TECHNICAL ADDENDUM REPORT –

DESCRIPTION OF RISK AND SITE

The risk address is a substantial detached 3 storey house constructed between 1840 and 1919 from stone load bearing walls under a pitched and tiled roof. The original part of the house is believed to occupy the right side of the site, with further annexes to the left and rear added later, again constructed from stone load bearing elevations. There is a sloping driveway to the front, with a detached garage on the left side of the property.

To the front right of the property is a conservatory structure constructed off stone dwarf walls with a timber framed structure.

The property occupies an elevated position above the garden than slopes away to the front with several mature trees along the front and right boundaries, some of which have been pollarded in the past.

Primary drainage is to the rear, while to the front there are several downpipes, including one that discharged to a partially blocked gully to the front elevation adjacent to the conservatory.

HISTORY OF OWNERSHIP

The property has been owned and occupied by the Insured and family for a considerable number of years.

DISCOVERY OF DAMAGE

The Insured became aware of some cracks to the hallway on the right of the property, the lounge and bedroom above in late September / early October 2022 following the long dry summer.

DAMAGE

Externally to the front elevation on the right in the conservatory there are some slight hairline cracks to the blockwork above the front door opening.

There has been some slight separation of the steps at the front of the conservatory from the main structure.

There is some slight, mostly historic cracking at the junction of the lounge bay window and the main structure on the right side.

Internally damage is primarily on the cross wall between the hallway and the lounge at ground floor level together with the landing and bedroom at first floor level.

Cracking to the plaster wall finishes and ceilings to the hallway and lounge were evident, indicative of some slight downwards movement of the wall towards the front of the property. This cracking pattern was repeated at first floor level.

The hallway floor is Parquet flooring, there was some slight downwards deflection towards the front of the property, the floor in the hallway is believed to be solid.

In the lounge the floor is suspended timber, with a void below. The floor had a slight slope towards the front of the property.

CAUSE

Whilst some of the movement appears to be historic, there is evidence of recent movement of the internal wall downwards towards the front of the property. The timing of the discovery of the damage would indicate a potential link to the sustained dry summer of 2022 causing a clay shrinkage issue, however further SI was required to confirm.

The hallway floor is solid, while in the lounge the floor is suspended timber, it was considered possible that the hallway floor was a fairly shallow slab, with the internal cross walls built off this slab, thus with a shallow foundation making them susceptible to movement.

SITE INVESTIGATIONS

The ground investigation compromised of 2 trial/boreholes, to the front elevation and internally to the lounge.

<u>Trial/Borehole 1 – front elevation</u>

The trial hole revealed that this section of the front elevation has a stone footing noted to be 550mm deep, 100mm thick, with a 200mm projection. Roots were observed at the underside of the foundation.

From the underside of the foundation, to 2.00m, the ground was found to be moist, very stiff brown fine to medium gravelly silty CLAY, turning grey from 1.00m. The in-situ shear vane testing found the ground to be stiff, increasing to very stiff with depth, at this section of soil banding.

From 2.00m to 3.00, where the borehole was terminated, the ground was found to be dry, hard, grey, brown, fine to medium gravelly silty CLAY. The in-situ shear vane testing found the ground to be very stiff at this soil banding, becoming very stiff with depth.

The subsequent laboratory testing revealed an intermediate to high plasticity clay at the tested soil banding levels. The .425mm sieve test revealed that there was 88%-94% clay found throughout the depth of the borehole, which confirms that limited granular material was present.

The soil suction testing revealed the following average kPa at the following depths:

0.55m – 37 kPa
1.55m – 953 kPa
2.55m – 1400 kPa

This shows that, there is very severe desiccation of the sub-strata noted from 1.55m, increasing with depth throughout the borehole.

Live roots were found to the underside. These roots were identified to belong to the family ACER, which include Maples and Sycamores.

Trial/borehole 2 – Internal Lounge

The trial hole revealed that this section of the property is founded on a stone footing noted to be 1,200m deep, 100mm thick, with a 100mm projection. Roots were observed at the underside of the foundation.

From the underside of the foundation, to 3.10m, where the borehole was terminated, the ground was found to be dry, very stiff brown, grey fine to medium gravelly silty CLAY. The in-situ shear vane testing found the ground to be stiff, increasing to very stiff with depth throughout the borehole.

The subsequent laboratory testing revealed an intermediate to high plasticity clay at the tested soil banding levels. The .425mm sieve test revealed that there was between 93% - 95% clay found throughout the depth of the borehole, which confirms that limited granular material was present.

The soil suction testing revealed the following average kPa at the following depths:

1.15m – 1,210 kPa
2.15m – 901 kPa
2.65m – 1,620 kPa

This shows that, there is very severe desiccation of the sub-strata noted throughout the borehole, increasing from a depth of 2.65m.

Drainage Survey

A CCTV survey of the drainage within the area of damage was undertaken. This revealed the following defects:

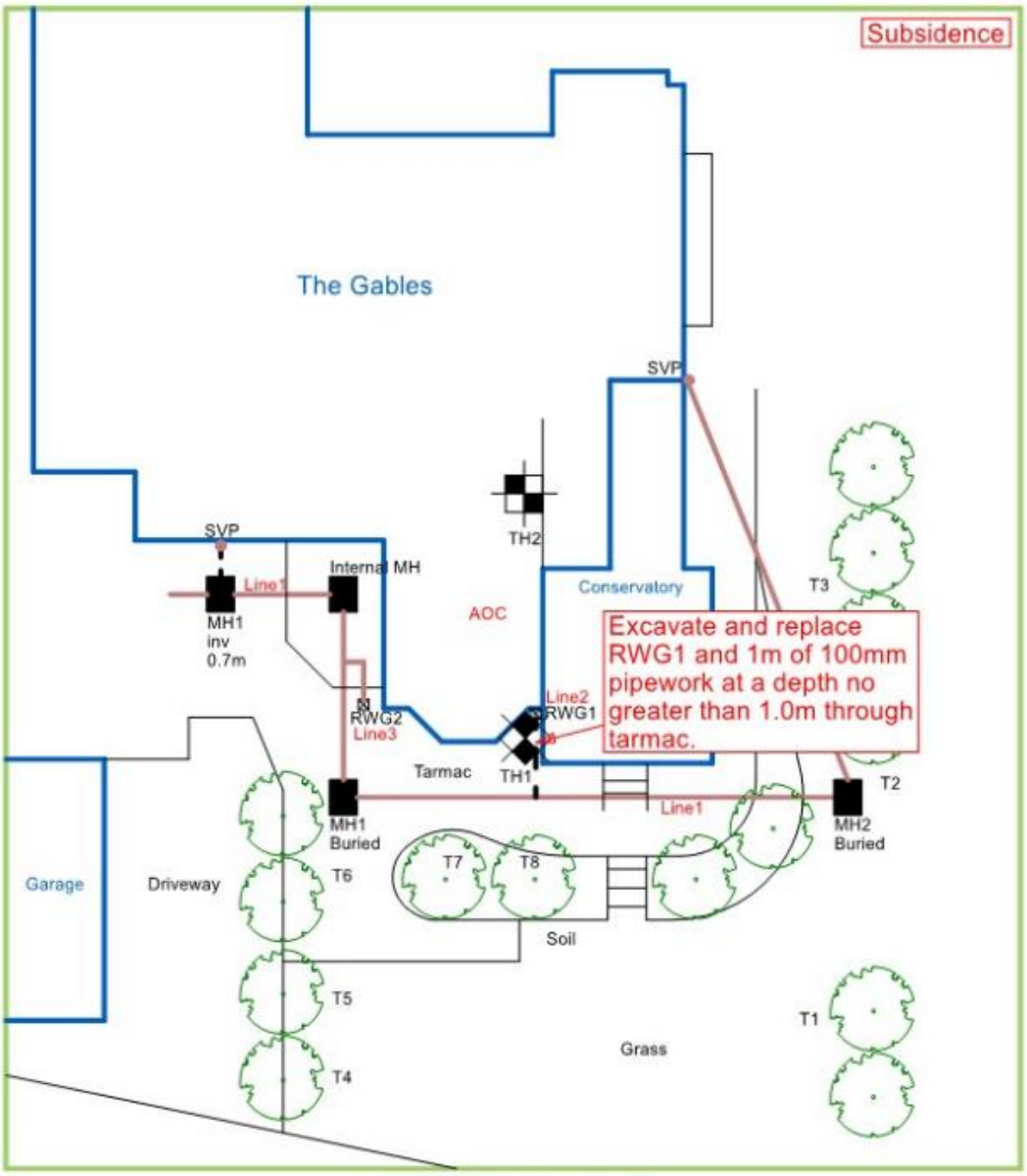
Line 1 - From MH1 downstream to Buried MH2
The survey of line 1 revealed a joint displacement at 0.83m downstream. However, this defect was noted to be outside the area of concern.

Line 2 - From RWG1 downstream to Line 1
The survey of line 2 revealed a large joint displacement.

Line 3 - From RWG2 downstream to Line 1
The survey of line 3 revealed no significant defects to the pipework on this line which could be allowing an escape of water.

The following repairs were recommended, which have subsequently been completed:

Line 2
Excavate and replace RWG1 and 1m of 100mm pipework at a depth no greater than 1.0m through hot lay tarmac.



Summary

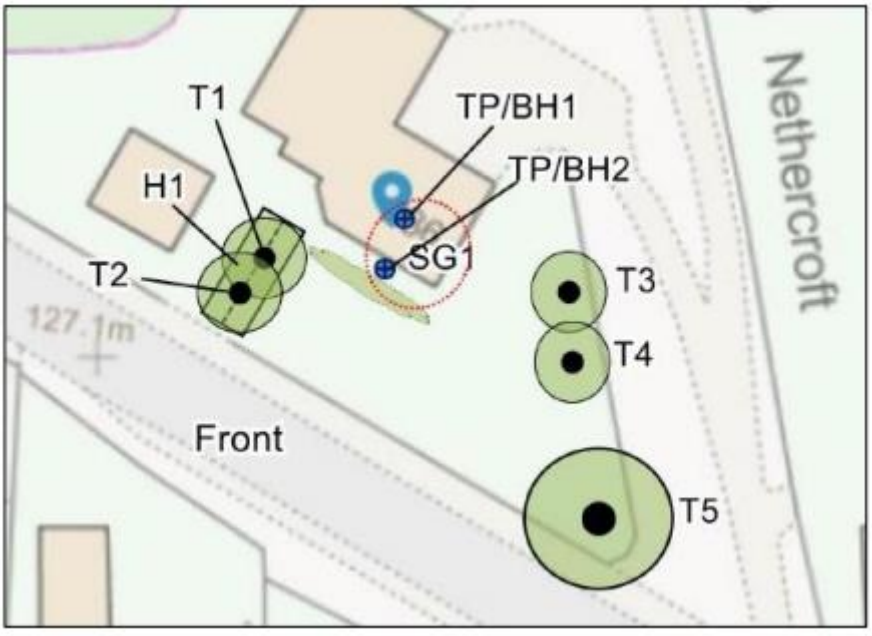
The site investigation has confirmed that the damage to the property is attributable to tree-root induced clay shrinkage subsidence. Stiff, highly plastic clay was identified beneath the foundation, with evidence of severe clay desiccation.

To mitigate further movement, we recommended appointing an Arborist to assess nearby vegetation that may be influencing the property.

ARBORIST REPORT

An Aboricultural Report was obtained which recommended the following vegetation management:

Tree No.	Species	Ht (m)	Dia (mm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
T5	Sycamore	19	800 *	16 *	25	Similar Age to Property	Policy Holder
Management history		No recent management noted.					
Recommendation		Remove (fell) to near ground level and treat stump to inhibit regrowth.					



The implicated vegetation is protected by a Tree Preservation Order (TPO). Monitoring has therefore been undertaken in support of an application to the Local Authority.

Monitoring records obtained since January 2024 demonstrate a cyclical pattern of movement within the affected area, indicative of ongoing vegetation-related influence.

Following implementation of the proposed mitigation measures, monitoring should continue to verify that movement has ceased and that stability has been achieved. Once stability has been confirmed, permanent repairs may be considered. If consent for vegetation removal is not granted, alternative engineering solutions may need to be explored to mitigate the risk of further movement.

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