

Existing Conditions Report – Structural

342-348 Victoria St, Brunswick Fire Tunnel



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Prepared for: Armitage Jones

ATTENTION: Max Vulcan

Max.vulcan@armitagejones.com.au

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1 Introduction

BCE Design have been engaged by Armitage Jones to undertake a structural inspection and condition assessment of the existing Fire Tunnel building at 342-348 Victoria St Brunswick.

This report is based on the observations and findings from the visual inspection completed by BCE Design on the 18th of September 2023. We understand the intent of the investigation is to identify any structural deterioration that may need to be rectified in order to maintain the structural adequacy of the elements and ensure the surrounding grounds remain safe. We understand that the existing building is not intended to be made accessible or required to be upgraded to current code standards as part of the future development of the site.

This report is limited to the original Fire Tunnel elements and excludes the chimney structure and the more recent blockwork wall to the outer east and north of the Fire tunnel. Where the existing block wall was built in front of the original fire tunnel North wall, assessment of this wall was limited to previous site photographs provided.

2 Observations

The onsite visual inspection of the existing brick walls was completed from behind the security fence. It was observed that the original brick walls and mortar remained in generally sound condition with limited cracking or signs of overstress. There were however several locations where the original brick walls had been altered and bricks removed. In these locations it was observed that there remained loose bricks and mortar and missing sections of brick from the original extent.

In the Northeast corner, in the curved section of the wall it was observed that the wall appeared to have a local bulge to the north and the outer skin of brick has displaced and collapsed outwards. It is not clear the likely cause of the localised failure of the curved wall as the complete loss of a localised section of the curved wall is not consistent with a failure caused by ground movements and footing settlements. Newer mortar was observed in the wall above the damaged wall which may suggest previous remedial works may have been undertaken to rectify historical damage.

During the inspection access was not available to observe the condition of the internal walls and brick roof. For the purpose of this report photographs have been relied upon to undertake this review. The photos provided show evidence that the original steel angles supporting the brick roof have corroded and deteriorated. It is not possible to determine the extent of corrosion however one of the angles has fully corroded and failed midspan as seen in image 18 and it is reasonable to assume that other steel angles may also be close to failing in the near future.

The Feature and Level Survey produced by Goodison Surveying dated 30/10/23 has measured the verticality of the existing exposed brick walls. The survey has identified that both the north and south walls are leaning between 25mm and 70mm to the north with the lean linearly increasing to the east. The exposed eastern brick wall was measured to be leaning east varying from 25mm to 90mm. As all walls are leaning in the same direction this would be consistent with the foundations settling in the Northeast corner causing differential settlement of the footings and an overall rotation and lean of the walls.

It was not possible to inspect or survey the existing footings to understand the current condition of the footings and confirm existing levels to verify that settlement has been the cause of all the walls leaning towards the Northeast corner of the site.

3 Recommendations

Based on the initial observations and survey data provided on the verticality of the existing walls we believe the scope of rectification works in order to make safe may include the following;

- Further investigations and footing exposures would be recommended to understand the existing foundation conditions. In particular, the Northeast corner where potential ground movements and footing settlement may have contributed to the deviation of the existing walls measured in the survey.
- Due to the deteriorated condition of the existing steel support angles supporting the brick roof, it would no longer be considered safe without remediation works. This could involve the complete removal of the brick roof and steel supports and replacement with a new roof if accepted. If this is not acceptable on Heritage grounds, the existing brick roof could be progressively removed or temporarily supported to allow for existing steel angles to be removed and replaced with new equivalent galvanised supports.
- In a number of locations, the original bricks had been removed and walls partially altered over time. It would be our recommendation that all areas of missing, loose or displaced bricks and mortar is rebuilt in accordance with Lovell Chen's requirements and scope.
- As part of the redevelopment of the structure we understand the newer blockwork wall will be demolished to expose the original brick walls. It is not known if the block wall is providing lateral support to the original brick wall that is leaning towards the outer wall and demolition should be undertaken carefully and progressively top down removing a course of block at a time.

It would be expected that there may be some loose bricks that will come free as the wall in front is removed. However, should there be any significant movement of the wall works should cease until further assessment can be made.

In summary we believe additional investigations into the existing footings would be prudent and remedial works to be undertaken as outlined above, however in our opinion if these works are to be completed the existing structural elements can be remediated to achieve the required safety brief outlined for incorporation into the future development.

Annex A: Photos

Image 1 – Existing Southern Nib with more recent brick infill



Image 2 – Existing Southern Walls showing previous alterations.



Image 3 – Existing Southern Wall



Image 4 – Existing Southern Wall opening



Image 5 – Existing Southern Wall



Image 6 – Existing NE Corner Wall damage



Image 7 – Existing NE Corner Wall damage



Image 8 – Existing NE Corner Wall damage



Image 9 – Existing NE Corner Wall damage



Image 10 – Existing NE Corner Wall with evidence of newer mortar repairs

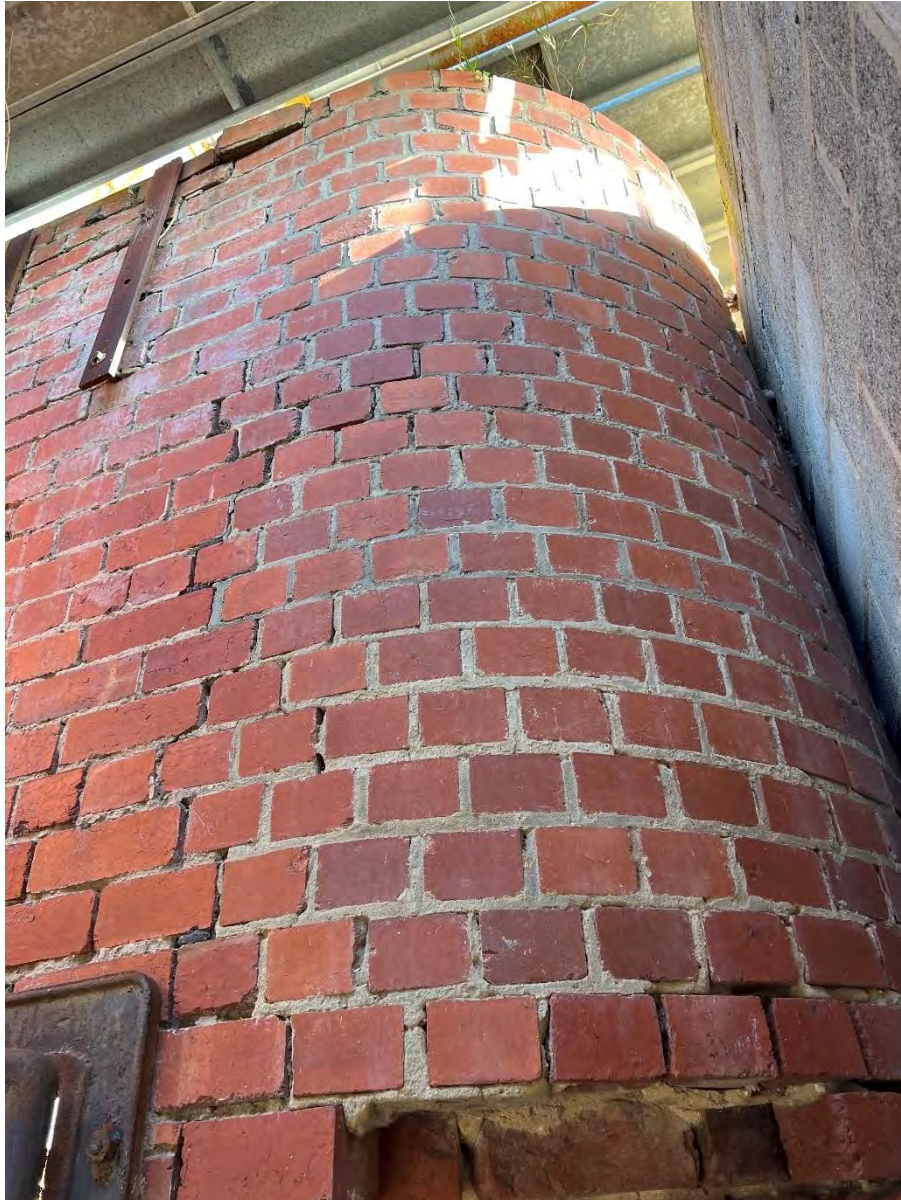


Image 11 – Existing NE Corner Wall



Image 12 – Existing Brick Roof

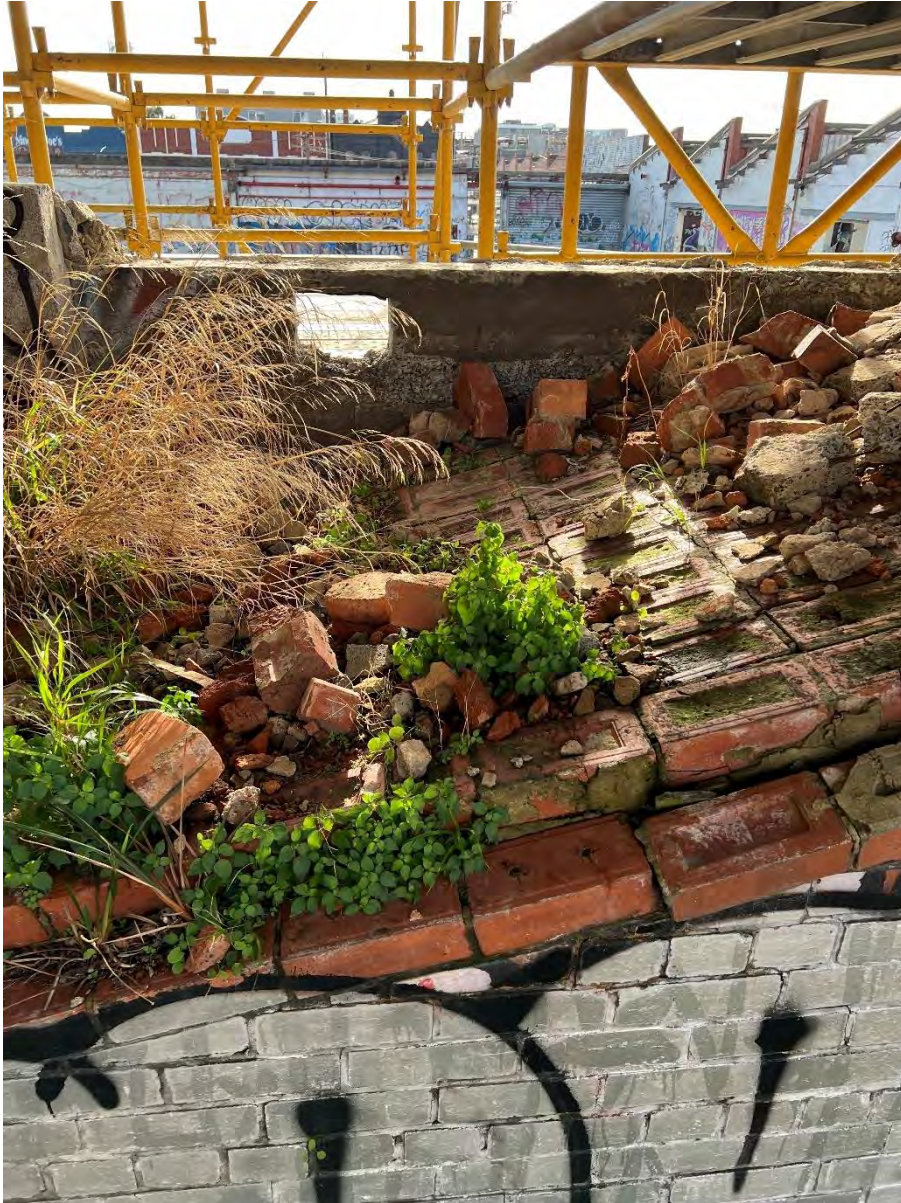


Image 13 – Existing Brick Roof



Image 14 – Existing Junction of Roof and Chimney



Image 15 – Existing Brick Roof



Image 16 – Existing Brick Roof



Image 17 – Existing Internal Walls and Roof



Image 18 – Existing Damage to roof supports



Image 19 – Existing Roof Soffit



Image 20 – Existing Roof Soffit



Image 21 – Existing Roof Soffit



Image 22 – Existing Internal Debris



Annex B: Feature Plan Fire Tunnel Survey

