

TANAKA FAMILY'S HOUSE

EARTH VIEW



09/07/2026

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Roman Lucas Biers
Elise Renaud Charpentier

IDENTIFICATION OF STRUCTURAL DEFECTS



Causes :

Ground movement has altered the load distribution, causing the column to separate from its stone foundation. Consequently, the column is no longer transferring its load to the foundation stones.

Recommended actions :

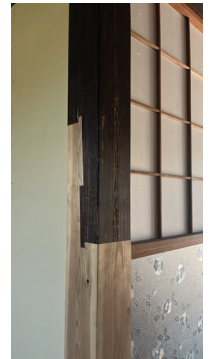
Reconstruct the foundation beneath the column to restore stable and continuous support. The foundation shall bear on competent, well-compacted ground. The foundation stone should be properly seated, with adequate embedment, or replaced with a concrete footing if required by the ground conditions. A geotechnical assessment of the soil is recommended to verify its bearing capacity and identify any causes of ground movement. The installation of a perimeter drainage system should be considered to reduce moisture ingress, and the foundation should be inspected and repaired where necessary.

Causes : M

The timber column base has deteriorated as a result of rising damp.

Recommended actions :

Replace the deteriorated lower section of the timber column with a new timber section, avoiding the need to replace the entire column.



CEMENT RENDER DEFECTS



Causes :

The roots of the nearby tree may have exerted pressure on the foundations or the base of the wall, leading to the formation of cracks in the wall sections. These cracks may then have allowed rainwater to infiltrate the cement render. Repeated moisture exposure, combined with the building's corner configuration and its north-facing orientation, may have created favourable conditions for biological (fungal) growth.

Recommended actions :

Remove and replace the damaged cement render with a natural lime-based render. Lime render is more vapour-permeable, allowing trapped moisture to evaporate and reducing the risk of further deterioration.

WALL-TO-ROOF OVERHANG INTERFACE



Recommended actions :

Option 1 – Traditional earth wattle-and-daub infill (Roman recommend)

Traditional wattle-and-daub infill: infill the openings with a lime-based mortar applied over a woven bamboo lattice (wattle), following traditional construction techniques.

Option 2 – Straw infill (Elise recommend)

Fill the openings with compressed straw bundles, providing a reversible solution compatible with the traditional building fabric while limiting water ingress and the entry of pests.

Option 3 – Metal mesh screen

Install a fine metal mesh screen to close the openings while maintaining ventilation and preventing the entry of birds and other pests.

ADDITIONNALS COMMENTS



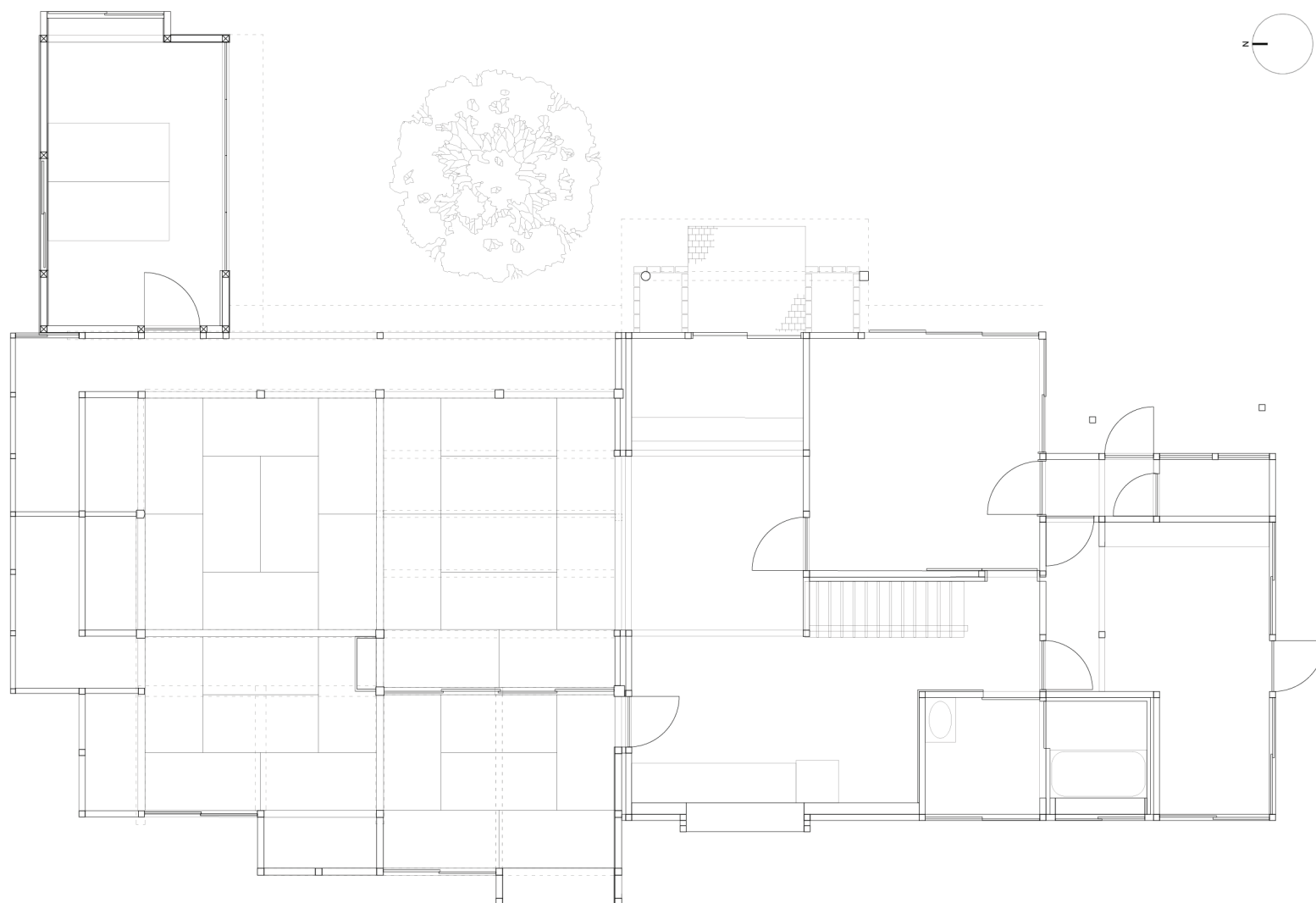
Overall Assessment

The main cause of deterioration appears to be the presence of a cement-based render on the façade. Unlike traditional lime render, cement render has low vapour permeability and prevents moisture from evaporating naturally. As a result, moisture becomes trapped within the walls and is transferred to the adjacent timber elements, particularly the bases of the columns, accelerating their deterioration.

The other defects observed, including moisture staining, biological growth, deterioration of the render and timber columns, as well as localized foundation movement, appear to be direct or indirect consequences of this persistent moisture. These conditions may also have been aggravated by water ingress, inadequate drainage, or ground movement.

The priority should therefore be to address the sources of moisture before carrying out repair works. Replacing the cement render with a traditional lime-based render, which is better suited to this type of historic building, is a key measure to ensure the long-term durability of the repairs.

The timber floor structure appears to be generally sound, with no significant defects observed. The accessible crawl space also offers the opportunity to install underfloor insulation in the future to improve the building's thermal performance, provided that adequate ventilation is maintained to prevent moisture build-up.



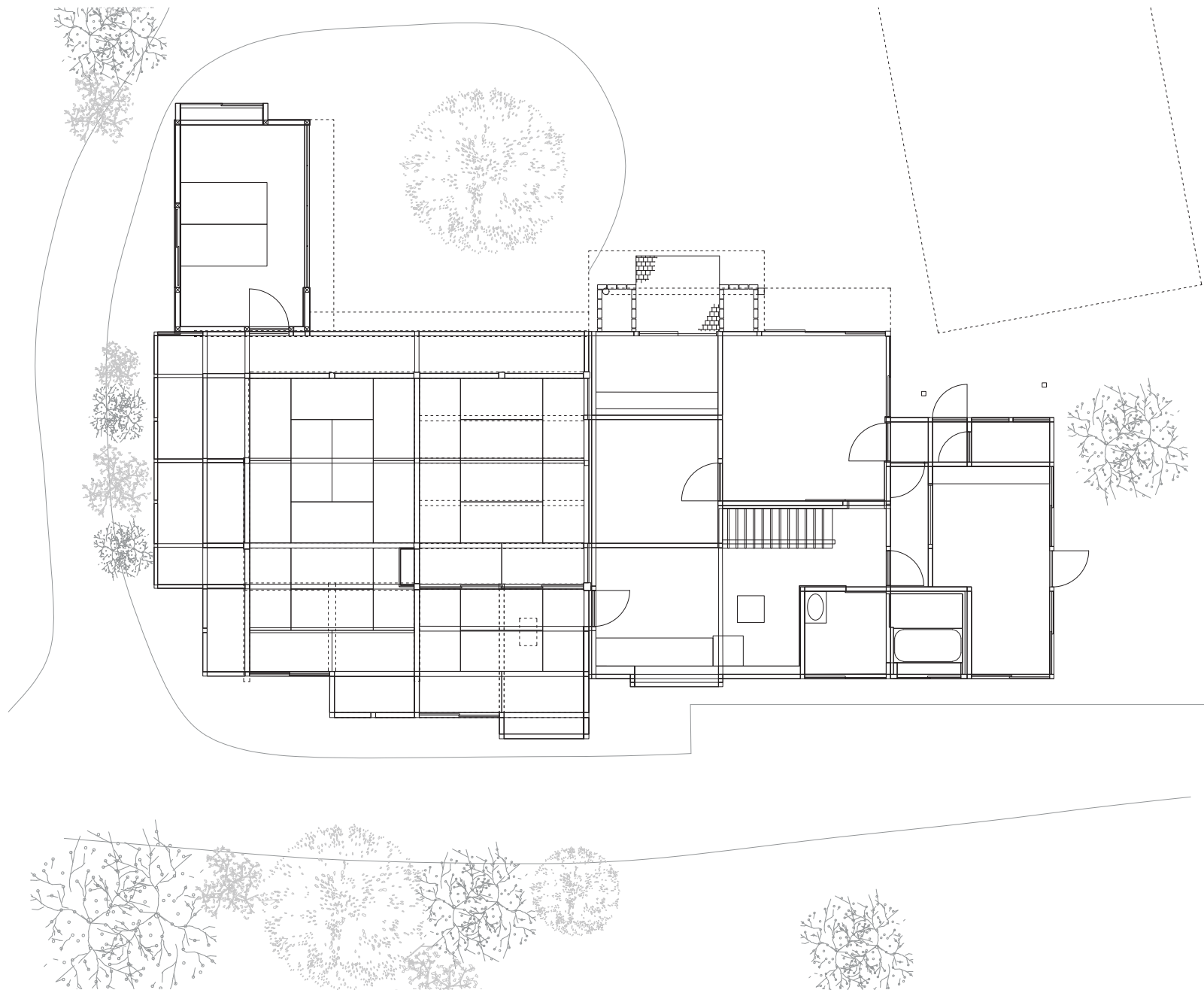
Scale :

92 cm
a tatami width

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HOUSE PLAN 1F

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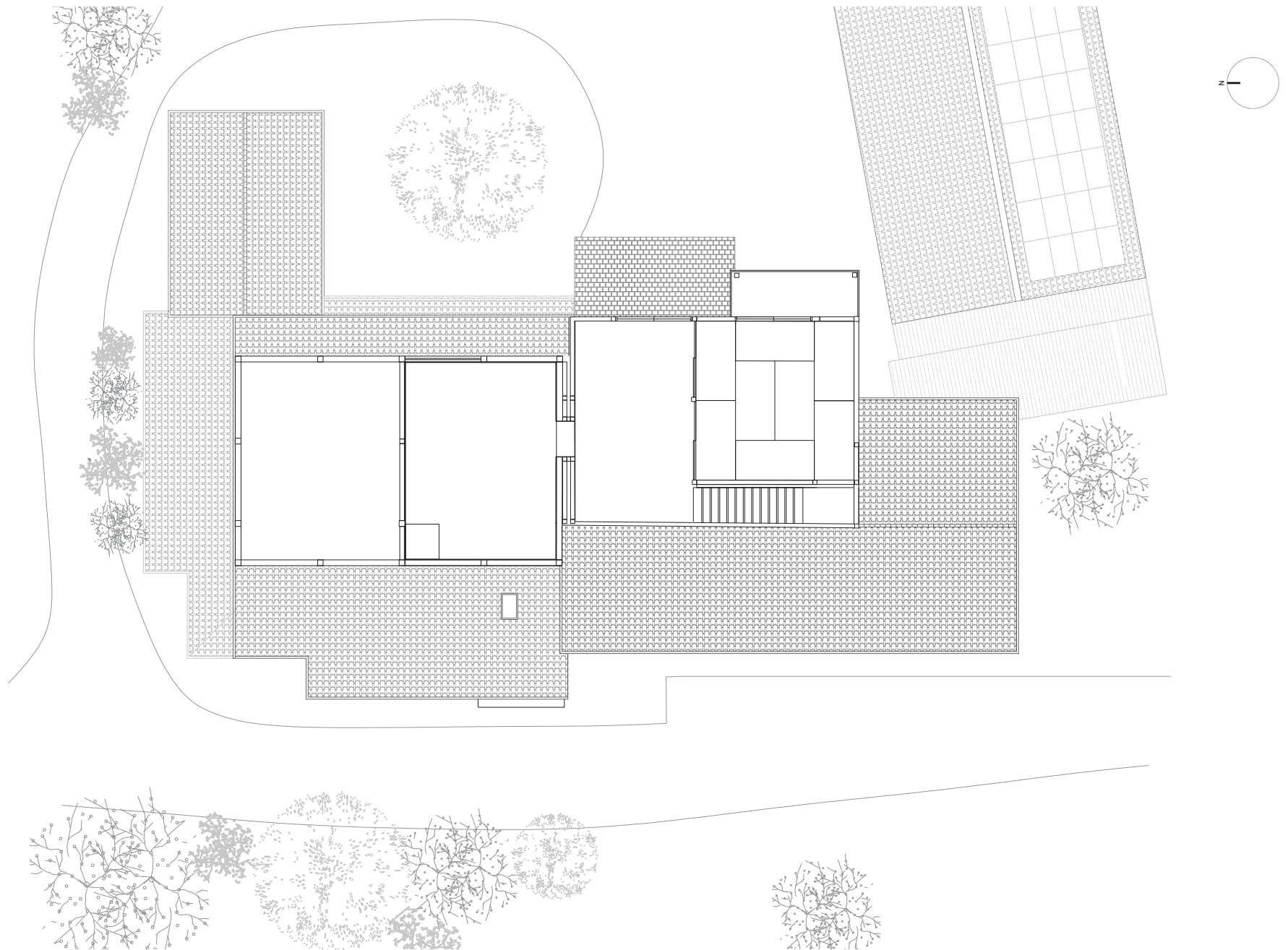
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HOUSE PLAN 2F

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