

Safety Alert

Failure of a Precast Concrete Coping on a Bridge Deck

19 April 2021

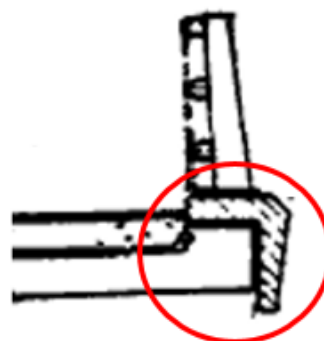
Background information

During a recent bridge inspection, a precast concrete coping was found to have become detached from the bridge above and fallen onto the verge.

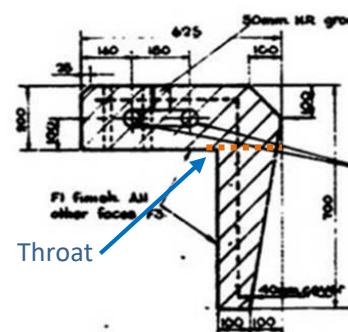
No harm was caused to our workforce or the road user.

A detailed investigation has identified the damaged coping was adjacent to the expansion joint, between the bridge deck and its support. This joint allows the bridge to expand on its support with changes in temperature.

The failure appears to be a result of this joint in the precast coping units closing-up, restricting the movement of the deck and resulting in an increasing crushing pressure between the units. This has then caused cracking to the concrete in the precast concrete coping unit, followed by the lower section of the coping breaking away and falling to the ground.



Parapet Edge Beam / Coping



Precast Parapet Coping



Damaged Parapet Coping



Detached Parapet Coping

Lessons Learnt

- Inspectors should be vigilant and report any signs of restricted movement of the parapet edge beam, local to all bridge deck joints (both expansion and fixed end joints), particularly if precast copings are present.
- During inspections, any evidence of corrosion such as significant rust or water staining, or visual signs of movement of the coping, should be reported as defects.
- If cracking or movement is apparent in the 'throat' of any units, inspectors should consider further special / monitoring inspections, or removal of the copings.