

ALERT TOPIC	Bridge Expansion Joint Defects	ALERT REFERENCE:	2022-Q(A)001 Version 1
TARGET AUDIENCE:	Regional Managers, Site Managers, Engineers and Supervisors	AUTHORISED BY:	S Dewsbury S Jones
DATE OF ISSUE:	Monday 7 February 2022	DISPLAY UNTIL:	End September 2022

INTRODUCTION

- Expansion joints and gaps are incorporated in highway structures to accommodate structural movements due to creep, temperature variation or live load deformation,
- An expansion joint is usually a physical gap in the structure which may be filled with a compressible material. This may be covered by a mechanical joint, which allows traffic or pedestrians to smoothly cross between the different bridge sections and also to prevent ingress of water or foreign objects dropping into the space,
- Generally, a structure is designed to move about a fixed point / fixed bearing. The greater the distance from the fixed point, the more physical movement you are likely to see,
- An expansion gap should be continuous from parapet to parapet considering footpaths, kerbs, central reserves etc at all times.



REASON FOR ISSUING THIS ALERT

- In recent months, CRL have had two issues arising from our highways works in the vicinity of bridge movement joints,
- In both cases, our works restricted the thermal expansion of the associated bridge requiring us to revisit those structures to correct the defects,
- The most recent occurrence, a build-up of stresses within the structure caused the large lumps of repair concrete to fracture and fall into a publicly accessible area below (in this case the hard shoulder of a major trunk road) [photo included],
- Whilst no-one was hurt by the event, it is easy to understand that the substandard workmanship Quality could have directly affected the safety of the travelling public.



CONCLUSIONS AND DISCUSSION POINTS

When working on structures:

- Ensure you understand the design parameters of any expansion joints that may be affected by our work, refer any queries or concerns about gap width to the designer,
- Prepare a robust Inspection and Test Plan (ITP) to help you manage the requirements and adhere to defined **'hold points'**,
- Ensure expansion gap widths and alignments are maintained throughout,
- Take care when propping deck formwork from fixed walls / abutments,
- Ensure that any materials that are to be left in place, such as permanent formwork has the necessary compressibility (do not leave plywood or timber chocks in expansion gaps),
- On half joints if proprietary bearings are not utilised to accommodate movement, are slip membranes required to allow concrete surfaces to slide over each other? Ensure both vertical joint gaps are preserved either side of horizontal bearing surface.

**Doing it right costs less than doing it twice!
It is worth spending time to get it right first time!!**

SHEQ ALERT REVIEW AND BRIEFING RECORD

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PROJECT NAME:		DATE OF BRIEFING:	
BRIEFING DELIVERED BY:			

The following people have signed to confirm receipt and understanding of this SHEQ Alert:

NAME (Print)	EMPLOYER	SIGNATURE

Please use this area to record any comments, questions or further actions arising from this briefing:

If you have any SHEQ issues that you wish to discuss, please contact your supervisor, line manager, or a member of the SHEQ team.