

- 11.4 The shear keys at the face of segments shall be as under :
- 11.4.1 On each web single key or multiple keys shall be provided. These keys shall be designed to transmit shear forces.
- 11.4.2 On the top and bottom slabs keys shall be provided to maintain alignment and level.
- 11.5 Formwork shall be robust and the foundations of the casting and stacking yard shall be designed to safely support all applied loads without undesirable deformations or settlements.
- 11.6 In order to achieve smooth profile of prestressing cables and to prevent entry of cement slurry at the joints of matching segments; pipe shall be inserted through the cable duct of both the segments (i.e. matching segment and segment being cast) at the time of concreting.
- 11.7 Bond breaking agents shall be used while casting the segments so that the segments can be easily separated after casting.
- 11.8 The joints between adjacent segments shall be treated with appropriate epoxy formulation to facilitate erection and to fill cavities if any. While applying epoxy, care shall be taken to see that the epoxy does not block the openings of the cable ducts.

Epoxy shall be applied on the interfaces of both the segments and the segments shall be subjected to a pressure of minimum 2 Kg/cm<sup>2</sup>. This may be achieved either by using temporary prestress or by any other method. Permanent cables shall be introduced in the duct and after prestressing the required number of cables, the temporary pressure can be released.

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- 11.9 The method of erection of segments shall be such that the desired geometric profile of the bridge deck is obtained.
- 11.10 The segments shall be checked for stress during handling and erection.
- 11.11 Reference may be made to document "Guide to good practice: Recommendations for Segmental construction in prestressed concrete" published by F.I.P.

## 12. BEARING BELOW SUPERSTRUCTURE

Following type of bearings are proposed:

- 12.1
- i) for spans upto 20 m Reinforced Elastomeric Pads
  - ii) for spans above 20 m Reinforced Elastomeric Pads/Pot PTFE Bearings

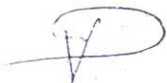
12.2 The bearings shall be easily accessible for inspection.

12.3 Scope for lifting the superstructure for future replacement of bearings shall be provided for in the design of bearing. The scheme of lifting shall be indicated on the drawings.

12.4 The contact surface of superstructure shall project beyond the edge of the bearing plate by a minimum distance of 100 mm at any location.

## 13. EXPANSION JOINTS

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13.1 Only strip seal / strip joints are proposed for movements between 25-80mm while copper strips expansion joints are proposed for small movements upto 25mm

13.2 The expansion joints in general are spaced at 80.0m centres.

13.3 Expansion joints shall conform to MORT&H specifications.

#### 14. WATER SPOUTS

Water spouts as per MORT&H Type design No.SD/303 shall be provided. However, the dia of pipe shall be 150 mm.

For flyover / grade separators water spout shall be connected to runner pipe of suitable diameter (Minimum 150 mm) on either side of roadway and taken down by down take pipes of suitable diameter at approved locations.

#### 15. SPECIFICATION, STANDARDS AND CONDITIONS FOR RAILWAY OVER BRIDGE WORK

For the work of ROB within the Railway land the Contractor shall comply with following :-

15.1 The Contractor shall get approval of the GAD from the Railway Authorities. The detailed design and all working drawings of the structure within Railway line shall also be got approved from the Railway Authorities.

15.2 During execution the methodology of the work shall be got approved by the Contractor from Railway Authorities. The work within the railway

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portion shall be carried out by the Contractor under the supervision of Railway Authorities.

- 15.3 The charges towards preparation and plans and estimates, scrutiny charges, supervision charges shall be paid by the Contractor to the Railways.
- 15.4 The utilities within the Railway land / ROW land obstructing the work of ROB shall be done by the Contractor as per the requirements of Railway Authorities.
- 15.5 The design criteria and specifications as prescribed by Railways shall be applicable.


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16. LIST OF SPECIFICATIONS AND STANDARDS TO BE FOLLOWED IS GIVEN BELOW:

Sr. No.	TITLE	CODE NO.
	<b>Survey and Investigations</b>	
1	Standard Procedure for Evaluation and condition Surveys of Stabilized soil roads.	IRC: 33-1969
2	Performa for Record of Test Values of Locally Available Pavement Construction Material	IRC: 42-1972
3	Recommended Practice for Tools, Equipment and Appliances for Concrete Pavement Construction.	IRC: 43-1972
4	Recommendation about the Alignment survey and Geomatic Design of Hill Roads (First Revision)	IRC: 52-1981
5	Manual for survey, investigation and Preparation of Road Projects.	IRC: SP: 19-1977
	<b>Geometrical Design</b>	
6	Recommended practice for Location and Layout of Roadside Motor –Fuel Filling and Motor – Fuel Filling-cum-Service station (Second Revision)	IRC: 12-1983
7	Standard for Vertical and Horizontal Clearances of Overhead Electric Power and Telecommunication lines as related to roads.	IRC: 32-1969
8	Guidelines for Design of Horizontal Curves for Highways and Design Tables (First Revision)	IRC: 38-1988
9	Standard for Road-Rail; Level Crossings (First Revision)	IRC: 39-1986
10	Recommendation about the Alignment Survey and Geometric Design of Hill Roads (First Revision)	IRC: 52-1981
11	Lateral and Vertical Clearances at Underpasses for vehicular Traffic	IRC: 54-1974

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