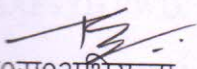


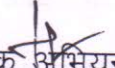
प्रारूप-33


परियोजना विवरण:- मा० मुख्यमंत्री घोषणा सं० 70/2017 के अन्तर्गत जनपद टिहरी के विकास खण्ड कीर्तिनगर के ग्राम धारी से बाग्यो तक मोटर मार्ग का निर्माण। (लम्बाई 3.000 कि०मी०)।

भू-वैज्ञानिक की आख्या

प्रस्तावित स्थल की भू-वैज्ञानिक द्वारा निर्गत अद्यतन निरीक्षण आख्या प्राप्त कर पृष्ठ संख्या 70.21 पर संलग्न है।


अ०स० अभियन्ता
अ०ख०लो०नि०वि०
कीर्तिनगर


सहायक अभियन्ता
अ०ख०लो०नि०वि०
कीर्तिनगर


अधिशाली अभियन्ता
अ०ख०लो०नि०वि०
कीर्तिनगर

Geological Assessment of 3.0 Km Dhari to Baagyon Motor Road Alignment corridor
between Chainage 0.0 to 3.0 Km, Kirtinagar Block,

District Tehri (Garhwal)

Tushar Sharma

27/04/2019

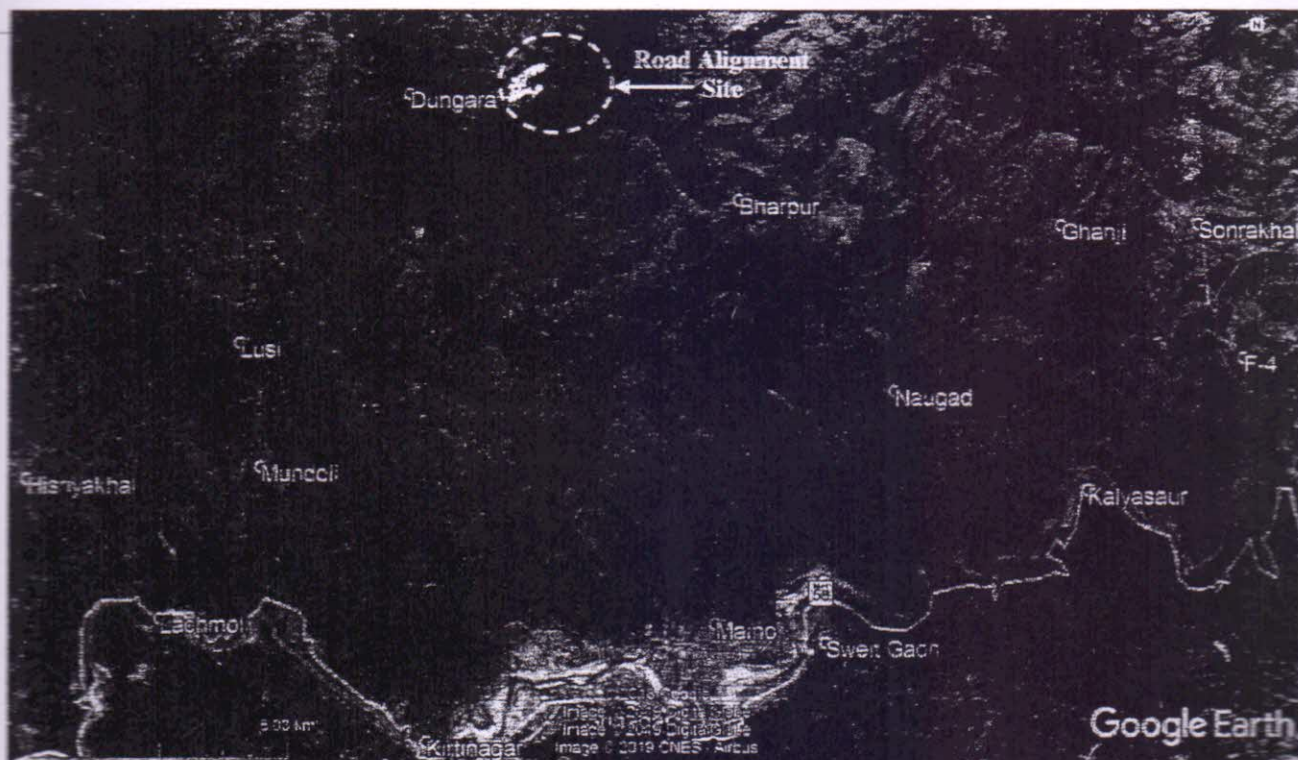
1- **Introduction:** The Temporary Division, Kirtinagar, has been entrusted for the construction of 3.0 Km long Dhaari to Baagyon motor road between CH 0.0 to 3.0 Km. In order to assess the geological conditions of the road alignment site for its feasibility, Er. Vinod Negi (Executive Engineer) Temporary Division, Kirtinagar asked for a geologist to make a site visit. Consequent to his request a visit to the proposed road alignment site was made on 04/04/2019; Er. Harshvardhan Maithani (Assistant Engineer) and Tripti Sharma (AAE) TD PWD, Kirtinagar was present during the site visit.

2- **Topographical Information/Location:** The above mentioned alignment site extends from CH 7.70 Km of Kholi-Dhar-Paiyaankoti Motor Road terminating at village Baagyon, in Kirtinagar block, district Tehri (Garhwal). The co-ordinates along with elevation, masl of the site are as follows-

Latitude : 30°19'41.59"

Longitude : 78°45'55.23"

Approximate Elevation :



Broader Satellite view of the Site

P. C. AMT

HP

सहायक अभियन्ता

अस्थाई खण्ड लो० नि० वि०

वीनगर-मु० कीर्तिनगर डि० ब०

P. C. AMT

सहायक अभियन्ता

अस्थाई खण्ड लो० नि० वि०

वीनगर-मु० कीर्तिनगर डि० ब०



Closer Satellite view of the Site with approximate hairpin bends

Geological Assessment: Geologically, the road alignment site area falls under the Meta-Proterozoic Sedimentaries of Lesser Himalaya in the vicinity of junction of Berinag, Chakrata and Deoban Formations of Jaunsar, Damtha and Tejam Group Respectively. The rocks exposed in the area predominantly consist of Dolomitic Limestone of Deoban Formation along with Quartzite of Berinag formation. The hill slope of the site area is moderate to steep which declines at $\sim 30^{\circ}$ - 50° and is covered with overburden/ slope wash material having vegetation (Naap and Civil Land) along with reserve forest land covered with Oak & Rhododendron trees with patches of hard jointed/weathered bed rock.



View of motor road alignment site near CH 0.0 Km



View of hill slope of the motor road alignment

P.C. Attended

Page 2 of 4

P.C. Attended

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वीनवर-मु० कातिनगर टि० ४२

सहायक अभियन्ता
अस्थायी खण्ड लो.नि.वि.
वीनवर-मु० कातिनगर टि० ४२

The approximate strength of exposed rock mass is around ~100-150 MPa and has undergone W_0 to W_2 weathering grade. There are two hairpin bends on the road alignment which are at CH 0.250. and 1.075 Km respectively. The road alignment has 1:20-1:24 of rising gradient and falling gradient with 1:40 gradient at the hair pin bends.

- 3- **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.

4- **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.
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 especially where the hill slope is steep. this work shall be carried out simultaneously with the advancement of the road cutting.
4. 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.
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.

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- 5- **Conclusion:** On the basis of the geological/geotechnical studies carried at the site and with the above recommendations, the site proposed for of 3.0 Km long Dhaari to Baagyon motor road between CH 0.0 to 3.0 Km was found geologically suitable for construction.

Letter No: 1092/भू०वै०- अ०ख० कीर्तिनगर टी० -पौड़ी/2019

Date: 27/04/2019

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

P.C. *Atm*
सहायक अभियन्ता
अस्थाई खण्ड लो० नि० वि०
बीनगर-मु० कीर्तिनगर टि० ब०

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अस्थाई खण्ड लो० नि० वि०
बीनगर-मु० कीर्तिनगर टि० ब०