

**RECONNAISSANCE GEOLOGICAL REPORT OF SHRI KUNWAR DAS S/o SHRI  
MAGSIRU LAL FOR THE PROPOSED CONSTRUCTION OF OWNER DRIVEN  
CONSTRUCTION HOUSING (ODCH)  
TOK-BHAYAN, VILLAGE-UDRI, TEHSIL- DUNDA, DIST.- UTTARKASHI  
KHASRA NO.-241,240 & AREA-0.020 ha.**

**Date of Inspection: 24-12-2013**

In a 'World Bank' funded programme, Government of Uttarakhand has teams for geological studies in sites proposed 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 10<sup>th</sup> December 2013 regarding geological studies in disaster affected five districts of Uttarakhand, Uttarkashi is one of them. Thus, undersigned have taken geological observation during traverses and collected field geological data 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 Pyar Singh Chuhan, Revenue Sub-Inspector Udri. The proposed construction site is located 60km away from district headquarter Uttarkashi, 5km by foot away from Lamgawan-Uttarkashimotor road. It falls on coordinate – N 30°34'37.8" E 78°31'2.7" and El.1656m from msl.

The proposed site situated on the overburden which is manmade flat hill terrace by old debris material. At 20m horizontal distance in the north direction on the left flank of Khurgad, about 1-1.5m approximate thickness of overburden, in overburden quartzite fragments 1-3cm in size with fine grain reddish brownish clayey soil matrix. Bedrock has been found surrounding of the proposed site. The proposed site is cultivated and low vegetated.

General slope of the proposed site is 20°-25°, hill side slope from proposed site trending 25°-30°, downhill slope trending 20°-25° westward.



Close view of proposed site

The proposed site is on coluvial deposited ridge on the westward sloping hill on the left bank of Khurgad. The bed rock quartzite is exposed along Khurgad nala approx 20m

away from proposed site in northward the dipping of bed is  $30^{\circ}$  in  $N30^{\circ}W$  direction and joints J1 dipping  $62^{\circ}$  in  $S30^{\circ}E$  direction, J2 dipping  $80^{\circ}$  in  $S30^{\circ}W$  direction and J3 dipping  $75^{\circ}$  in eastward direction. The exposed rock is dipping towards hill side and upstream.


### RECOMMENDATIONS:

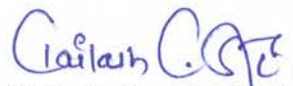
Based on above surface geological observations, the proposed area seems geologically suitable for the proposed building construction. The following remedial measures are recommended for safety:

1. A inclined retaining wall at the uphill and downhill side; with provisions of weep holes and sufficient gap of about 0.5-1.0m in between the backside retaining wall and the proposed construction should be constructed. And also, proper drainage system between the retaining wall and the wall of house should be developed.
2. The foundation depth of the house must be as per the compactness of the overburden material in the proposed site.
3. The backside retaining must be provided with screening material to keep the weep-holes passage clear for discharge of subsurface water to maintain stability of foundation of the house.
4. The soakpits and toilet foundations must be quiet away from the house so that the foundations are not directly affected from subsidence due to excessive seepage.
5. A minimum distance of 1.0-1.20m should be kept between the backside inclined retaining and the back wall of the house to avoid seepage into the house.
6. As the area falls in Lesser Himalayan earthquake zone IV, light weight roof, deep column, framed structure, and single or double storied house construction is preferable.

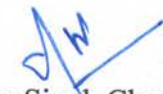
### CONCLUSION:

Prima-facie, presently, the proposed site of Shri Kunwar Das S/o Shri Magsiru Lal is geologically feasible for the proposed construction, only if, the above mentioned recommendations will be followed strictly, otherwise, in their contravention the geological suitability will be deemed void.

  
(Vivek Sahu)  
Associate Consultant  
Geologist

  
(Kailash Chandra Sati)  
Consultant Geologist

**Date:**  
**Place: Uttarkashi**

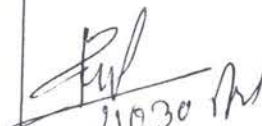
  
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