Technical Note

Project Name:	17 Craven Rd	**By:**	Duncan Woolsmith
Note Number:	330510894-TN-S-001	**Checked:**	Alistair Anderson
Subject:	Garage Repairs	**Date:**	January 11, 2024

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This technical note considers the structural repair of the garage adjacent to 17 Craven Road.

Current Condition

The building is single storey comprising an approximate rectangle of solid load bearing masonry external walls supporting a pitched roof of timber trusses. The small parapet gutter along the northern elevation is blocked and likely contributing to water ingress around the wall plate and truss bearings which are severely decayed on this elevation. The subsequent loss of horizontal tying has caused the roof to spread which is pushing the top of the walls (particularly the northern elevation) outward. The blocked gutter is also home to significant plant growth including a creeper type plant that has spread into the internal roof space and whose roots have penetrated the mortar joints of the brickwork resulting in significant damage (Figure 1).

Figure 1 - Example damage to northern elevation

Alongside the northern elevation of the building the boundary wall is also leaning into the adjacent property. This is ilkely due to plant growth in the gap behind (Figure 2) and erosion of mortar joints, particularly in the bottom third of the wall.

Figure 2 - Boundary wall

The worst of the damage to the garage is to the northern elevation with the boundary wall and sections of the garage leaning out over the driveway of the adjacent property. The position and condition of these elements is such that they should be considered to pose a genuine risk to persons using the drive.

Recommendations

The structural condition means that insitu repair of the wall is not a suitable solution, and the need to maintain use of the adjacent property's driveway precludes temporary works options to 'shore up' the building to mitigate risk.

Stantec first inspected the garage in April 2022 and subsequently in November 2023. Over that period the damage had markedly increased indicating continuing deterioration. Given the current condition of wall and garage, we would consider both to be, or near to being, "dangerous structures".

Given this we recommend the safest solution is to 'remove the risk' by carefully dismantling the elements posing that risk, and to subsequently rebuild with original materials where possible. This would broadly comprise the following works.

1. Carefully remove and store roof slates.
2. Remove roof trusses, battens and ceiling joists – Likely unsalvagable due to water ingress and the resultant rotting of the timber.
3. Carefully dismantle garage walls down to undamaged height (north wall approx 500mm above ground, south wall approx 2000mm above ground). Clean and store bricks.
4. Carefully dismantle boundary wall down to ground level. Clean and store bricks.
5. Rebuild garage walls with lime mortar, reinstating all details such as lintels and gable dressings.
6. Install new timber roof trusses, battens and ceiling joists.
7. Reinstate slates and gutter (detail TBC to prevent repeat damage).
8. Rebuild boundary wall with lime mortar and new flashing (detail TBC to prevent repeat damage).

As the majority of risk is associated with vegetation growth we recommend the dismantling elements of the works (1-4 above) are carried out immediately, before the new growing season when the risk of further movement will increase. Given that timescale and the current potential risk to persons we would define the dismantling as emergency works.

Due to their current state, the careful and safe dismantling of the existing garage and boundary wall is likely to require appropriate temporary works to brace the walls during their dismantling. Therefore the dismantling works should only be undertaken by a suitably experienced contractor.

The rebuilding works (5-8 above) should not begin until the spring to reduce the risk of frost(s) during lime mortaring.