

## Engineering Final Report

This report sets out in concise terms the nature of the evidence collected and the consultant's conclusions and recommendations

### Policyholder, Property & Event Details

|                                   |                                                                                                                       |                                          |                                                                                         |                                                     |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------|
| <b>Policyholder</b>               | Mr Steven Namaseevayum                                                                                                | <b>Date of Discovery</b>                 | 09-Apr-24                                                                               |                                                     |
| <b>Risk Address</b>               | 3 Notley Place<br>Reading<br>RG4 8PW                                                                                  | <b>Our Ref</b>                           | IFS-PRE-SUB-24-0112296                                                                  |                                                     |
| <b>Location of Damage</b>         | Right hand side bedroom and external cracking                                                                         | <b>Date Affected Area(s) Constructed</b> | 2003<br><small>Addition/Conservatory</small>                                            | 2003<br><small>Main House/Original Building</small> |
| <b>Nature of Damage</b>           | Cracking to right hand side bedroom walls and ceiling and exterior cracking                                           | <b>Property Type</b>                     | Semi-detached Bungalow                                                                  |                                                     |
| <b>Crack Widths</b>               | Cat 3, 5mm to 15mm - moderate.                                                                                        | <b>Indicated Mechanism of Movement</b>   | Downward/rotational aspect of damage normally associated with an episode of subsidence. |                                                     |
| <b>Occupiers' Observations</b>    | The policy holder noticed cracking to their property and advised the insurer.                                         | <b>BRE Classification</b>                | Category 3                                                                              |                                                     |
| <b>Comments</b>                   | The site investigations support tree removal as recommended by the arborist as part of the current claim requirement. |                                          |                                                                                         |                                                     |
| <b>Previous Relevant Movement</b> | NA                                                                                                                    |                                          |                                                                                         |                                                     |

### Site Investigation & Monitoring Evidence

|                                             |                                                                                                                                                                                                                                                                          |                                                                    |                                                                                     |                                                                     |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| <b>Examination by Building Professional</b> | <input type="checkbox"/> Yes                                                                                                                                                                                                                                             | Ian Domigan PhD MFor Sci BSc Me CPEng (Structural) IntEng CERT CII |                                                                                     |                                                                     |
| <b>Arboriculture Assessment</b>             | <input type="checkbox"/> Yes                                                                                                                                                                                                                                             | <b>Report Ref(s):</b>                                              | SA254755                                                                            | <b>Date(s)</b> 10/05/2024                                           |
| <b>Geotechnical TP/BH Logs &amp; Pens</b>   | <input type="checkbox"/> Yes                                                                                                                                                                                                                                             | <b>Report Ref(s):</b>                                              | C77895G34379                                                                        | <b>Date(s)</b> 26/04/2024                                           |
| <b>Soil Laboratory Testing</b>              | <input type="checkbox"/> Yes                                                                                                                                                                                                                                             | <b>Ref:</b> L27868                                                 | <b>Plasticity</b> Very High                                                         | <b>Desiccated?</b> Yes <b>Date(s)</b> 08/05/2024                    |
| <b>Root Analysis</b>                        | <input type="checkbox"/> Yes                                                                                                                                                                                                                                             | <b>Report Ref(s):</b> R57619                                       | Carpinus spp. are hornbeams. <b>Date(s)</b> 30/04/2024                              |                                                                     |
| <b>Drainage Survey</b>                      | <input type="checkbox"/> Yes                                                                                                                                                                                                                                             | <b>Ref(s):</b> C77895 D27166                                       | No drainage defects within area of potential influence <b>Date(s)</b> 14th May 2024 |                                                                     |
| <b>Heave Risk after Tree Removal</b>        | <input type="checkbox"/> Low/None                                                                                                                                                                                                                                        | <b>Assessed By</b>                                                 | Ian Domigan                                                                         | PhD MFor Sci BSc Me CPEng (Structural) IntEng CERT CII              |
| <b>Building Monitoring</b>                  | <input type="checkbox"/> Level                                                                                                                                                                                                                                           | <b>Crack Width (+/- mm)</b>                                        | 5                                                                                   | <b>Level/Dist (+/- mm)</b> 5 <b>Date of last reading</b> 04/02/2026 |
| <b>Monitoring Confirms</b>                  | The cyclic movement to the right hand side of the property is due to the vegetation which needs to be removed or an engineering intervention is required                                                                                                                 |                                                                    |                                                                                     |                                                                     |
| <b>Supporting Comments</b>                  | We have obtained all necessary evidence to confirm causality, demonstrate property damage and implicate the outlined vegetation without a reasonable doubt. Seasonal movement can only be caused by the effect of moisture extraction and rehydration within Clay soils. |                                                                    |                                                                                     |                                                                     |

### Mitigation Actions / Scope of Repair

|                                                                                                                            |                                                                                                                                                                                                                                                                                                                         |                 |              |                            |                       |                                                            |     |
|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------|----------------------------|-----------------------|------------------------------------------------------------|-----|
| <b>Previous Mitigation?</b><br><input type="checkbox"/> No                                                                 | <b>Ownership</b>                                                                                                                                                                                                                                                                                                        | <b>Species</b>  | <b>Label</b> | <b>Action</b>              | <b>Date Completed</b> | <b>Date Drain Repairs Completed/ No Defects Confirmed:</b> | NA  |
|                                                                                                                            |                                                                                                                                                                                                                                                                                                                         |                 |              |                            |                       | <b>Ongoing Seasonal Movement?</b>                          | Yes |
| <b>If Effective Mitigation is REFUSED or Is a Root Barrier Possible?</b><br>(All Estimated & Subject to Feasibility Study) | <input type="checkbox"/> Yes                                                                                                                                                                                                                                                                                            | <b>Location</b> | Policyholder | <b>Estimated Depth (m)</b> | 3                     | <b>Length (m)</b>                                          | 12  |
| <b>Mitigation Statement</b>                                                                                                | Should the effective mitigation, or the funding/installation of a root barrier be refused, we will have no other option but to stabilise the building with a scheme of traditional mass concrete underpinning (stabilisation), and pursue the local authority for a recovery of these significant costs as noted above. |                 |              |                            |                       |                                                            |     |
|                                                                                                                            | <b>'Stabilisation' costs (excl. Superstructure)</b>                                                                                                                                                                                                                                                                     |                 | £ 63,360.00  |                            | <b>or</b>             |                                                            |     |
|                                                                                                                            | <b>Estimate</b>                                                                                                                                                                                                                                                                                                         |                 | £ 37,800.00  |                            | <b>+ VAT</b>          |                                                            |     |

### Conclusion & Recommendations

The affected building is a 3-bedroom semi-detached house, constructed 2003 under a pitched and flat roof with a solid ground bearing ring foundation. The building is constructed of traditional design, with external masonry cavity walls and masonry single skin partition walling with a suspended timber first floor. The damage was first noticed in early spring of 2024. To the right-hand side we have cracking to the bedroom wall and external cracking. This damage aligns with the monitoring results.

The house foundations were measured at 2000mm BGL. This is below the depth of naturally occurring moisture evaporation and as such any influence on soil moisture content can only be caused by the seasonal effects of vegetation. Shrinkable, high plasticity Clay soils were encountered, and Penetrometer testing confirmed these soils to hold an adequate bearing capacity. Hornbeam roots were found to 2.7m deep under the foundation. The discovery of these roots has assisted the Arborist with the identification of the causal vegetation. Our investigations have confirmed that the cause of the property damage is clay shrinkage subsidence. Causal vegetation has been identified as the policy holder's vegetation, labelled T3, T4, T5 in the Arborist report mentioned above. The policy holder owns T3, T4, T5 Hornbeam which we have identified as a significant contributory influence on the building movement. The trees are located within influencing distance of the areas of damage and geotechnical investigations have confirmed roots of all three species penetrate underneath the affected foundations. Any defective drainage within an area of potential influence has been repaired, and seasonal movement has continued since this has been completed. In order to prevent any further and progressive damage to the building, we now require the removal of this vegetation.