

NO. NHIV-50 (20)/77

Dated the 27th September 1977

To

The Chief Engineers/Addl. Chief Engineers of the State P.W.D's and Union Territories
(dealing with National Highways)

Subject: Fixation of the deck level of High Level bridges and culverts across cross—drainage for National Highways

The deck levels of high level bridges and culverts are generally fixed after allowing for the necessary vertical clearances in accordance with the provisions contained in Clause 106 of I.R.C. Bridge Code Section I. This, in some cases, may result in the deck levels as worked out being lower than the finished road formation level of the approaches, arrived at after allowing for the necessary vertical clearance of 1 metre for the subgrade level above the designed H.F.L., in accordance with para 2 of this Ministry's circular letter No. PL-67 (12)/76 dated 10th Sept. 1976 (copy enclosed for ready reference).

2. In order to ensure that such abrupt changes in longitudinal profile of the road are avoided, it has now been decided that in all such cases, the bridge or culvert deck levels shall be raised to be in line with the finished adjoining road formation levels, and in no case should the clearance above the affluxed H.F.L. to the top of finished deck level be less than 1.75 metres. This is also subject to the minimum free board requirement above the affluxed HFL to the bottom of deck as specified in Clause 106 of Section I of IRC Bridge Code being duly satisfied.

3. These instructions shall be kept in view while preparing proposal for new bridges and culverts and wherever possible may be incorporated in all other cases which have yet not been put to tender.

4. These instructions shall, however, not apply to cases where the finished road formation level has been kept higher from other considerations e.g. bridges on valley curves/bridges, over-bridges and under-passes, etc.

No. PL-67 (12)/76

Dated the 10th September, 1976

To

The Chief Engineers/Addl. Chief Engineers of State PWDs and Union Territories (dealing with National Highways)

Subject: Fixation of grade-line for new roads/sections of existing roads proposed to be raised

An important consideration in the design of new roads, or the raising of existing sections due to submergence, is the fixation of grade-line with reference to HFL or the water table. Present instructions of the Ministry contained in circular letter No. NHI-36 (2)/70 dated the 2nd April, 1970, are that the subgrade should be kept at least 2 ft. above the HFL and in the case of water-logged conditions, due consideration should be given to the raising of formation to a suitable level above the subsoil water level as well or adoption of other recommended measures against water-logging.

2. Since, National Highways occupy a key position in the country's road network, and it is desirable to keep these open to traffic with least disruption, in modification of the earlier instructions it has now been decided that the subgrade level on new roads or sections proposed to be raised should be kept at least one metre above the HFL. Where waterlogging conditions apply, after careful examination of the involved factors, the embankment should be raised to a suitable level above the water table as well, and other measures such as deep drains/capillary cutoffs adopted on the lines of IRC:34-1970 "Recommendations for Road Construction in Waterlogged Areas" so that the subgrade is not saturated due to capillary action.

3. In fixing the design HFL, care should be given to the possible rise in water level due to such factors such the embankment of the road itself, construction of the Waterway at bridges, and gradual accretion of water level because of siltation of the drainage courses. Where submersible section of an existing road is to be raised, additional cross-drainage facilities should be provided, as required, so that cross flow of flood waters is ensured that without any heading up.

4. In general, when raising proposals are formulated, effect on adjoining section of the highway should also be simultaneously considered. It will be advisable to frame an integrated plan for a stretch of reasonable length than designing piecemeal proposals for short sections.