

RECONNAISSANCE GEOLOGICAL REPORT OF PROPOSED SITE OF SHRI SURESHANAND S/O SHRI RAMANAND FOR THE CONSTRUCTION OF OWNER DRIVEN CONSTRUCTION HOUSING (ODCH)
VILLAGE- GADOLI, TOK- AINANAMI, TEHSIL- BARKOT, DISTT.- UTTARKASHI
KHASARA NO – 1760(a) AREA – 0.044 ha

Date of Inspection: 20-12-2013

1. INTRODUCTION:

In a 'World Bank' funded programme, Government of Uttarakhand has provided teams of Consultant Geologists and Consultant Associate Geologists to Director, Geology and Mining Unit, Uttarakhand for geological studies in proposed sites for Owner Driven Construction House (ODCH) in disaster affected districts of Uttarakhand. Director, Geology and Mining Unit, Directorate of Industries, Uttarakhand has issued an Office Order No.1612 Aa. Pra./Bhu.Ni./Bhu.Khani.E./2013-14 dated 10th December 2013 regarding geological studies in disaster affected five districts of Uttarakhand. Uttarkashi is one of them. Thus undersigned traversed and collected field geological observations under the management of cosignatory departmental 'Assistant Geologist'.

In the above mentioned questioned area, the reconnaissance geological investigation was carried out in the presence and co-operation of Shri Bhupendra Singh Rana, Revenue Sub-Inspector, Gadoli, for proposed site of Shri Sureshanand S/o Shri Ramanand, Village-Gadoli, Tok- Ainanami, Tehsil- Barkot, Khasara No- 1760(a), and Area- 0.044 ha. The site is 15km approximately from Tehsil Barkot, District Uttarkashi, Uttarakhand from NH-123 (Delhi-Yamunotri National Highway) via Naugaon-Pounti-Rajgarhi Motor road and is 300m approximately from the Naugaon-Pounti-Rajgarhi Motor road by bridle path. It falls on coordinates – N 30°51.532' E 78°11.770' and elevation 1440m. The site is less populated.

2. GEOMORPHOLOGY OF THE PROPOSED AREA:

The proposed site is situated on a hill colluvial terrace and the general slope of the area is 12° -15° towards SSW direction and the downhill slope is 20°-25° towards SSW from the site. The slope is steeper 30°-35° in the uphill about 100-150m of the site towards SSW direction. The overburden thickness in the proposed site is about 15-20m approximately and is composed of sub-angular to angular fragments of Quartzite and phyllite of 2-5cm size. Some boulders of quartzite and phyllite of approximately 15-50cm size are also found around the site. The site is consolidated and on a manmade terrace. There is a 'Badi Gaad' Nala about 10-20m wide and approximately 40-50m in SW direction from the site flowing from North to South direction. The vegetation is sparse and is surrounded by cultivated fields.

3. REGIONAL GEOLOGY AND GEOLOGICAL OBSERVATION AROUND THE CONSTRUCTION SITE:

Uttarkashi valley exhibits characteristic rugged topography of the Lesser Himalayan terrain. The ground elevations generally vary between 1150m to 2000m above msl. The hill slopes in the area are generally observed to comprise of rocky outcrops, rocky cliffs and mantle of colluviums. The hill slopes in the area is generally moderately steep (25° - 35°) to steep (36° - 45°) while few escarpments or cliffs ($> 50^{\circ}$) are also present. Uttarkashi town is located in the Lesser Himalayan geotectonic block and it is bound by two major Thrust fault i.e. Main Central Thrust (MCT) and Srinagar Thrust (ST). The MCT can be traced to the northeast of Uttarkashi while the Srinagar Thrust lies in the southwest. Phyllite, metabasic and quartzite of Garhwal Group are exposed around the area.

Geologically, the area falls in the region of rocks of Bhatwari-Barkot Formation (= Chail) of Ramgarh Group of Lesser Himalayan terrain, the rocks are mainly phyllites, quartzites with intrusion. It should be emphasized that the quartzites, phyllites and metabasics (= Chail) directly underlying the crystalline are a typical phenomenon for all the Himalayas.

There are no in-situ rocks seen near the proposed site. The site is stable for the construction of the house.

4. GEOTECHNICAL OBSERVATION OF THE PROPOSED CONSTRUCTION SITE:

The slope is stable and there is an old Inter College building on downhill 2-5m in SSW direction from the proposed site. The soil type here is colluvial, brown color silty clay material and is about 2-5m thick.



A side view of the site from East direction.



A front view of the proposed site from South direction.

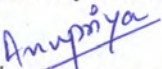
5. RECOMMENDATIONS:


Based on above surface geological observations of the proposed area the following remedial measures for construction of a geologically suitable house are recommended:

1. A retaining wall of 4m with proper weep holes must be constructed in SSW direction of the proposed site to protect the school building.
2. The foundation depth of the house must be as per the compactness of the overburden material in the proposed site.
3. The back, sides and premises of the houses must be made cemented to prevent subsurface seepage and a drainage channel must be constructed at the back of the house with a slope towards NW direction into the 'Badi Gaad' Nala for discharge of rain water and surface water.
4. Light roof and deep column must be constructed for the proposed houses.
5. The area falls in Lesser Himalayan earthquake zone IV so the houses must be erected with latest earthquakes resistive techniques, and scientific and technically sound craftsmanship.

6. CONCLUSION:


Prima-facie, the proposed site of Shri Sureshanand S/o Shri Ramanand is geologically feasible for the proposed construction, only if, the above mentioned recommendations will be followed strictly, otherwise, in their contravention; geological suitability will be deemed annulled.


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Date: 25th Dec 2013

Place: Camp Uttarkashi


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1. नाम रकम 2. का डिस्ट्रिक्ट पक्षधर का लक्ष्मी वरुणा के लिए उद्योगी प्रशासित प्रकिये के अन्तर्गत

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