

RECONNAISSANCE GEOLOGICAL REPORT OF PROPOSED SITE OF SHRI SANJAY, PANKAJ S/O SHRI DILIP SINGH FOR THE CONSTRUCTION OF OWNER DRIVEN CONSTRUCTION HOUSING (ODCH) VILLAGE MANERI, TOK- BAGYAL, TEHSIL- BHATWARI- DISTRICT UTTARKASHI, UTTARAKHAND KHASARA NO – 1599, 1600 & AREA – 0.009 ha

Date of Inspection: 12/12/13

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 Sanjay, Pankaj S/o Shri Dilip Singh, Village Maneri, Tehsil- Bhatwari, Khasara No- 1599, 1600, Area-0.009 ha. The site is 15km approximately from District Headquarter Uttarkashi, Uttarakhand and is 1.5km approximately from the UJVN private road through bridle path. It falls on coordinate – N 30° 44. 636' E 78° 32.252', elevation 4927 feet. The site is on the right bank of river Bhagirathi and is about 200 m approx distance from the Bhagirathi river bank, in SE direction. The site is moderately populated.

GEOMORPHOLOGICAL OBSERVATION OF THE AREA:

The site is having a flat topography and is situated on top of the hill. The uphill slope is 37° and downhill slope is 28° towards SE direction. The overburden thickness is approx 10-20 m with quartzite boulders ranging in size from 20cm to 8cm approximately. 'Khir Gaad' is flowing at about 180m distance from the site in SE direction. There is a hill named Dhar Top at a distance of 70m in the backside of the site. There is low vegetation around the proposed site. The mountain hill at the backside of the site is moderately vegetated.

GEOLOGICAL OBSERVATION OF THE AREA:

Regional Geology

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°) 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.

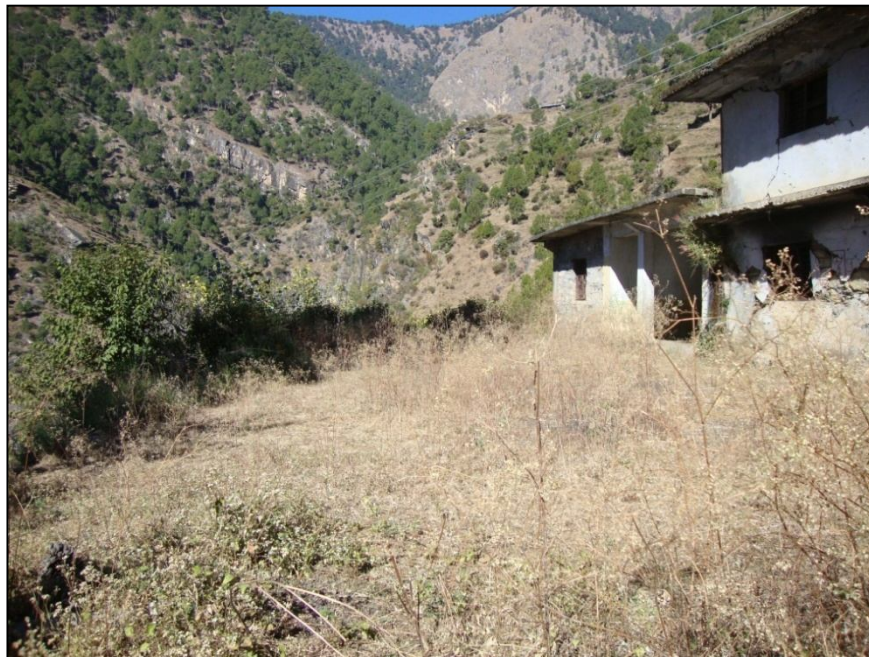
Geologically, the area falls in the region of rocks of Netala Formation of Lesser Himalayan terrain. Quartzite with bands of limestone, phyllite and slate is fine grained, compact, massive in general, but jointed and fractured at places. The slope of the hill ranges between 25°-30° towards eastern direction. 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.

Geology of Site

At the proposed site, no in-situ rock is found. The site is stable and compact. There are quartzite outcrops seen at about 350 m from the site in NW direction. The beds are dipping towards N240° with a dip of 28° and strike is N150°. There are three prominent joint sets found with orientation direction J1 along the dip, J2 parallel to strike, J3 is southward with 39° dip and J4 is seen randomly. The joint spacing of 1cm- 1.5cm is observed in some parts. There are fractures present with a spacing of 1-3cm approx in the rocks. The rocks are showing biological weathering.

GEOTECHNICAL OBSERVATION OF THE AREA:

The site is covered by soil debris with alluvial type soil along with fragments of quartzite in the soil matrix. There is no landslide history in and around the site as found by discussions with the villagers. At the proposed site the soil is consolidated and there is no plot boundary. Already there is a retaining wall at the toe of the site in the SE direction.



A close view of the proposed site for construction

CONDITIONS AND RECOMMENDATIONS:

1. The site is nearby a 'Perennial Khir Gaud' which is active in its flow and water discharge. At proposed site, the slope & the landmass is consolidated and stable.
2. A retaining wall should be constructed in the uphill side of the proposed site with proper weep holes at specific distances and a gap of 2-3ft must be kept between the backside wall of the house and the retaining wall.
3. A proper foundation with depth as per the overburden's compactness is recommended to stabilize the site.
4. The back, sides and premises of the proposed house to be made cemented for avoiding water seepage and proper drainage system for discharge of rain water from the uphill side as well as the household water is highly recommended.
5. Framed structure must be constructed 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 Sanjay, Pankaj S/o Shri Dilip Singh is geologically feasible for construction of house, only if, the above mentioned recommendations will be followed strictly, otherwise, in its contravention, geological suitability will be deemed voided.


(Anupriya Shah)
Consultant Associate
Geologist


(Vijai Kr. Sen)
Consultant Geologist

Date:
Place: Uttarkashi

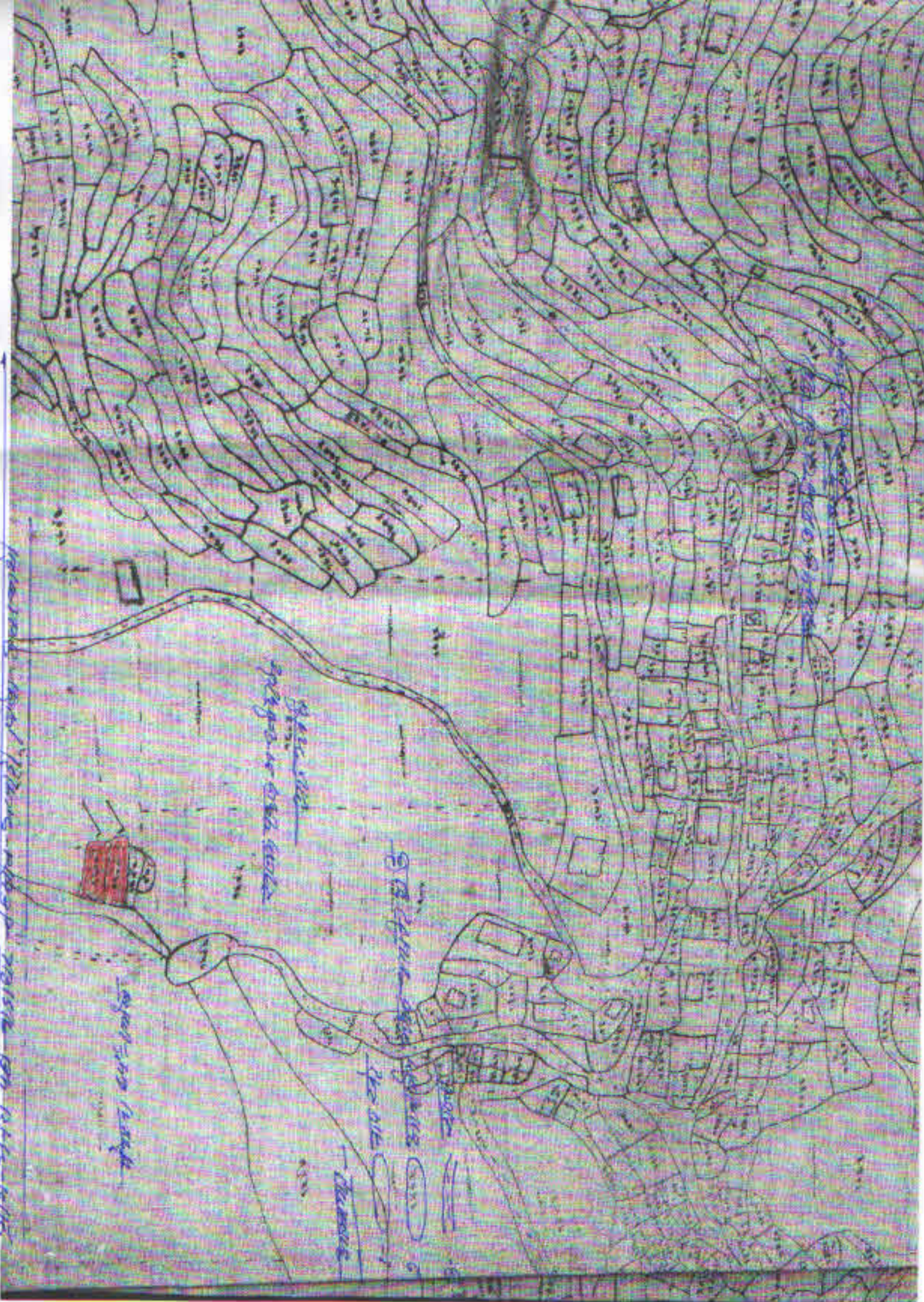

(Dipender Singh Chand)
Assistant Geologist

Handwritten notes in blue ink along the left margin, including the phrase "The road is very narrow for a village".



Handwritten notes in blue ink, possibly describing a specific area or feature on the map.

Handwritten notes in blue ink, possibly describing a specific area or feature on the map.



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Status of various items to be executed by the work/other agency (at least copies for reference for 3/7/11)

S. No.	Name of Project	No. of Hoppers to be constructed in appropriate column	On Gork Land By the Govt.	On Govt. Land By the Govt.	Status of Locations for Mine Provision	Approx. Distance from		Lay-out Plan with No. of houses marked	Completion Reports (Available/Not available)	Provision Supply (Available/Not available)	Availability of Site (Complete/In progress/Not started)	Availability of System at site (Complete/In progress/Not started)	Availability of System at job (Complete/In progress/Not started)	Availability of Site at the (Complete/In progress/Not started)	Location of Mine (Level/Not exist)
						By Road	By Foot								
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