

**RECONNAISSANCE GEOLOGICAL REPORT OF PROPOSED SITE OF SHRI  
ATAR SINGH S/o SHRI KANWAR SINGH FOR THE CONSTRUCTION OF  
OWNER DRIVEN CONSTRUCTION FOR HOUSING (ODCH)  
TOK SURKHIRLA, VILLAGE VARNIGAD MUGARSANTI, TEHSIL - BARKOT-  
DISTRICT UTTARKASHI, UTTARAKHAND  
KHASARA No. – 867 & AREA – 0.035 ha.**

**Date of Inspection: 24/12/13**

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 For Housing (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 Bhagat Singh Rawat, Revenue Sub-Inspector, Tiyan. It is 23Km approx from Tehsil Headquarter Barkot, Uttarkashi, Uttarakhand and the site is 16Km approx on Kanakopnal Motarmarg from NH-123 (Delhi-Yamunotri National Highway). It falls on coordinate – N 30<sup>o</sup> 43.328 E 78<sup>o</sup> 08.151 El. 4191feet. The proposed site is in Surkhirla Tok of village Varnigad mugarsanti which is less populated. At the proposed site, a temporary animal shelter is already present.

The proposed site is on colluvial material, which is consolidated and gently sloping. Man-made cultivated terraces are present. The uphill slope at the proposed site is 54<sup>o</sup>-56<sup>o</sup> and the downhill slope is 32<sup>o</sup>-34<sup>o</sup> approx sloping in N 320<sup>o</sup> direction. 'Varnigad' a tributary of Yamuna river is flowing almost 200m vertical distance from the proposed site, flowing in N 230<sup>o</sup> direction. At and around the proposed site location moderate vegetation is present.

At the proposed site location no in-situ rocks are exposed but, few boulders are embedded in the soil.



**Close view of the proposed site**

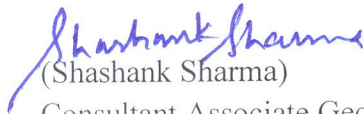
At the proposed site, thin soil cover is present and with few boulders of size 20cm to 1m approx embedded. Small rock fragments of limestone are present in the soil matrix. The soil is consolidated the rate of infiltration is low making the soil water saturation low. At and around the proposed site location the water seepage is low. In the uphill direction, at the back side of the proposed site at 1m approx distance Kanakopnal Motarmarg is passing through it so, a retaining wall is already present at the south-eastern back side and also a house is present next to the proposed land. The tree at the uphill side and around the proposed site are standing straight which shows that there is no active movement.


### RECOMMENDATIONS:

1. Inclined retaining wall at the south-eastern backside with provisions of weep holes and sufficient gap of about 2-3feet 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 rain water from uphill side as well as waste water from the existing houses to be release safe place at down-hill along a channel.
3. The foundation depth of the houses must be as per the compactness of the overburden material in the proposed site.
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 and differential settlement.
5. The premises and the foundation must be made 'pukka' in order to avoid excessive seepage of the surface water.
6. Framed structure with light roof must 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.

### CONCLUSION:


Prima-facie, presently the proposed site of Shri. Atar Singh S/o Shri. Kanwar Singh is geologically feasible for the proposed construction, only if, the above mentioned recommendations will be followed strictly, otherwise, in its contravention; geologically suitability will be deemed annulled.

  
(Shashank Sharma)  
Consultant Associate Geologist

  
(Vijai Kr. Sen)  
Consultant Geologist

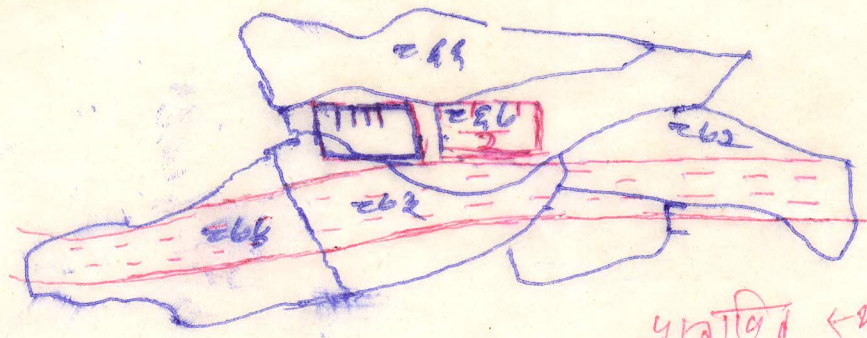
**Date:**

**Place: Camp Uttarkashi**

  
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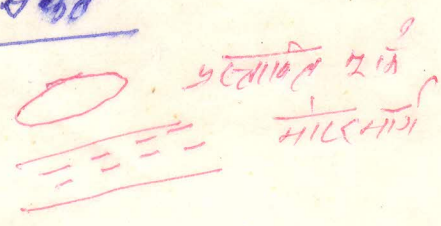
रास्ता ग्राम - बनिगाड (मुगरसरह) पहा - मुमसह, बरसील - बरहल  
 प्रजासिद - अवरसिद कुम बोरसिद ग्राम - नरसका

पैमाना 64<sup>५</sup> = 1 मील



प्रजासिद कुम अवरसिद

संकेत



मुमसह  
 03/03/13  
 रास्ता

रास्ता ग्राम - बनिगाड (मुगरसरह) पहा - मुमसह, बरसील - बरहल  
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