

**RECONNAISSANCE GEOLOGICAL REPORT OF SHRI RAJENDRA PRASAD S/o  
SHRI DEVENDRA PRASAD FOR THE PROPOSED CONSTRUCTION OF OWNER  
DRIVEN CONSTRUCTION HOUSING (ODCH)  
VILLAGE-BHATWARI, TEHSIL- BHATWARI, DIST.- UTTARKASHI  
KHASRA No.1730 & AREA 0.075 ha.**

**Date of Inspection: 21-12-2013**

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 Dinesh Chand Nautiyal, Revenue Sub-Inspector, Bhatwari. The proposed construction site is located 35km away from district headquarter Uttarkashi, nearby Dayara-Raithal motor way and 600m by footway away from Gangotri highway toward hill on the right bank of Bhagirathi river, and falls on alluvial deposits manmade flat land, at 600m horizontal distance in east direction of Bhagirathi river is present. The boundary of proposed site is bounded by agriculture land surrounding 200m area; at 100m south-west direction from proposed site Navala Nala is present. That proposed site falls on the coordinates N 30°48'31.6" E 78°36'55" and El. 1668m from msl.

The proposed site is situated on a hill top of Village Bhatwari. The overburden thickness in the proposed site is about 1-3m approximately with phyllite fragments of 1-3cm size with fine grain blackish gray soil matrix. The uphill slope is 25°-30° in E direction which increases after 100m from the site to 35°-40° and down hillside slope is 30°-35° towards E direction. There is perennial 'Navla' Nala about 100m from the site in South direction.

There is no water seepage, low vegetation and at present no settlement found the proposed site.



Valley side and side view of the site

## 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:

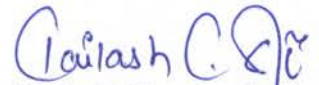
1. Inclined retaining wall at the uphill and downhill side with depth of foundation more than the foundation depth of the house, with provisions of weep holes and sufficient gap of about 0.5-1.0m in between the backside retaining wall and the proposed construction should be constructed and also, proper drainage system between the retaining wall and the wall of house should be developed.
2. The surface drainage should be properly planned through lined drain/pipe, so both, rainwater from uphill side as well as waste water from the existing houses to be release safe place at down-hill along a channel with more dimensions than that of maximum possible volume of water.
3. The foundation depth of the houses must be as per the compactness of the overburden material and on rock in the proposed site.
4. Inclined retaining wall at the toe of the proposed site with provision of weep holes at specific distance should be constructed
5. Massive plantation of trees, bushes and grasses which can hold the soil mass and retained the debris with dense and long rooted, wide/broad leafed flora must be done to protect the soil erosion and minimize the surface erosion of the subsurface rocks.
6. The soak pits and toilet foundations must be quiet away from the house so that the foundations are not directly affected from subsidence due to excessive seepage.
7. Framed structure must be used and light roof should be constructed, as the area falls in the earthquake zone IV, so it is essential that the house must be constructed with latest earthquake resistive techniques, scientific and technically sound craftsmanship with logical and favorable principles of soil mechanics.

## CONCLUSION:

Prima-facie, presently, the proposed site of Shri. Rajender Prasad S/o Shri Devender Prasad 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.



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सम्पत्तिका नामक मालकी मध्ये द्यावा लागेली ही राजेश्वर प्रकल्प  
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