

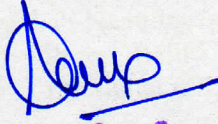
प्रारूप-33कार्य का नाम :-

जनपद पौड़ी गढ़वाल के विधानसभा क्षेत्र लैन्सडौन के विकास खण्ड नैनीडांडा के अन्तर्गत खंडोलिया खेत से कौला -पुलटण्डा तक मोटर मार्ग का नव निर्माण कार्य। लम्बाई (4.00) किमी०।

भू-वैज्ञानिक की आख्या

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

सहायक अभियन्ता
प्रा०खण्ड, लो०नि०वि०
लैन्सडौन गढ़वाल।


अधिसायी अभियन्ता
अधिसायी अभियन्ता
प्रा०खण्ड, लो०नि०वि०
लैन्सडौन गढ़वाल।

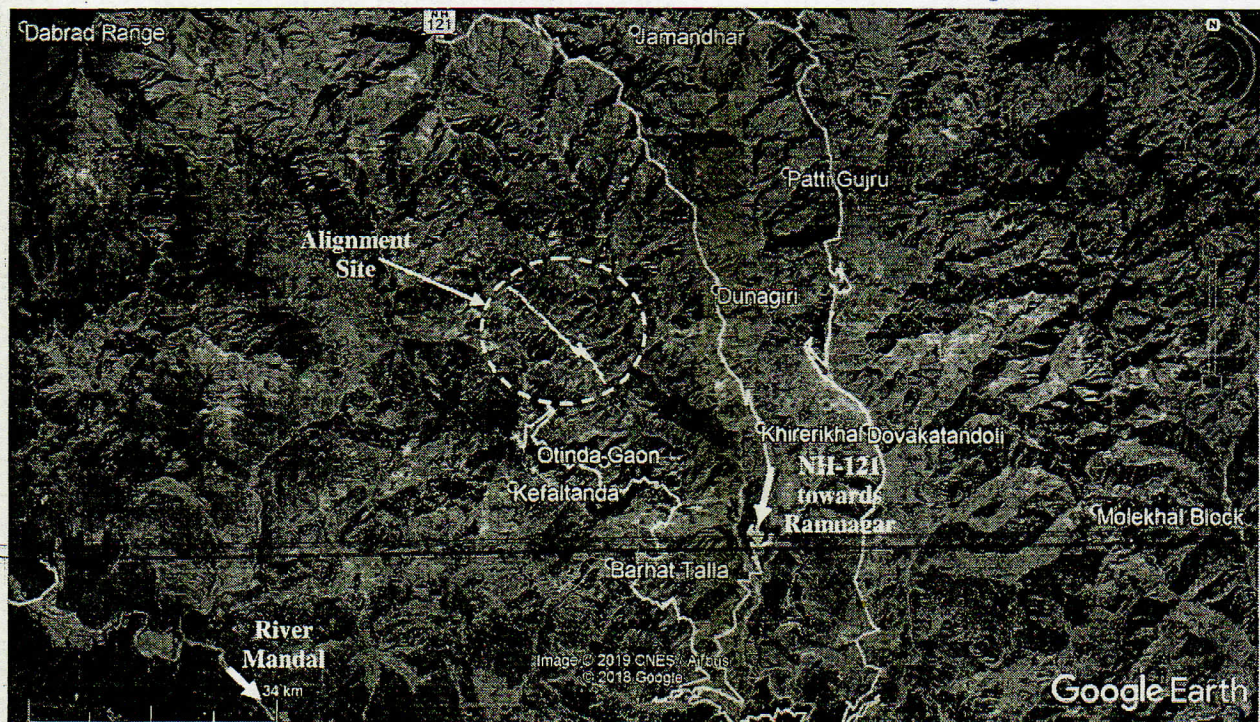
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Geological Assessment of 4.0 Km long Khadoliyakhet to Kaula-Pultanda
Motor Road Alignment corridor between Chainage 0.0 to 4.0 Km,
Baijro Division, District Pauri (Garhwal)

Tushar Sharma
06/12/2018

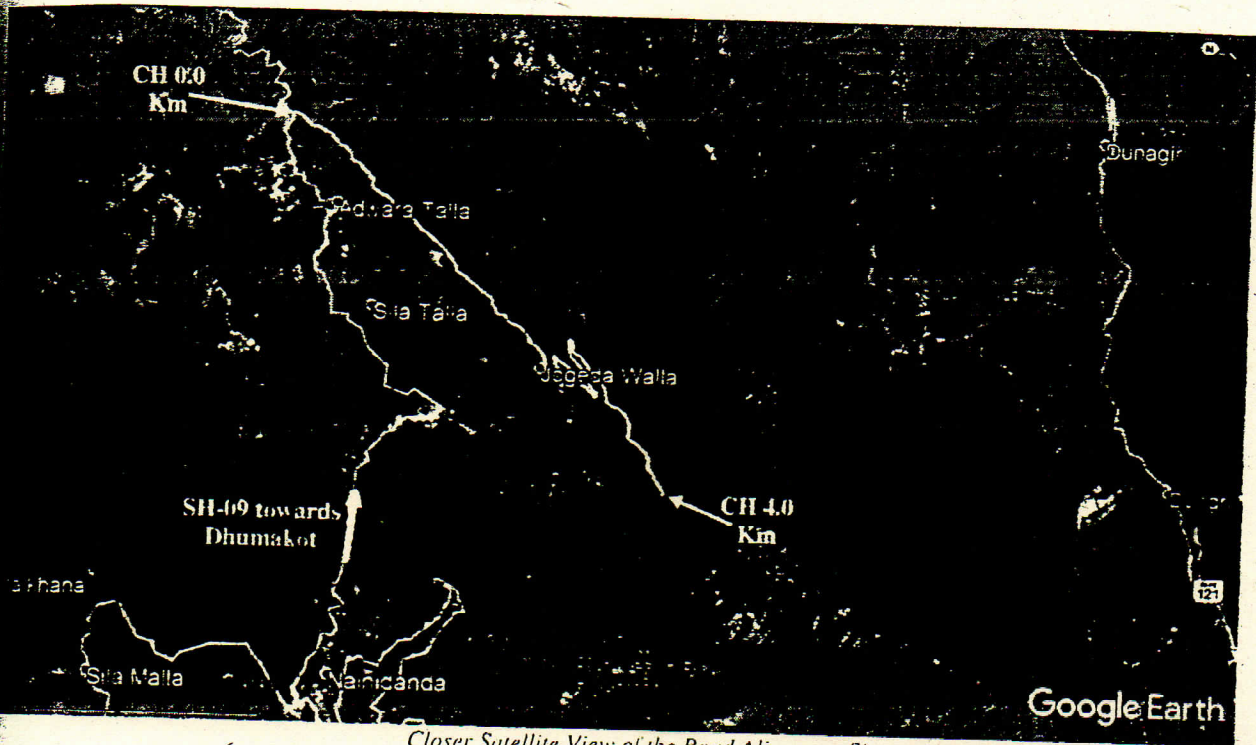
- 1- **Introduction:** The Construction Division, Baijro, has been entrusted for the construction of 4.0 Km long Khadoliyakhet to Kaula-Pultanda motor road from CH 0.0 to 4.0 Km. In order to assess the geological conditions of the road alignment site for its feasibility, Er. Adarsh Gopal (Executive Engineer) Construction Division, PWD, Baijro asked for a geologist to make a site visit. Consequent to their request a visit to the proposed road site was made on 14/10/2018; Er. Virendra Singh (Junior Engineer), camp office PWD, Adalikhal was present during the site visit.
- 2- **Topographical Information/Location:** The above mentioned road alignment site, diverts from CH 204 Km of SH-09 (Barrage-Laxmanjhula-Duggadda- Rathuadhab-Nainidanda-Dhumakot Motor Road) and connects Kaula Malla, Kaula Talla and Pultanda villages, Baijro Division in district Pauri (Garhwal). The co-ordinates along with elevation, masl of the site at CH 0.0 Km are as follows-

Latitude	:	29 42' 28.00"
Longitude	:	79 01' 35.45"
Approximate Elevation	:	1514 M



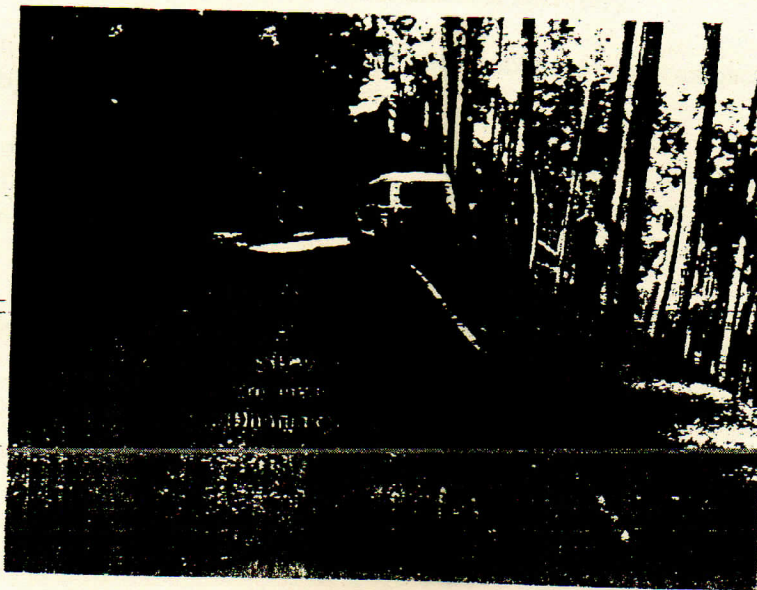
Broader Satellite View of the Site

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प्रालय ख० लो० न० वि०
सैनिक (गढ़वाल)



Closer Satellite View of the Road Alignment Site

Geological Assessment: Geologically, the road alignment site area falls under the Meta-Sedimentaries of Lesser Himalaya in the eastern most extremity of Garhwal Syncline. The area is in the vicinity of junction between Nagthar and Blaini formations of Jaunsar and Mussoorie groups respectively. The rocks exposed in the area consist of jointed Quartzite. But on the hill slope of the road alignment site rock outcrop is generally covered under thin to thick veneers of overburden and slope wash material over which there are trees (Van Panchayat) and cultivation land (Naap/Banjar Khet). The approximate strength of exposed rock mass is around ~ 100 MPa and has undergone W_0 to W_3 weathering grade. The hill slope of the road alignment is moderately steep which declines at $\sim 20-30^\circ$ towards North-East to East direction.



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View of road alignment at CH 0.0 Km

There are four hair pin bends on the alignment which are at CH 1.725, 2.0, 2.350 and 2.775 Km respectively. The road alignment has 1:24 of falling gradient and no rising gradient with 1:40 gradient at the hairpin bend.

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 road failing to these recommendations this report will be automatically treated as cancelled.

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 both rock and slope wash material.
2. Rock excavation must be carried out by the skilled manual workers as the rock slopes are prone to slide down in case of rapid disturbance.
3. The slopes on either sides of entire 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. This is very important for the stability of the hill side slopes.
4. Construction of large U-shaped longitudinal concrete lined drain all along the hill side of the road with adequate provisions of cross drains is necessary.
5. Construct the road by half cut and half fill techniques and compact the fill material properly by dynamic compaction.
6. 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.
7. All the construction activities ought to be carried out as per the standard codes of practice laid by the BIS and MORTH.

समस्त अति सन्तोषित

सहायक अभियन्ता

राज्य उ. व. वि. वि.

अ. स. वि. वि. (गढ़वाल)

