

RECONNAISSANCE GEOLOGICAL REPORT OF PROPOSED SITE OF SHRI ANIRUDH S/O SHRI BAL KRISHNA FOR THE CONSTRUCTION OF OWNER DRIVEN CONSTRUCTION HOUSING (ODCH) TOK BAL KHELA, VILLAGE DIDSAARI, TEHSIL- BHATWARI- DISTRICT UTTARKASHI, UTTARAKHAND KHASARA NO – 2076 & AREA – 0.020 ha.

Date of Inspection: 11/12/13

INTRODUCTION:

In a 'World Bank' funded programme, Government of Uttarakhand has consummate teams of undersigned for geological studies in proposed site 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.

In the above mentioned questioned area, the reconnaissance geological investigation was carried out in the presence and co-operation of Shri Subodh Singh Rana, Revenue Sub-Inspector, Maneri for proposed site of Shri. Anirudh S/o Shri. Bal Krishna falls in Village Bal Khela, Tehsil- Bhatwari, 17 Km approx from District Headquarter Uttarkashi, Uttarakhand. It falls on coordinate – N 30^o 44.340' and E 78^o 32.974' elevation 4897 feet. The site is 2.5 km approx from NH-108 (Gangotri-Dharasu National Highway) through bridle path on the left bank of river Bhagirathi and is about 700-800m approx horizontal distance from the Bhagirathi river bank, in SW direction.

GEOMORPHOLOGICAL OBSERVATION OF THE AREA:

The uphill slope at the proposed site is 62^o in NW direction and the downhill slope is 57^o. The site is situated on overburden of about 150-200 m thickness. A 'Bal Khela Khala' Nala is passing nearby from about 60-65m distance flowing in NE direction. At the proposed site location is covered with thick alluvial soil. Around the proposed site location Pine vegetation was found.

GEOLOGY OF OBSERVATION OF THE AREA:

Regional Geological Details

Uttarkashi valley exhibits characteristic rugged topography of the Lesser Himalayan terrain. The ground elevations generally vary between 1150 to 2000 meters 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^o- 35^o) to steep (36^o- 45^o) while few escarpments or cliffs (> 50^o) 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 Netala Formation of Lesser Himalayan terrain. Quartzite with bands of limestone, phyllite and slate is fine grained, compact, massive in general, but jointed and fractured at places. The slope of the hill ranges between 25°-30° towards eastern direction. At few places insitu rocks are exposed in the plot whereas maximum plot area is covered with overburden. This overburden material comprising soil, hillwash and debris of varying size consisting of brown colored, fine to medium grained silty to gravely matrix with angular fragments of dolomitic limestone and a few brown fine grained shale etc., in which percentage of the angular fragments is more than the matrix. The major joint trends 240°/30° NW (Oblique to foliation plane) whereas minor joint trends 265°/40° NW.

Local Geological Observation

At about 30m above the proposed site there was insitu rock quartzite found, having dip direction S 75° E and dip angle 18-21° in SE direction, the rocks were weathered and jointed.



The proposed site for the construction

GEOTECHNICAL OBSERVATION OF THE AREA:

At the site thick alluvial soil cover and quartzite rock fragments of size 3-4cm in the soil matrix are found. At the proposed site the soil is consolidated, the rate of infiltration is high making the soil water saturation high as the area receive high rainfall. At the proposed site there is no inhabitation and also there is no plot boundary.

CONDITIONS AND RECOMMENDATIONS:

1. The site is nearby a Perennial 'Bal Khela Khala' Nala which is active in its flow and water discharge. At proposed site, the slope & the landmass is consolidated but due to high rate of water infiltration the proposed site is not much stable thus, proper foundation with a good depth is recommended to stabilize the site.
2. Inclined retaining wall at the back site minimum 2-3feet away from the structure is recommended.
3. Proper drainage for surface and sub-surface water discharge is strongly recommended.
4. Framed structure must be used as the area falls in the earthquake zone IV, and it is essential that the house must be constructed with latest earthquake resistive techniques.

CONCLUSION:

Prima-facie, the proposed site of Shri. Anirudh S/o Shri. Bal Krishna is geologically feasible for the construction of house, only if the above mentioned recommendations will be followed strictly, otherwise, in its contravention; geologically suitability will be deemed voided.


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