SOUTH CENTRAL RAILWAY

Headquarters Office,
Works Branch,
Rail Nilayam, 5th Floor
Secunderabad-500025

No. W.71/BR/Bridge Policy Dated: 16-03-2021

Sr.DEN/Co-ord/BZA,GNT,GTL,SC,HYB,NED

Sub: Execution of RUB/Bridge works with BOX Pushing method – Use of Rail Clusters for safety – Reg.

Ref: 1. This office letter no. W.71/BR/Bridge Policy dated 04-12-2020.

Many RCC BOX pushing works under running tracks are presently taken up by the divisions for construction of RUB, LHS, Sub-way and Waterway bridges without using RH girders. To enhance safety against possible earth cave-in below the track during pushing of the BOX, Rail cluster arrangements as described below shall invariably be provided at all sites of BOX pushing with immediate effect:

1. Typical Sketch showing arrangement of providing Rail clusters for Double line track is enclosed. The arrangement is suitable for pushing single BOX of vent size up to 6m. For larger vent sizes or twin cell BOXes, special arrangements with steel plate and RS stanchions as suggested under para 3 of this office letter dt. 04-12-2020 under ref (1) may be adopted.
2. For Rail clusters and Cross rails, 60kg 90UTS USFD tested Class-II rails in good condition shall only be used. 13m long rails shall be used for Rail clusters and length of Cross rails shall be 4.5m or above. Such rails should not have fish plated joints and should be corrosion free.
3. The Rail clusters can either be pre-assembled and launched into position with a Road crane or can be positioned at site individually to form a cluster under block protection. Rail clusters shall be positioned adjacent to the sleeper ends. Rails in each Cluster should be firmly fastened through threaded rods with nuts arrangement.
4. In Track circuited areas, suitable insulated elastomeric pad shall be used between running rails and cross rails to prevent failure of track circuit.
5. Wooden blocks of at least 150mm depth shall be used to support Rail clusters. Adequate packing under wooden blocks shall be ensured at all times. Rail screws shall be used for fastening the rail clusters over the wooden blocks.
6. The distance ‘B/2 + d’ from centre of BOX to edge of wooden block support shown in the sketch shall be kept minimum and should not exceed 4m. In case earth cushion over the BOX is more and the distance ‘B/2 + d’ from centre of BOX to wooden block supports is more than 4m, wooden sleeper matting under the wooden blocks shall be provided to reduce ‘d’. Cribs along with matting can also be used to support rail clusters for higher cushion depths above BOX.
7. The cluster arrangement is suitable for track spacing of 4.27m and above. In case of pushing under more than 2 tracks, the rail cluster arrangement shown in the sketch shall be repeated for each of the tracks.

8. After the passage of each train, the contact of running rails with cross rails shall be checked and the same to be ensured by proper packing under wooden blocks/matting.
9. Crib Ballast in the rail cluster portion of the track shall be removed up to 50mm below rail cluster to prevent lateral movement of rail cluster during pushing of BOX.
10. Adequate stock of Sand bags, Steel sheets, Wooden blocks, Cribs, Bullies etc., shall be kept at the BOX pushing site for dealing with any emergencies.
11. Once the BOX crosses both rails underneath a particular track, additional temporary supports to the clusters of this track can be provided with wooden blocks/cribs over the BOX. These however, need to be removed during each pushing operation and re-fixed again.

Feedback with improvements required if any in the above arrangements shall be given by the divisions after use of this arrangement in the field.

Encl: Sketch with Rail Cluster arrangement

(K. Rama Krishna)
Chief Bridge Engineer

Copy: CAO(C), CE/RSW, CE/BRH for information.

Rail Cluster Arrangement for BOX Pushing (Not to Scale)