S No-110

NORTHERN RAILWAY

Headquarters Office
Baroda House
New Delhi

No.835-W/2/Steel channel sleeper/Pt.II/TP

Date: 6.11.2013

उत्तर रेलवे प्रधान कार्यालय प्रेषित - 6 NOV 2013 बड़ौदा हाऊस, नई दिल्ली

Sr. DEN/C
Northern Railway
DLI/UMB, FZR, MB & LKO.

Sub:- Correction of alignment and other track parameters on Girder Bridges laid with Steel Sleepers.

Para No. 273 (b) of IRPWM covers various aspect related to design, fabrication, laying, maintenance, inspection schedule etc. pertaining to steel sleepers on girder bridges. It may be appreciated that each steel sleepers is location specific and hence has to be designed and fabricated accordingly. Any deficiency in design and fabrication gets reflected in the geometry of the track. The inherent laying defect remains a cause of concern for the rest of the life. The present circular aims to cover the various aspects that may be look into at the time of initial laying and during maintenance of steel sleepers on girder bridges.

i) Initial laying:-

The following procedure may be followed:-

a) Mark centre line of the bridge with the help of theodolite.

b) Paint centre line of girders on the cross girders with the help of theodolite.

c) Ideally, the two should match in case of straight alignment. In case the two do not match, possibility of correcting the girder alignment by shifting the bearings may be examined. If feasible and practical, the corrective action should be taken. Reason for not doing so be recorded in the Bridge Register.

d) Mark location of steel sleepers and number the same taking into consideration the permissible centre to centre sleeper spacing, location of ends of girders, permissible spacing between joint sleepers, etc.

e) Take levels of each steel sleeper location with the help of theodolite. This should then be used to arrive at the various details including thickness of packing plates (MS Pad plates) etc. giving due consideration to top flange cover plates, rivets, cant, cant gradients, etc. Only one packing plate of appropriate thickness be used as per note 16 of Drg. No. RDSO/B-1636.

f) Note the location of holding down bolts with respect to the centre line of the girder and mark the same for each steel sleeper.

g) Ensure that Steel channel Sleepers are fabricated as per the details for each location/number and the same are laid at its specific location on the girder bridge.

h) After fixing of channel sleepers, rail shall be laid. Cross levels, gauge, longitudinal levels, twist, alignment, etc. shall be measured.

ii) Rectification during in service:-

The measurement and rectification work should be done under Traffic block. The following procedure may be adopted:

a) Measure differences in the alignment of bridge, girders and centre line of track ideally, the three alignments should coincide. If practically feasible, slewing of track or girder as the case may be resorted to, for bringing the variation to minimum value.

b) Measure defects in cross-level of girder. Correct the same by providing packing plates below the bearing plates.

c) Use theodolite to assess the lifts required on each sleeper to correct vertical level of the reference rail. Mark the lifts on each sleeper. Provide packing Steel Pad Plates below the sleepers seats beneath the reference rail, accordingly. Only one packing plate of appropriate thickness be used as per note 16 of Drg. No. RDSO/B-1636.

d) Use Gauge cum level to measure X-level defects on each sleeper. Mark it on each sleeper. Provide Steel Pad plates below the sleeper seats accordingly.

e) Unfasten the holding down bolts of all sleepers. Correct the alignment defect in track by slewing the track using Tamping Machine on approaches while working in design mode. Maximum slew should be restricted to 25 mm in each round.

f) Use sleeves of appropriate size on Holding Down Bolts while fastening, to retain the alignment of track. For this sleeves of different thickness/size be kept ready.

g) Alignment defects at isolated places on a long girder bridge, can also be corrected, manually, using the arrangement as shown in the enclosed sketch as annexure 1.

h) Inclined hook bolts with suitable fixing arrangements may also be used for retaining the corrected alignment as shown in the enclosed sketch as annexure 1.

Chief Trackf Engineer

Copy to:

1.All HODs of Engg. Deptt.

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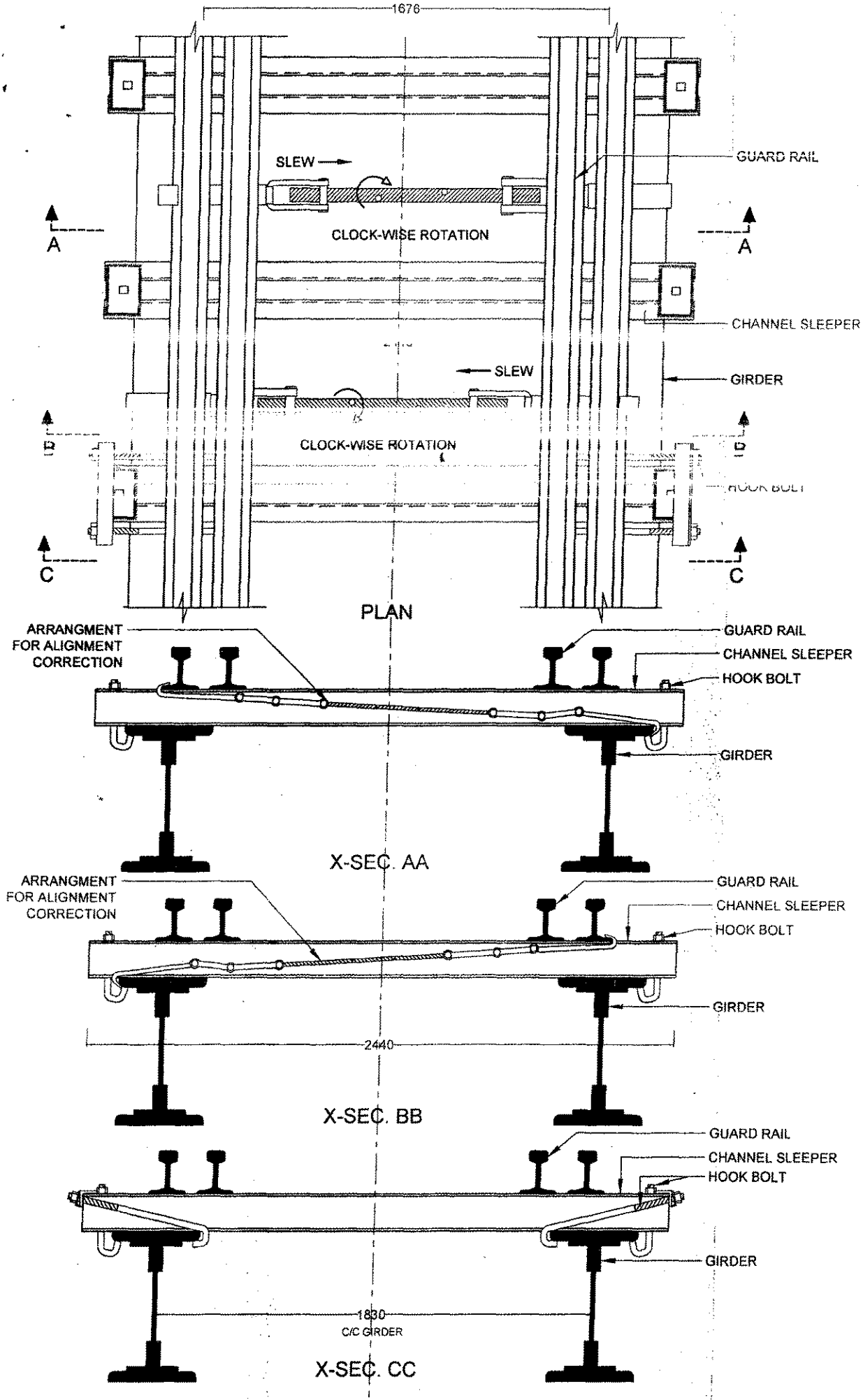

ARRANGEMENT FOR ALIGNMENT RECTIFICATION & RETENTION ON CHANNEL SLEEPERS ON BRIDGES