

Dated: 07th November, 2025

CIRCULAR

To

1. The Chief Secretaries of all the State Governments/ UTs.
2. The Principal Secretaries/ Secretaries of all States/ UTs Public Works Department/ Road Construction Department/ Highways Department (dealing with National Highways and other centrally sponsored schemes).
3. The Chairman, National Highways Authority of India, G-5 & 6, Sector-10, Dwarka, New Delhi-110 075.
4. The Managing Director, NHIDCL, World Trade Centre, New Delhi-110029.
5. The Director General (Border Roads), Seema Sadak Bhawan, Ring Road, New Delhi-110 010.
6. All Engineers-in-Chief and Chief Engineers of Public Works Department of States/ UTs/ Road Construction Department/ Highways Departments (dealing with National Highways and other centrally sponsored schemes).
7. The Secretary General, Indian Roads Congress.
8. The Director, IAHE, Noida, UP.
9. All CE-ROs, ROs and ELOs of the Ministry.

Subject: Additional Augmented and Systematic Remedial Measures to Address Concerns regarding Construction of National Highways in Hilly Regions and Amendments to the RFP for DPR/EPC Document thereof- Reg.

Ref: i) Efile No.RW/NH-33044/55/2021-S&R (P&B) pt. /Hill Slope Monitoring (Computer No.219394) dated 28.11.2024

Madam/Sir,

Ministry has issued 'Expert Committee Report on Cost Effective Long-term Remedial Measures for Landslide Prone Areas in Hilly Regions' cited under reference for finalising investigations and mitigation measures to safeguard communities and infrastructure against the devastating impact of landslides in hill roads.

2. There are increasing instances of landslides during construction and during the operations period which continue to disrupt the movement of traffic. The issues were deliberated and it was noted that in the current scenario construction practices in hilly terrain especially the Himalayan region require improvement at planning, project preparation and execution stages so that proper protection measures are designed and implemented while allowing sufficient time for the hills to achieve time dependent stability. The need was felt to take additional augmented and systematic remedial measures on the basis of experienced gained over the years, issues encountered and feedback/suggestions received from the stakeholders which can be integrated with the existing practices seamlessly in the following areas:

Bidur Kaut Jla

- (a) Improvement in quality of Detailed Project Report through proper planning including slope stabilisation measures, wherever required, along the alignment, with available data and leveraging technology, requisite investigations and validation of DPR parameters including making use of historical data as available on online resources developed by the National Remote Sensing Agency;
- (b) Adequate provisions of hill slope protection measures in the scope of work;
- (c) Amendments in RFP for DPR and standard EPC contract agreement to incorporate special provisions related to hill roads;
- (d) Improvement in construction practices in hilly terrain;
- (e) Adequate time period of construction; and
- (f) Monitoring and early warning system for potential landslides.

In view of above, following has been decided:

3. Practices to be adopted during DPR Preparation

3.1 Route/alignment Selection/Widening Proposal: - Topography survey should be carried out for a **300m wide strip**, 150m each side of the center of the existing alignment or from center of the possible alignment using LIDAR/AI-Camera fitted UAV Drones. The base plan prepared using topographical data should be superimposed with Indian Landslide Susceptibility Map. Also, the landslide inventory of the past landslides should be collected and studied. Further, the slope movement mm/year should be analysed from the Digital Elevation Modelling (DEM) using INSAR or similar satellite imagery and historical data as available on online resources developed by the National Remote Sensing Agency. Considering vulnerability of the hills and construction capability, the route/alignment selection/widening proposal should be finalised irrespective of whether it is on hill side or valley side. Alternative options such as tunnels, bridges and viaduct should also be evaluated including its seismic analysis. The tension cracks in the crown area within the influence area/zone in a 300m wide strip should also be identified, if any, and marked on the map. The provision of repair of the identified tension crack should be considered in the scope of work of civil contract.

3.2 Provision of Additional Right of Way (RoW): - The requirements of land and access to the lands beyond RoW are inevitable during execution of protection works. Additional land should be acquired at culverts/structures locations to channelise hill side stream for the construction of catch water drains (CWDs) for effective interception and disposal of hill runoff which can lead to erosion, slope instability, and pavement deterioration. This provision is essential to prevent uncontrolled surface runoff from entering the formation, to prevent surface runoff from directly reaching roadways, buildings, or other critical structures. Also, to implement safety measures effectively additional land if necessary should be acquired at the locations where slope stabilization anchors (e.g., soil nails, rock bolts) extend beyond RoW.

3.3 Identification of Dumpsite Areas for Muck disposal: - The disposal of surplus or unusable excavated material and landslide debris is a major consideration in the design, construction and maintenance of hill roads. For new roads, the preferred approach is to design the road so that the excavated material can be fully utilized in construction of embankments and fill slopes within a short distance of source location, but this is often not feasible and may be uneconomic. Safe disposal of muck is therefore required. It is

experienced that during construction, the excess/unsuitable cut to spoil materials are being dumped in unplanned manner, resulting into blockage of river/channel flow path. The identification of disposal areas is carried out as part of the DPR. In view of the importance of safe muck disposal, it is recommended that the required no. of dumpsites should be included in Schedule-B of the EPC agreement along with its capacity based on likely generation of muck.

3.4 Sufficient Provisions of Protection Measures including drainage for Cut Slope and Valley Slope: Current DPRs lack adequate provisions for slope protection measures including drainage, leading to change of scope (CoS) during execution and contributing to delays and disputes. The structured approach as detailed below should be followed: -

- i) Protection measures including sub-surface & surface drainage provisions for cut slope and valley slope should be designed on the basis of detailed geotechnical investigation bore holes at identified critical locations—such as deep cut/fill sections, bridge abutments, soft ground zones, landslide-prone areas, or zones with abrupt changes in soil conditions carried out at an interval of 500m or closer as specified in applicable design standard along the project alignment to determine subsurface soil stratification and engineering properties of slope forming materials. This will facilitate accurate characterization of soil types and support the design of appropriate protection measures. In case of deep cut sections having height more than 6.0m, the depth of bore hole should be minimum to the depth of cutting above finished road level or 5.0m below competent stratum whichever is achieved earlier. For remaining locations, the provision of applicable standard prevails.
- ii) Large Shear Box testing should be performed on representative bulk samples, particularly for coarse-grained soils such as gravels or bouldery strata, where conventional shear box test is not appropriate.
- iii) The DPR should be based on geological and geotechnical investigations. Geotechnical investigation shall be conducted just after recession of monsoon to represent the weakest sub-soil condition.
- iv) As digital evidence, DPR Consultant should use software applications to authenticate with digital/photos/videos evidence that survey has been carried out. If required, PIUs/HQs will also check real time using cloud platform.
- v) DPRs shall include comprehensive technical reports including geotechnical basis report (GBR) and designs for slope protection measures for the project length.
- vi) DPR should include detailed working drawings, its specifications and associated quantities of work items for slope protection requirements for each km of road section based on above investigations carried out by the Consultants.
- vii) The design along with considered design parameters duly based on investigations and working drawings, its specifications and associated quantities of work items for slope stabilisation requirements shall be vetted and validated by renowned and reputed Government/academic institutions having expertise in the area. These drawings and investigations shall be part of the bidding documents and included in the scope of work. No patented product/readymade solution shall be proposed by the DPR consultant without detailed investigation and justification.
- viii) In Schedule-B under the **Clause of Protection Measures** following shall be firmed up by the Design Consultant duly vetted by Third Party as specified in sub-para 3.4 vii).

(a) **Sub-soil Properties (Density, c-phi) & Stratification for each bore hole location-** [value to be filled by DPR Consultant].

(b) **Water Level at each bore hole location-** [value to be filled by DPR Consultant].

(c) **R_u Pore Water Coefficient considered for analysis** - [value to be filled by DPR Consultant], maximum of the minimum value specified in IRC:75 and the value obtained on the basis of investigation].

(d) **Rock Properties (Core Recovery, Rock Quality Designation RQD, Geological Soil Index GSI and Rock Mass Rating RMR) for each bore hole location-** [value to be filled by DPR Consultant].

(e) **Minimum Length of Rock Fall Barrier, if applicable-** [value to be filled by DPR Consultant subject to minimum 3 fields each of length 8.0m in each section].

Any change in design parameters/upgradation of protection measures subsequently proposed by Contractor as change of scope (CoS) shall also be vetted by the same third party like THDCL, GSI and NIRM or any other reputed agency in this field.

3.5 Safeguard Communities abutting Right of Way: - DPR Consultant should geo-tagged & mapped along with its physical dimensions' length & width and photographic condition evidence along with date & time stamped for each and every structures/building (commercial/non-commercial), private land, land use, access roads, revenue & forest land within 100m each side of the edge of the proposed right of way (PRoW). DPR Consultant shall identify secondary intersecting/access roads/cross roads, design improvement thereof and incorporate all the required quantity and associated cost.

3.6 Stakeholders Consultation: - Forest Departments and State Governments should be consulted for works which are necessitated beyond RoW in forest lands for protection of forest and for protection of hill slopes including RoW such as construction of catch water drains (essentially beyond NH RoW on hill sides), side drains with catch pits, cut off drains, cross drainages with provisions of stone pitching, etc without forest clearance etc. The nearby residents should be regularly informed at all stages of the project development and advance warning may be issued through local administration/SDRF for any likely collapse/landslides.

3.7 Preparation of Schedule-H: - Schedule-H should be prepared considering construction period in hilly terrain. In initial period, Contractor shall do only the formation cutting and protection measures thereof in part length. The subsequent works shall start for those sections only where the formation cutting and protection measures remain stable. Accordingly the payment schedule of Schedule-H shall be prepared duly considering the required cash flow of the Contractor. ROs and PDs of PIUs shall ensure necessary facilitation and overall co-ordination for this purpose.

4. Modification in EPC Contract Document

4.1 Development Period: - EPC Contractor shall submit the updated inventory and condition map of each and every structures/building (commercial/non-commercial), private land, land use, access roads, revenue & forest land within 100m each side of the edge of the proposed right of way (PRoW) as detailed in Para 3.5. Also, video evidence with date & time stamped should be submitted.

4.2 Construction Period: - The time duration shall be calculated keeping in view project requirement and monsoon period in hill roads. Accordingly necessary changes in

Model contract document should be incorporated without any favourable financial advantage to the contractors for longer period such as deletion of bonus clause, etc.

4.3 Dumping Sites: - The contractor shall arrange dumping sites, if any, for stacking/ disposal of excavated material/debris. Un-controlled or inappropriate muck disposal can give rise to a variety of problems.

4.4 Change of Scope

4.4.1 The design principles and specifications should be adequately captured in DPRs based on necessary geological/ geotechnical investigations; any variations in quantities/ design principles & specifications during implementation substantiated by comprehensive investigations by contractors/ concessionaires shall qualify for change of scopes. Also, site conditions are substantially changed between time period of site survey/DPR preparation and actual execution on site. In most cases, extent of landslide is increased leading to contractual complications. In few cases, it is also observed that slopes are naturally stabilized, not requiring any treatment. Negative change of scope shall be considered for such cases.

4.4.2 Contractor should submit Geotechnical Report after detailed investigation along with design to AE/IE & Authority. The report should clearly mention the appreciable deviation from the GBR, parameters specified in subpara 3.4 viii) (a) to (e) and variation in site conditions with photographic evidences which necessitate variation in extent and upgradation of protection measures. Any change in design subsequently proposed by Contractor as Change of Scope (CoS) should also be vetted by the same institution as detailed in sub-para 3.4 viii) which originally vetted the DPR drawings in respect of above parameters.

4.4.3 The length, and height of protection works, drainage system, shotcrete, concrete cladding/Retaining structures, breast wall and other items specified in schedule 'B' or 'C' shall be treated as minimum requirements. The actual quantities as required on the basis of detailed investigations shall be determined by the Contractor in consultation with Authority and its Engineer and in accordance with the Specifications and Standards. Any increase in length up to 10% for the items measured in linear meter or area up to 10 % for the items measured in square meter of landslide location mentioned in the Schedule -B/C shall not constitute a Change of Scope, save and except any variations in the quantities arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13 of the EPC Contract Agreement.

5. Good Construction Practices

5.1 Design for slope stablisation measures: - Where the DPR has examined and provided for slope stablisation measures, the same shall be described in detail in Schedule B. In case the Contractor or Concessionaire proposes to deviate from the specified slope stablisation measures, he shall indicate the alternative proposed along with detailed design and supporting data and investigations. The Authority shall have the design with supporting data and investigations vetted from a specified Government agency having expertise in slope stablisation measures. However, where the DPR has not provided for slope stablisation measures, the Contractor or Concessionaire shall suggest slope stablisation measures along with detailed design and supporting data and investigations. In such cases too, the Authority shall have the design with supporting data and investigations vetted from a specified Government agency having expertise in slope stablisation measures.

5.2 **Construction in Stages:** - Construction should be done in stages. The initial period of about one year should be given for the cutting of hill slopes for the road and completion of protection works for stabilization of the slopes. The subsequent works shall be taken up for those sections only where the formation cutting and protection measures remain stable after one monsoon season. Consequential changes required in various schedules and contract agreement should also be made to avoid any confusion.

5.3 **Cutting of Slope:** - To ensure slope stability and minimize environmental impact, hill cutting should be carried out in stepped or benched sections rather than through complete or vertical cuts. Cutting should start from top to bottom. This method reduces the risk of landslides, improves drainage management, and facilitates safer construction practices. Additionally, protective works shall also be planned & implemented alongside with the excavation process.

5.4 **Deposition of Unusable Materials:** It should be deposited at designated dumping yard only to minimise valley side damage/ block path of channels/rivers.

6. Post Construction Maintenance

EPC Contractor has the obligations to maintain the project highway during Defects Liability Period (DLP). Fifty percent of the last milestone payment as specified in the contract document should be paid during each year of the DLP (equally distributed in each year of DLP) after producing certificate for satisfactory compliance to the maintenance obligations. Also, in the Contract Document EPC contractor should submit the unit rate of days works of different items required for the anticipated emergency works. Whenever there is a damage caused due to landslides or other disaster outside RoW for which EPC Contractor should have to deploy machinery and other emergency works as asked by the Authority, should be claimed as per day works and paid separately.

7. All project reports prepared through Consultants including under PMC contracts shall ensure needful compliance with above stipulations.

8. ROs and PDs of PIUs shall also ensure that Project Reports are in compliance with these provisions.

9. This circular shall be made applicable for all DPR consultancy works for hill projects which are issued on or after 30 days after the date of issue of this circular.

10. This circular shall be made applicable for widening or new construction projects in hilly terrain especially in the Himalayan region for which bids are issued on or after 60 days after the date of issue of this circular.

11. It is requested that the contents of the circular may be brought into the notice of all concerned for needful compliance.

12. All the concerned executing agencies of the MoRT&H are requested to modify the RFP for DPR /standard EPC document accordingly. (Appendix-I)

13. This issues with the approval of the Competent Authority.

Yours sincerely,
Bidur Kant Jha
07.11.2025
(Bidur Kant Jha)
Director

Copy to:

1. All CEs in the Ministry of Road Transport & Highways
2. All ROs of the Ministry of Road Transport & Highways
3. All CE(NH) of PWD/R&B dealing with National Highways
4. Technical circular file of S&R (P&B) Section
5. NIC-for uploading on Ministry's website under "What's new" & "Comprehensive Compendium Circulars with CODE 305.14.

Copy for kind information to:

1. PS to Hon'ble Minister (RT&H)
2. PS to Hon'ble MOS (RT&H)
3. Sr. PPS to Secretary (RT&H)
4. Sr. PPS to DG (RD) & SS
5. Sr. PPS/ PPS to Addl. Secretary (Road Safety)/ Addl. Secretary (RT&H & LA)
6. Sr. PPS/ PPS to AS&FA
7. Sr. PPS/ PPS to all ADG (KB)/ ADG(SC)/ ADG(RS)
8. Sr. PPS/ PPS to JS (RT&MVL)/ JS (EIC) / JS (Logistics)/ JS (NHIDCL)

Appendix-I

Necessary modifications in RFP for DPR

Sr. No.	Reference of the Circular	Identified Clauses/Sections of RFP for DPR need modifications
1	Para3.1	4.11.1. Reconnaissance and Alignment; 4.11.2.(4) Topographic Surveys; 10.3 Alignment options report; 10.9 Draft Detailed Project Report (DPR)
2	Para 3.5	4.11.2.2 Details of utility Services and Other Physical Features
3	Para 3.4	4.11.4.4 Geo-technical Investigations and Sub-Soil Exploration; 10.9 Draft Detailed Project Report (DPR); 10.11 Bid documents and Technical Schedules
4	Para 3.2	3.1 RoW and Land related aspects; 10.6 Land Acquisition Report
5	Para 3.6	4.1 Primary Tasks(ii, a); 11. Interaction with <Agency>
6	Para 3.3	10.9 Draft Detailed Project Report (DPR)
7	Para 3.7	10.11 Bid documents and Technical Schedules
8	Para 4.2	10.11 Bid documents and Technical Schedules
9	Para 3.3	10.11 Bid documents and Technical Schedules

Badr Kumar Jha

Sr. No.	Reference of the Circular	Identified Clauses/Sections of RFP for DPR need modifications
10	Para 5.1, 5.2, 5.3	10.11 Bid documents and Technical Schedules
11	The remaining provisions of the circular not covered elsewhere	May be added to SUPPLEMENT-I ADDITIONAL POINTS TO BE CONSIDERED FOR HILL ROADS IN ADDITION TO POINTS COVERED IN MAIN TOR

Necessary modifications in Standard EPC Document

Sr. No.	Reference of the Circular	Identified Clauses/Sections of Standard EPC Document need modifications as per DPR
1	Last sentence of Para 3.1 of the circular	Annex-I, Schedule B, 12 (Special Requirements for Hill Roads)
2	Para 3.2	Annex-I, Schedule B, 2 (iv) Right of Way
3	Para 3.4	Annex-I, Schedule B, 4 Road Embankment and Cut section
4	Para 3.5	Schedule-A Site of the Project
5	Para 3.7	Schedule-H Contract Price Weightages
6	Para 4.1	Article 8, 8.2 Procurement of the Site
7	Para 4.2	Schedule-H, Clause 19.20 (Bonus for early completion) to be deleted
8	Para 4.3	Annex-I, Schedule B, 12 Special Requirements for Hill Roads
9	Para 4.4	Article 13, 13.1 & 13.2; Change of Scope Annex-I, Schedule B, 13
10	Para 5.1, 5.2	Annex-I, Schedule B, 12 Special Requirements for Hill Roads
11	Para 5.3	Annex-I, Schedule B, 12 Special requirements for Hill Roads
12	Para 6	Article 14; Maintenance Article 17; Defect Liability Period Article 19.16 Payment
13	The remaining provisions of the circular not covered elsewhere	Annex-I, Schedule B, 12 Special requirements for Hill Roads

Bidder want the .