

कार्य का नाम :- जनपद पौड़ी गढ़वाल के विकासखण्ड जयहरीखाल में वड्डा मोटर मार्ग के किमी 0 6 से मलारा बड़ा तक मोटर मार्ग का निर्माण लम्बाई स्वीकृत 1.00 किमी 0, वास्तविक 0.925 किमी 0।

भू-वैज्ञानिक की आख्या

प्रस्तावित स्थल की भू-वैज्ञानिक द्वारा निर्गत अद्यतन निरीक्षण आख्या प्राप्त कर संलग्न की गई है।

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अधीन

माला
J.E.

[Signature]
सहायक अभियन्ता
ग्राम प. ख. म. म. वि.
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अधिसाक्षी अभियन्ता
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(भू-वैज्ञानिक)
नाम व मुहर सहित

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To,
The Executive Engineer
(Provincial Division)
PWD, Lansdowne

Subject: Submission of Geological Site assessment report of 1.0 Km long Tarkeshwar-Wadda motor road to Malara Bara motor road.

Dear Sir,

In response to your request of making a site visit for the assessment of the site selected for the construction of 1.0 Km long Tarkeshwar-Wadda motor road to Village Malara Bara motor road between CH 0.0 to 1.0 Km, in Rikhnikhal Block, district Pauri (Garhwal), a site visit was made on 13/02/2020 of which a report has been prepared. Therefore it is requested to please find report of the above mentioned site attached with this letter.

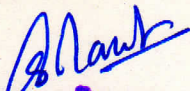
Date: 13/02/2020

Yours Faithfully



Tushar Sharma
(Assistant Geologist)
Office of the Chief Engineer
PWD (Pauri Zone)

द्वारा प्रिंट लिप्यादि



सहायक अभियन्ता
ग्रान्त य ख० लो० नि० वि०
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**Geological Assessment of 1.0 Km long Tarkeshwar-Wadda Motor Road to
Village Malara Bara Motor Road Alignment corridor between
CH 0.0 to 1.0 Km, Lansdowne Division,
District Pauri (Garhwal)**

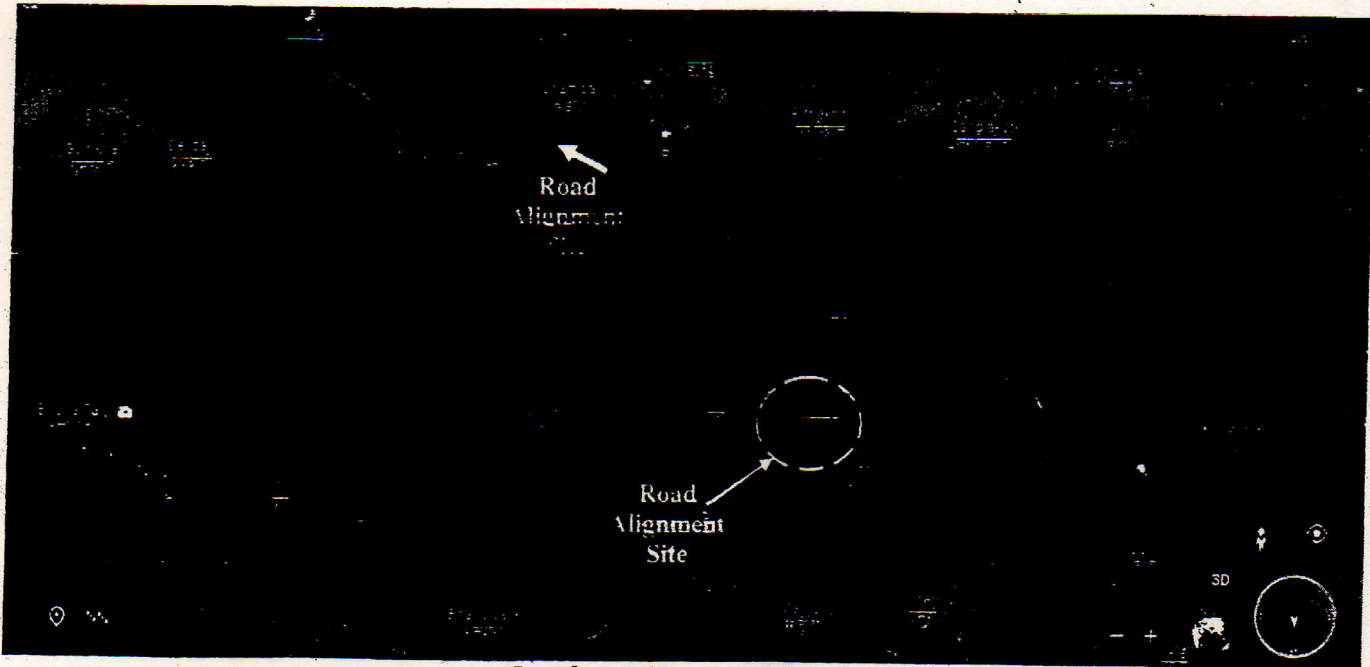
Tushar Sharma

09/05/2017

1- Introduction: The Provincial Division, Lansdowne, has been entrusted for the construction of 1.0 Km long Tarkeshwar-Wadda Motor Road to Village Malara Bara Motor Road between CH 0.0 to 1.0 Km. In order to assess the geological conditions of the road alignment site for its feasibility, Er. Viveka Semwal (Executive Engineer) Provincial Division, PWD, Lansdowne asked for a geologist to make a site visit. Consequent to his request a visit to the proposed road alignment site was made on 13/02/2020; Er. Mamta Rawat (Junior Engineer) PD PWD, Lansdowne was present during the site visit.

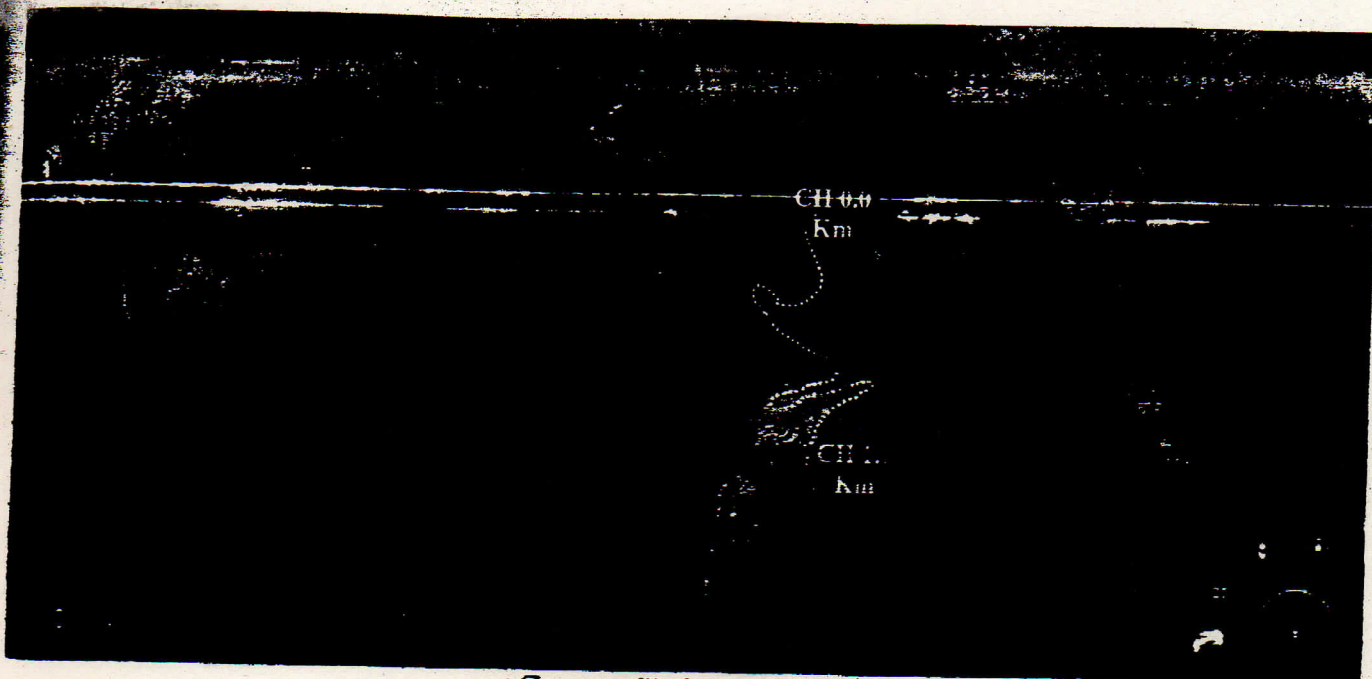
2- Topographical Information/Location: The above mentioned motor road alignment diverts from CH 6.0 Km of Tarkeshwar-Wadda Motor Road in Rikhnikhal Block, district Pauri. The coordinates along with elevation of the site at CH 0.0 Km are as follows:-

Latitude : 29°50'50.09"
Longitude : 78°47'47.07"
Approximate Elevation : 1535 M



Broader satellite view of the site

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Closer satellite View of the Site

3- Geological Assessment: Geologically the site and its surrounding area fall in the North Eastern extremity of Garhwal Syncline which contains Meta-sedimentaries of Garhwal Himalaya (Lesser Himalaya). The outcrop exposed in the area consists of Limestone-Black Shale to Phyllitic-quartzite and Quartzite rocks which belong to the Tal formation of Jamsar Group and Ramgarh Group respectively. The hill slope of the site area is gentle to moderately steep which declines at $\sim 30-35^\circ$ and is covered with overburden/ slope wash material. The road alignment passes through cultivation land (Naap Khet & Civil Land), vegetation area (pine trees and shrubs) along with little patches of jointed/weathered bed rock. The approximate strength of exposed rock mass is around $\sim 50-100$ MPa and has undergone W_1 to W_3 weathering grade. There are three hairpin bends on the motor road alignment at CH 0.125, 0.525 and 0.800 Km respectively. The road alignment overall has 1:18-1:20 of rising gradient and no falling gradient with 1:60 at gradient at the hair pin bends.

4- Seismicity of the area: According to Indian Standard code the site falls in seismic zone IV of seismic zoning Map of India (IS 1893, part 1, 2002) which corresponds to intensity VIII on MM scale.

On the basis of the geological inspection of the site studies carried and the facts given above, the following recommendations are being made for the construction of the proposed motor road failing to these recommendations this report will be automatically treated as cancelled.

5- Recommendations:

1. Blasting by explosives for the road construction is to be avoided as far as it is possible. Use of explosives will render the slope highly unstable as the slope consists of jointed/fractured rock mass and overburden/slope wash material.
2. Excavation work must be carried out by skilled manual workers as the rock slopes are prone to slide down in case of rapid disturbance.

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3. The slopes on either sides of the road must be protected by the construction of suitably designed retaining wall/ breast wall with proper weep holes, this work shall be carried out simultaneously with the advancement of the road cutting.
 3. Construction of large U-shaped longitudinal concrete lined drain all along the hill side of the road with adequate provision of cross drains is necessary.
 4. Construct the road by half cut and half fill techniques and compact the fill material properly by dynamic compaction.
 5. Disposal of muck and excavated waste on the lower slopes of this road is to be strictly avoided: failing to which will increase the weight of the lower slope resulting in the increase in driving forces. It is advised to dispose the muck on the identified site for muck disposal.
 6. All the construction activities ought to be carried out as per the standard codes of practice laid by the BIS and MORTH.
- 6- **Conclusion:** On the basis of the geological/geotechnical studies carried at the site and with the above recommendations, the site proposed for 1.0 Km long Tarkeshwar-Wadda motor road to Malara Bara motor road between CH 0.0 to 1.0 Km was found geologically suitable for construction.

Place: Provincial Division PWD Lansdowne

Date: 13/02/2020

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