

No. RW/NH/33044/2/88/S&R

Dated, the 9th May, 2000

To

The Chief Secretaries/Secretaries (PWD/Roads) of all State Governments/Union Territories; Chief Engineers of all State Governments/Union Territories (dealing with National Highways & Centrally Sponsored Schemes); Director General Border Roads; Chairman, National Highways Authority of India.

Subject : Width of Bridges on National Highways

Instructions were issued vide this Ministry's letter of even number dated 21.9.1990 regarding width of bridges to be provided on National Highways. The matter has been reconsidered in the light of revised IRC Codal provisions with due consideration for enhanced safety of vehicles/pedestrians using the bridges. The following revised guidelines are now issued in supersession of the earlier instructions referred to above. These guidelines are applicable essentially to future cases. For situations not explicitly covered by these guidelines, the Ministry will take the decision on a case-to-case basis.

2. GENERAL

The basic approach is that the overall width of all bridges irrespective of their lengths or location (rural, urban, plain or hills) shall be compatible with that of the road adjacent to it. As such all bridges should have width between the outermost faces of the railing kerbs equal to the roadway width of the approaches.

3. BRIDGES ON TWO-LANE NATIONAL HIGHWAYS

3.1. New bridges and those being reconstructed on two-lane National Highways

3.1.1. Overall width between outermost faces of the railing kerbs shall be equal to the full roadway width of the approaches subject to a minimum of 10 m for hill roads and 12 m for other cases, as shown in the sketch at *Annexure-I* for bridge without footpaths and *Annexure-II* for bridge with footpaths.

3.1.2. These bridges will have a two-directional camber. However, when widening to 4-lanes is carried out in future, suitable transitions may be provided in the approaches for the change in two-directional camber on the bridge to unidirectional camber on the road.

3.2. Existing bridges on two-lane National Highways

On two-lane National Highways being improved by way of provision of 1.5 m paved shoulders on either side, widening of the existing bridges wherever feasible should, as far as possible, be done simultaneously so that the cross-sections on the bridge and approaches match each other. If widening is not feasible, the existing bridge deck may be replaced where the bridge deck is very old, weak and narrow, causing traffic bottleneck. In any case, replacement of the existing bridge deck shall not be done on a routine basis and shall be decided on case-to-case basis. In some cases, an entirely new bridge may have to be constructed for which decision shall also be taken on a case to case basis.

4. BRIDGES ON FOUR-LANE NATIONAL HIGHWAYS

4.1. New bridges on four-lane National Highways

4.1.1. On four-lane National Highways, the overall width of the bridge deck shall be equal to roadway width of the approaches with distance between the inner kerb lines in the median portion equal to the median width of the approaches. Normally, the total width shall be 24 m (9.75 + 4.5 + 9.75) between the outer faces of railing kerbs vide sketch at *Annexure-III* for bridge without footpaths and *Annexure-IV* for bridge with footpaths.

4.1.2. Where median width is more than 4.5m or where the two carriageways are at different levels due to site constraint, two independent bridges shall be provided, i.e., one bridge for each direction of travel. When the

median width is less than 4.5 m, it is still preferable to provide two separate bridges for the two carriageways. In such cases, crash barriers shall also be provided at the location of the median side kerbs of each carriageway with due consideration for safety. The width of each independent bridge shall be such that the outer edge of the railing kerb on the left hand side shall be in line with the outer edge of the roadway of approach road. Normally, this would be equal to 9.75 m between inner-face of median/ right railing kerb and the outer face of the left railing kerb.

4.1.3. Each carriageway shall have unidirectional cross slope/camber.

4.2. **Bridges on four-lane National Highways where an additional two-lane bridge is being constructed parallel to the existing two-lane bridge**

4.2.1. For the additional two-lane bridge, total width shall be 9.75 m between inner face of median / right railing kerb and the outer face of the left railing kerb with unidirectional cross slope/camber.

4.2.2. If feasible, the existing two-lane bridge shall also be widened to 9.75 m. However, it is not necessary to replace an existing bridge of sound condition merely to provide 9.75 m width. In case the existing bridge is left without widening to 9.75 m width, proper transition may be provided over approaches to ensure smooth flow of traffic as per this office Circular No. RW/NH-33022/1/94-DO-III dated 24.6.94.

5. **MULTI-LANE BRIDGES WITH SIX-LANES; EIGHT-LANES, ETC**

5.1. The overall width between the outermost faces of the railing kerbs of the bridge shall, as far as possible, be the same as the full roadway width of the approaches. The width of the median in the bridge portion shall be kept same as that in the approaches unless it is not possible to do so due to site constraints.

5.2. The general procedure to be adopted in the case of new bridges and widening the existing bridge shall be the same as given in para 4 above, except for the width of the carriageways which will be equal to the number of lanes $\times 0.5 \text{ m} + 0.5 \text{ m}$ conforming to Clause 112.1 of IRC:5-1998.

6. **MEDIAN**

6.1. The width of median in the bridge portion shall, as far as possible, be kept same as that in the approaches. In case width of median is different from that of approach section due to site constraint, proper transition and safety measures may be provided over approaches as per this Office Circular No. RW/NH-33022/1/94-DO-III dated 24.6.1994.

6.2. Where two separate bridges have been provided for each carriageway as per para 4.1.2. above, suitably designed transition guard rails with buried ends or a New Jersey type barrier shall be provided on the immediate approaches conforming to this Office Circular referred in para 6.1 above.

7. **FOOTPATHS**

7.1. In urban areas, footpath of minimum width of 1.5 m may be provided. In rural areas also bridges should preferably be provided with footpaths keeping in view the likely growth of vehicular as well as pedestrian traffic in future particularly when such a facility cannot be added to at a later date.

7.2. In case of divided carriageways, footpath shall be provided only on left side of the carriageway for each direction of traffic.

7.3. Wherever footpath is not provided, safety kerb has to be provided as per Clause 111.3 of IRC:5-1998.

7.4. Provision of footpath for bridges in rural areas particularly for very long bridges shall be considered on case-to-case basis.

7.5. In case of very high volume of pedestrian traffic, the provision of footpaths more than 1.5 m width or a separate pedestrian bridge may be considered depending on site condition.

7.6. Where footpaths are provided, pedestrian railings may be provided at the riverside edge for the protection of the pedestrians.

8. CRASH BARRIERS

8.1. Crash barriers shall be provided for all bridges on National Highway to safeguard against errant vehicles.

8.2. Where footpath is provided, the crash barrier shall be so located as to separate main carriageway from footpath for the safety of pedestrians.

8.3. The type design for the crash barrier may be adopted as per IRC:5-1998. Alternatively, suitable design may be evolved and got approved from competent authority before application. However, steel crash barriers shall be provided between footpath and carriageway in the case of bridges on 2-lane highways.

8.4. Suitable transition may be provided near approaches wherever required for guiding vehicular traffic as per this Office Circular No. RW/NH-33022/1/94-DO-II dated 24.6.1994.

9. EXTRA WIDTH ON CURVES

Extra width on curves shall be provided for the bridge as per IRC codal provisions applicable for road section, if the bridge is located on curves.

10. ROAD OVER BRIDGES

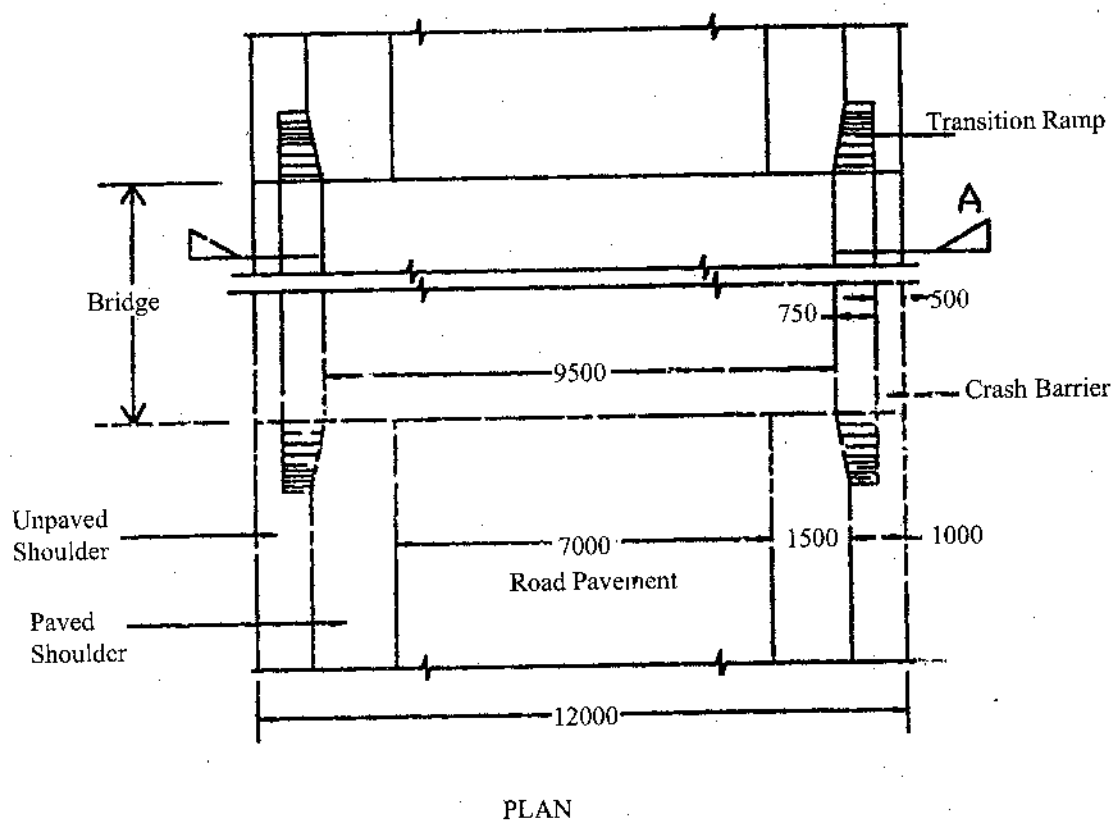
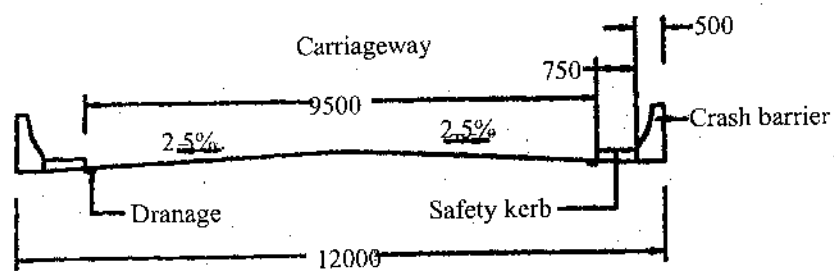
The above provisions shall also generally apply to all road over bridges except where any deviations have to be made due to specific site constraints.

11. BRIDGES ON HILL ROADS

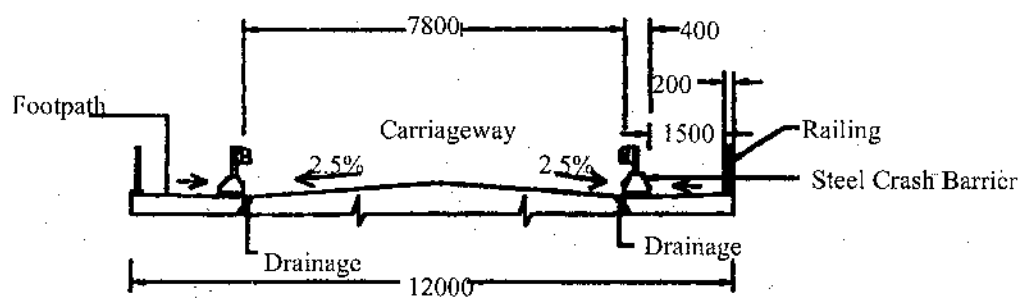
Cross-section of bridges on hill roads should also be decided on similar lines.

12. It is requested that the contents of this circular be brought to the notice of all officers in your department concerned with National Highways and other centrally sponsored schemes.

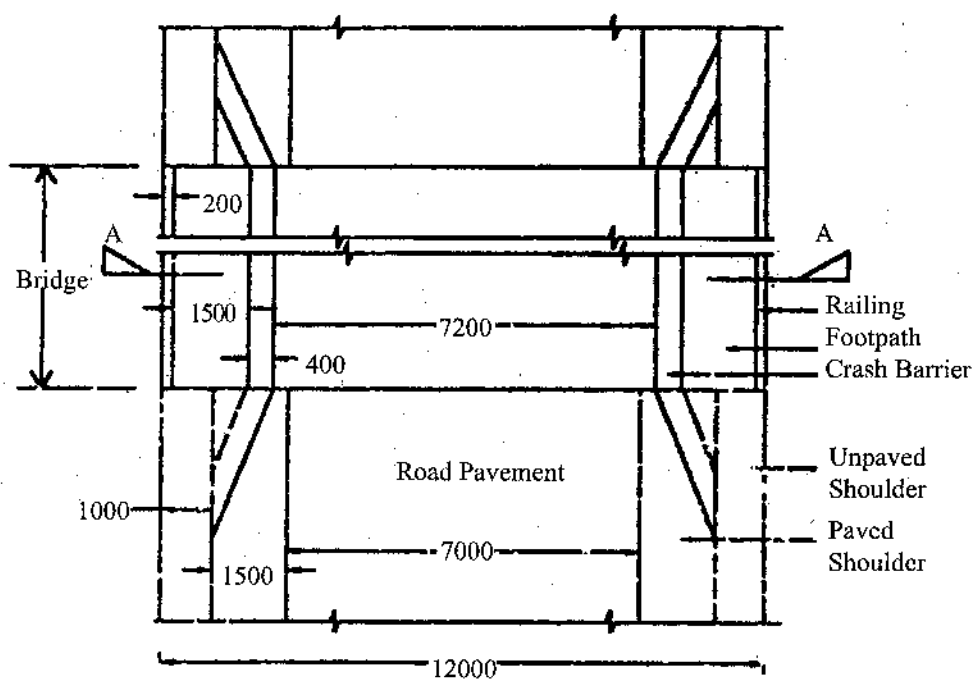
(Enclosure to Ministry's Circular No.RW/NH/33044/2/88/S&R dated 9th May, 2000]



Two-lane highway & bridge without footpaths having crash barrier at edges

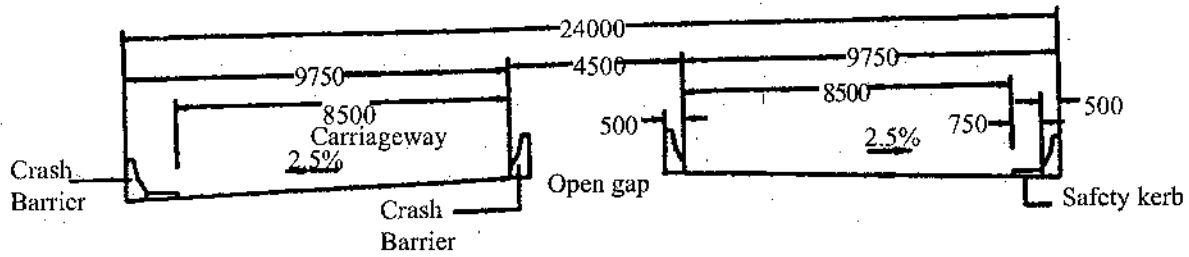
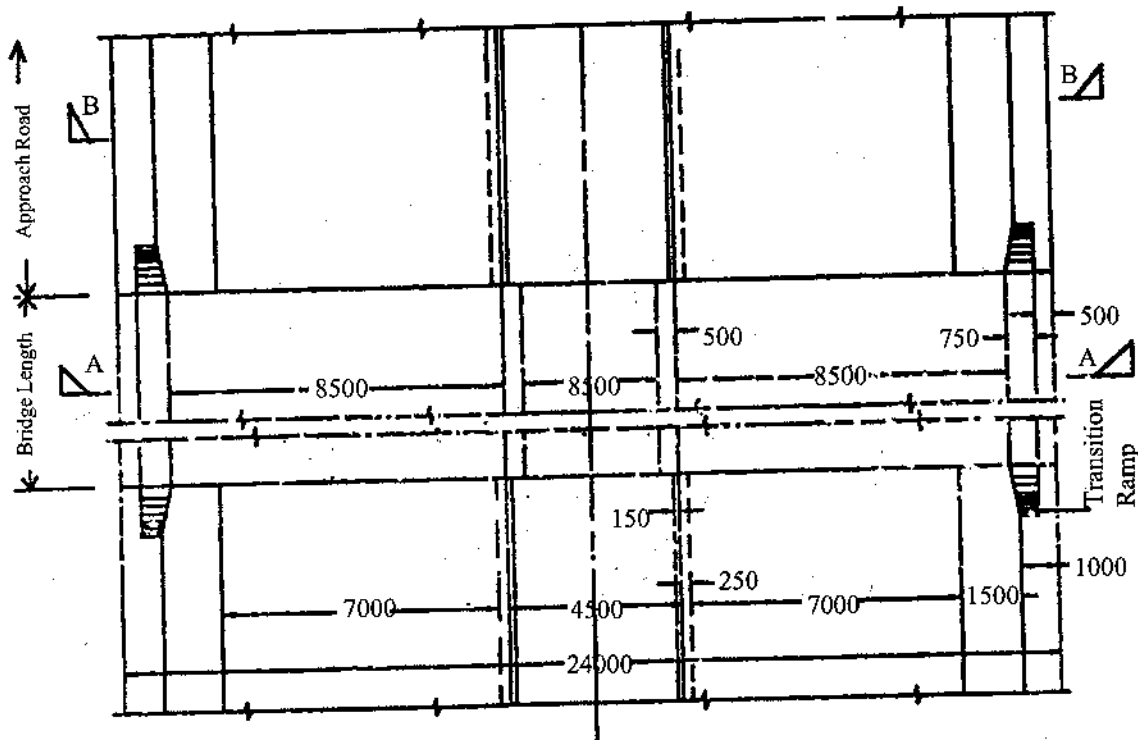


SECTION-AA

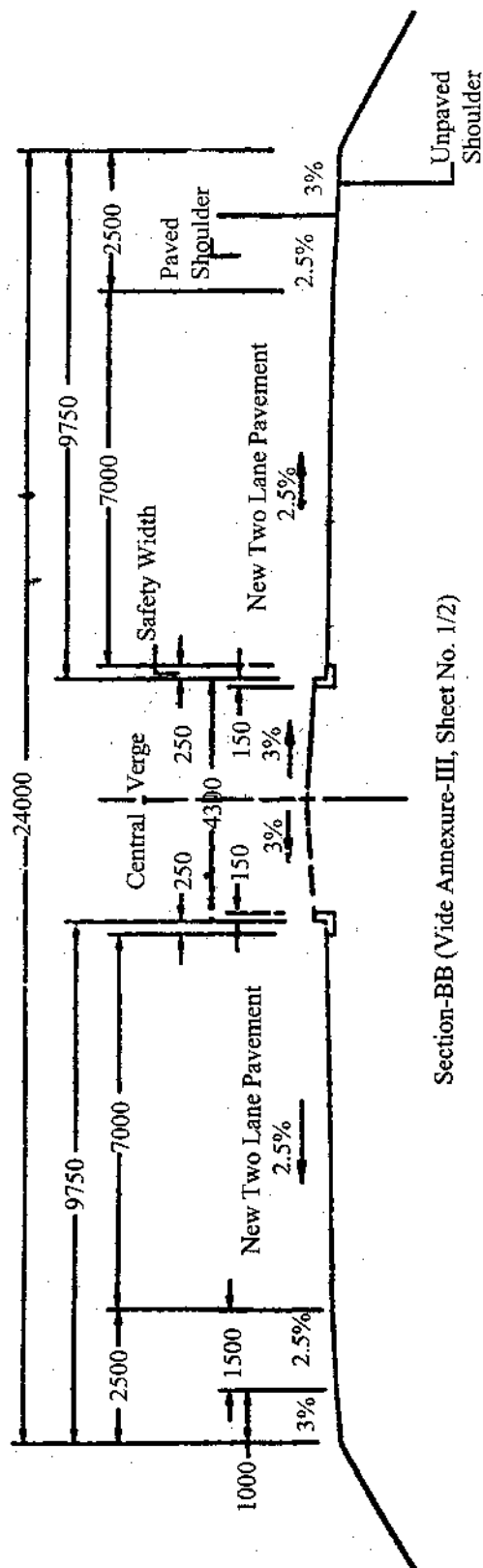


PLAN

Two-lane highway & bridge [with footpaths] having crash barrier between footpath & carriageway

SECTION-AAPLAN

Typical sketch plan & cross-section of a four-lane divided highway & bridge



Section-BB (Vide Annexure-III, Sheet No. 1/2)

Typical Cross-Section of a Four-lane
Divided Highway (Approach Road)

