


परियोजना का नाम:-

राज्य योजना के अन्तर्गत जनपद चमोली के विधानसभा क्षेत्र कर्णप्रयाग में कर्णप्रयाग-नौटी- किरसाल मोटर मार्ग में खेत गधेरे से खेती जखेट चौरासैण तक मोटर मार्ग के नवनिर्माण हेतु 1.050 हे० वन पंचायत भूमि, सिविल वन भूमि 0.210 हे० एवं मकडिस्पोजल हेतु 0.150 कुल 1.410 हे० वन पंचायत भूमि /सिविल वनभूमि का लो०नि०वि० को हस्तान्तरण।

भू-वैज्ञानिक की आख्या

भू-वैज्ञानिक की आख्या संलग्न है।


अमीन

कनिष्ठ अभियन्ता

अस्थाई खण्ड लो०नि०वि०

गौचर



सहायक अभियन्ता

अस्थाई खण्ड लो०नि०वि०

गौचर



अधिशाली अभियन्ता

अस्थाई खण्ड लो०नि०वि०

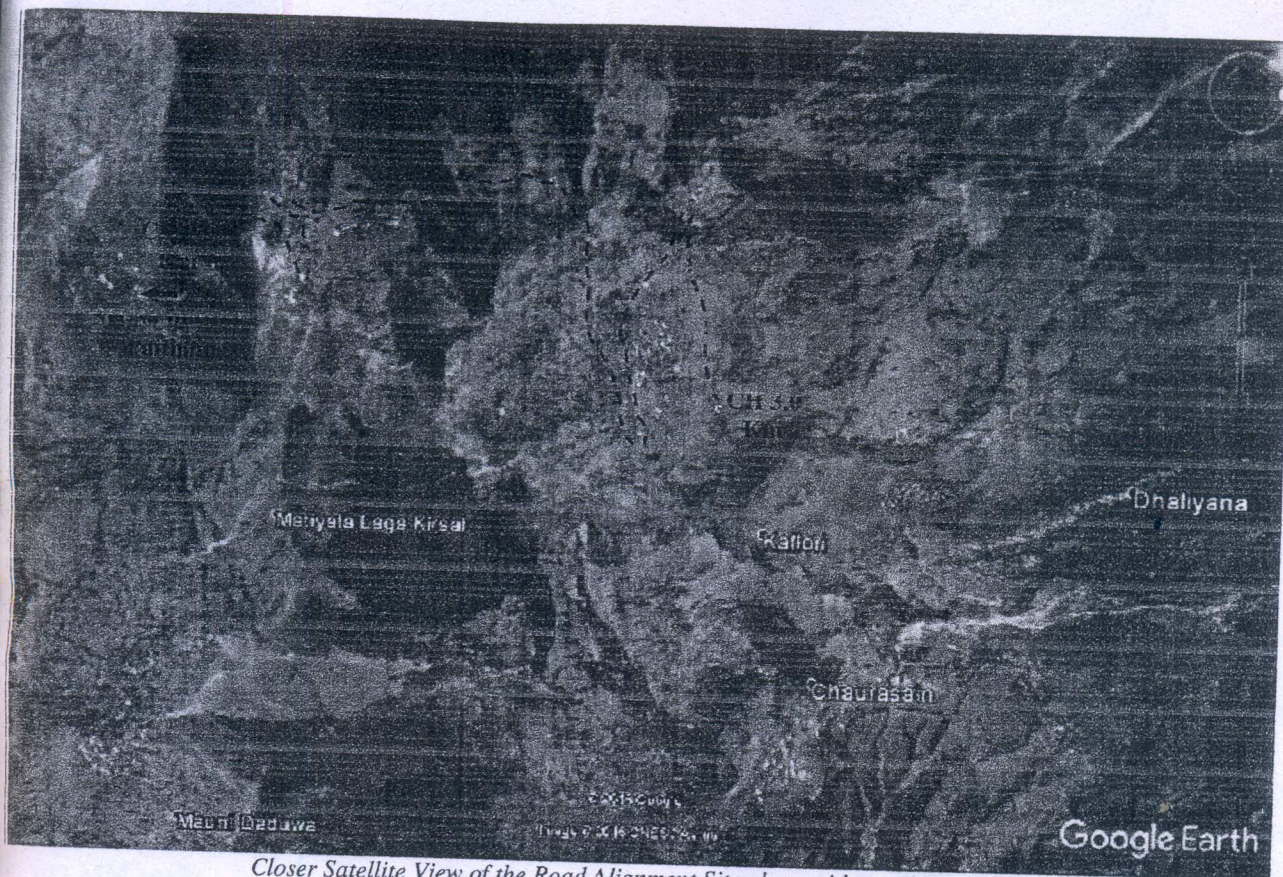
गौचर

21

District Chamoli

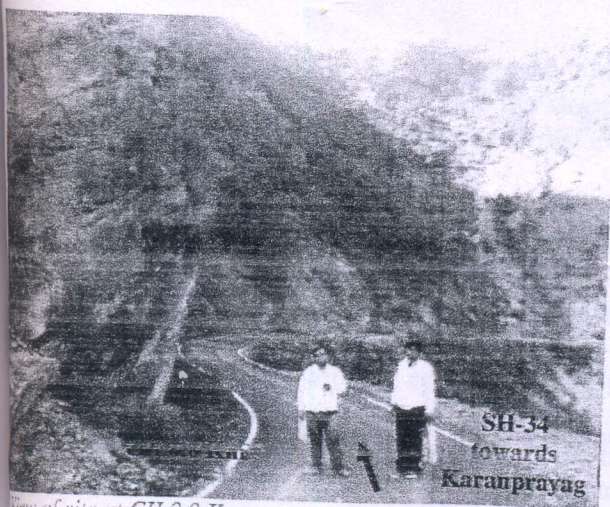
09/11/2016

सहायक अभियन्ता
असुवाई खास सो. नि. वि.
(गोवर, वडोली)

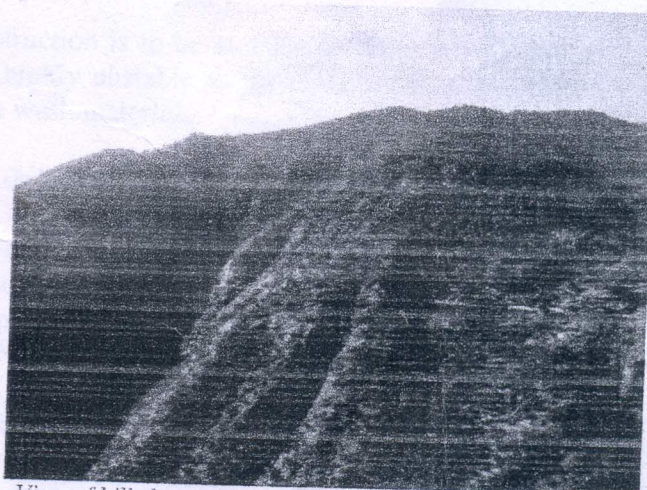


Closer Satellite View of the Road Alignment Site along with approximate HP bends

- 3- **Geological Assessment:** Geologically, the road alignment site area falls under Lesser Himalaya. The rocks exposed in the area consist of jointed and weathered Hard Quartzite, Quartzitic Phyllite bands which belong to Rautgara Formation of Damtha Group. But on the hill slope of the road alignment site rock outcrop is covered under thin to thick veneers of overburden and slope wash material with a few exposures of bed rock. At CH 0.250 Km there are two landslide scars which when disturbed may pose problems of slope instability especially during rainy season. The alignment is intercepted by a Nalla at CH 2.250 Km which may damage the road



View of site at CH 0.0 Km



View of hill slope of the alignment site from far

Handwritten signature and initials.

सहायक अभियन्ता
आयुक्त सड़क
गौरी (कमला)



Another view of hill slope of the site from far



Small slide scars below the CH 0.250 Km of alignment

especially during rainy season therefore a causeway/small bridge is to be constructed over it. The hill slope angle at the road alignment is moderately steep $\sim 30-50^\circ$. The approximate strength of exposed rock mass is around $\sim 50-150$ MPa and has undergone W_1 to W_3 weathering grade. There are four hairpin bends on the road alignment which are at CH 0.500, 0.925, 3.350 and 4.500 Km respectively.

4. **Seismicity of the area:** According to Indian Standard code the site falls in seismic zone V of seismic zoning Map of India (IS 1893, part 1, 2002) which corresponds to intensity IX or above 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.

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 might slide down in case of rapid disturbance.
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.
4. Utmost care has to be taken while construction of the road near CH 0.250 Km as there are two landslide scars which when disturbed may pose problems of slope instability especially during rainy season. Therefore, proper treatment of slope at this area has to be

done by scraping out loose rock and debris followed by building a gabion/concrete wall at its toe.

5. A causeway/small bridge is to be constructed over CH 2.250 Km over a nalla.
 6. Construction of longitudinal concrete lined drain all along the hill side of the road with adequate provision of cross drains is necessary.
 7. Construct the road by half cut and half fill techniques and compact the fill material properly by dynamic compaction.
 8. 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.
 9. 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 5.0 Km long Kheti Gadera-Kheti-Jakhet-Chaurasain Motor Road between CH 0.0 to 5.0 Km was found geologically suitable for construction.

Letter No: 2765-A / भू० वै०-07-पौड़ी / 2016

Date: 09/11/2016

Tushar Sharma

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

हस्ताक्षरित प्रमाणित

[Signature]
सहायक अभियन्ता
अस्थाई खण्ड ले०/नि०वि०
(गौघर, कमोली)