

Project Name: RBH NBEW**By:** Duncan Woolsmith**Note Number:** 330510682-STN-XX-XX-TN-S-0002**Approved:** Kevin Clarke**Subject:** Structural condition statement**Date:** August 8, 2022

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This note outlines the structural condition of the North Block East Wing building at the Royal Berkshire Hospital in reference to the urgency of proposed repair works.

Current condition

The Stantec ground investigation has identified ten solution features below the building that have significantly weakened areas of the ground and caused considerable differential foundation movement, resulting in substantial load path changes within the masonry. To date the redistribution of load in the walls has opened cracks of up to 25mm and caused the failure of masonry elements. At present there are a number of key masonry elements that are visibly distressed and potentially near failure. The stability of the external walls is additionally compromised by a reduction of intermediate restraint due to severe decay of the roof structure and timber floors.

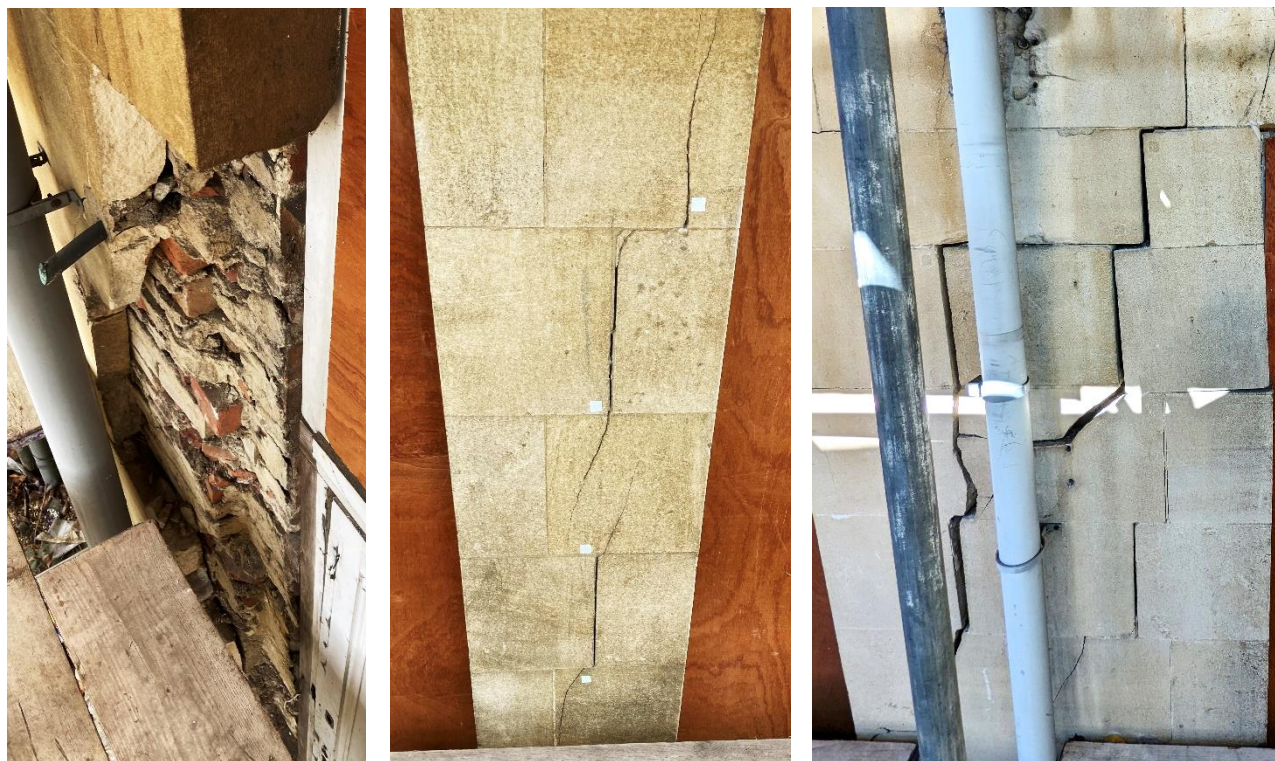


Figure 1 - Left: Area of stone failure, Centre: Compression cracking in overstressed area, Right: Example cracking

Prognosis

It must be considered that the process forming the solution features is ongoing, and as such the support to the foundations of the Northern end of the building is likely to continue to reduce over time, exacerbating the deleterious effects already observed in the external walls (see Figure 1).

To date, the building has shown remarkable resilience in resisting the effects of foundation movement, but it is our belief that any structural redundancy has now been exhausted. Should remedial action not be taken, it is our opinion that failure of further masonry elements is inevitable and that at least partial collapse of the Northern end of the building would be a realistic consequence of this.

Recommendations

We recommend that without delay the ground is stabilised with controlled injection grouting to reduce the risk of further foundation movement. Following this we recommend a repair strategy for the damaged walls designed to restore, so far as practicable, the original load distribution, stabilise existing elements of the walls and where necessary replace damaged elements.