disposition of MCT the rock masses exposed in the area are sheared/shattered and tectonized in nature. Mostly the quartzies of Garhwal Group augen gneisses and schist belonging to Central Crystalline are scantily exposed along the alignment corridor. These rocks have been dissected by four prominent joint sets which are given in the following table.

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TABLE

S. No.	Feature	Dip Amount	Dip Direction
1	J_1(bedding)	38^0	N 290
2	J_2(joint)	20^0	N 030
3	J_3(joint)	68^0	N 150
4	J_4(joint)	70^0	N 310

The rock masses exposed on the alignment slopes exhibits higher values of physical competency and their "Uniaxial Compressive Strength" at the site have been estimated 1. for quartzites ranging between 50 M Pa-100 M Pa and 2. for augen gneisses >250 M Pa. According to the rock mass rating these falls in the strong and exceptionally strong classes respectively. The rock are almost slightly weathered and oxidized in nature and they are almost widely spaced jointed.

The cross slope facets of the alignment are inclined at moderate to steep angle and largely these are formed of the composite soils comprised of the scanty angular boulders embedded in the sandy silty clay matrix. The soils exposed on the slope facets are "Stiff" to "Very Stiff" dense and compact in nature. Their "Undrained Shear Strength" has been assessed ranging between 400 K Pa to 500 K Pa.

As the area containing the present alignment falls in the close vicinity of MCT its effect is clearly manifested in its terrain and topography.

By and large the cross slopes of the alignment are stable and free from any mass wasting activity and the soils comprising the slope forming material are forming material are free from any soft/dispersive soils.

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

4- Recommendations:-

1. Form the road by half cut –half fill technique and do not blast on the river fragments and rock masses.
2. Do not dispose the excavated waste on the lower slolpes.

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3. The road must have adequate arrangements of long and cross drain systems especially the wide hill slide lined drain and sufficient numbers of scuppers etc. Safe disposal of drained water is equally important.
4. The drainage work must be taken up immediately after the excavation of the hill slopes.
5. Construct suitably designed retaining walls/ breast walls all along the road, it is essential for the overall stability of the hill slope.
6. The excavated surface of the road bench should not be left exposed uncovered for long period, otherwise, it must be sealed immediately.
7. Additional protection of the either side slope be made providing green engineering solutions.
8. All the construction activities should be carried out as per the Standard and codes of practice as suggested by the MORTH/ IRC for the Construction similar Structures.

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 5.00 km long motor road i.e. Chatiyar to Rajrajeshwari Mandir in Bhilangana Block, Distt. Tehri Garhwal.

23/9/2014

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

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