(52)

परियोजना का नाम – प्रधानमंत्री ग्राम सड़क योजना फेज–15 के अन्तर्गत सौरा–सारी–सिल्ला से पिलंग मोटर मार्ग (8.50किमी0) के निर्माण हेतु वन भूमि हस्तान्तरण प्रस्ताव। (कुल वन भूमि 6.740है0)

भू–वैज्ञानिक की आख्या

भू–वैज्ञानिक आख्या संलग्न है।

कनिष्ठ अभियन्ता,
पी0 एम0 जी0 एस0 वाई0,
सिंचाई खण्ड, उत्तरकाशी

सहायक अभियन्ता,
पी0 एम0 जी0 एस0 वाई0,
सिंचाई खण्ड, उत्तरकाशी

अधिशासी अभियन्ता,
पी0 एम0 जी0 एस0 वाई0,
सिंचाई खण्ड, उत्तरकाशी

(53)

Office of Empanelled Geologist
पत्रांक 622 / 148व्यक–सा0 / 13 दिनांक 15 / 05 / 2013
P.W.D. Uttarakhand

Geological Investigation Report
E.G. – Road / Bridge / Alignment
I.D, PMGSY, Uttarkashi – 01 / 2017

Geological Assessment of the Alignment Corridor Proposed For Malla Silla to Pilang Motor Road in Distt. Uttarkashi

06 March 2018

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Geological Assessment of the Alignment Corridor Proposed For Malla Silla to Pilang Motor Road in Distt. Uttarkashi

J.P. Madhwal
06/03/2018

Introduction :- The I.D, PMGSY, Uttarkashi, has proposed the construction of 8.500 Km. long motor road named Malla Silla to Pilang motor road under PMGSY Project on the request of the Executive Engineer, I.D, PMGSY, Uttarkashi. I carried out the geological assessment of the proposed alignment of the road in presence of the person of Combined Engineering Consultant, D.Dun on Dated 22/02/2018.

1. **Location:-** The proposed alignment originates from Km. 3 of Malla Silla Motor Road as a branch road. 60 m span bridge in x-s 1/3 to 1/6 and 8 H.P. Bends are proposed along the alignment.

2. **Geological Assessment:-** Geologically the area of the proposed road is located in the outer lands of Crystalline Himalaya Belt which is mostly occupied by the rocks of Crystalline Group. The Sericitic quartzite, Augen gneiss and Mica Schist are exposed along the alignment. These rocks are massive to thinly bedded, soft to very hard, compact and partially weathered in nature.

   Four prominent and one random joints set in addition to minor shear zone traverse these rocks and control the stability of the various slope facets of the alignment passes are inclined at moderate to steep angle and these are partially covered with the overburden material of varying thickness ranging from 0.5 m to 1.5 m thick. The rock mass exposed along the alignment corridor is mostly hard and its "Uniaxial Compressive Strength" has been estimated ranging between 50 M Pa to 100 M Pa (ISRM Manual Index). By and large the joints traversing the rock masses are widely spaced through except at places where the rocks is sheared and shattered. The values of the Rock Quality Designation (RQD) calculated at the site ranging between 71 percent to 90 percent suggests that the slope forming rock masses are less distressed in nature and decrease the risks of instability. All the joints planes of the rocks are rough to moderately smooth, tight and sometimes sealed with the secondary inclusion.

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The details of the joints recorded at the site are given in the following table:-

Table

S. No.	Feature	Dip angle	Azimuth
1	2	3	4
J_1	(S_0 Bedding Joint)	35^0	N175
J_2	(S_1 Foliation Joint)	25^0	N160
J_3	(Random Joint Set)	45^0	N220
J_4	(Sealed with Quartzite's)	65^0	N125
J_5	Joint	30^0	N300

The overburden material exposed along the alignment corridor is comprised of the scanty rock fragments of various shapes and sizes embedded in the clay- silt matrix. This overburden material is naturally well compacted and dense in nature.

*** The alignment is passing an old land slide zone from 7/25 to 7/40 In this regard I discussed with the engineers of the consultant and with the executive engineer PMGSY Uttarkashi, both side of the valley before the Pilang village there are land slide zones. There is no any alternate way to connect this village, so it needs the extra safety measurement to protect the land slide during the construction of road.**

By and large the alignment slopes are stable and do not bear any signature of mass wasting/land sliding.

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.

3. Recommendation:-

(i) The alignment some time traverses along/across minor fault zone which is geologically fragile and special attention needs to be given for stability of road where alignment crossing the Nalas or Gads or Local streams.

(ii) The hill slope is another factor responsible for geological hazards; the road basically traverses the slope class 34^0 to 55^0 special attention needs to be given for stability where it is 48^0 to 60^0 in some parts.

(iii) Special attention must be give at the point of H.P. Bend at the time of construction of road.

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(iv) Do not dispose the debris in hill side, dispose it in a safe zone.

(v) Do not blast heavily on the rocks and blasting is restricted near the human settlement / public property.

(vi) The road must have extra wide lined long drain with adequate cross drainage arrangement.

(vii) The road must be formed shoulder to shoulder paved, this is so to check the water ingress into the sub surface material.

(viii) Construct suitably designed retaining walls / Brest wall all along the road, it is essential for the overall stability of the hill slope.

(ix) The alignment between Ch. 7/25 to 7/40 passes across a large chronic land slide zone which for suitability of the construction of road it needs the extra safety measurement for the treatment of land slide.

(x) All the construction activity must be carried out as per the standards and norms following the IS codes prescribed for the similar civil construction in Himalayan Zone.

(xi) This report is prefeasibility report. At the time of construction it need separate geological concern.

4. 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 8.500 Km. long motor road named Malla Silla to Pilang motor road, Distt. Uttarkashi, Uttrakhand.

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