

### Engineers Addendum 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 Name</b>	Mr Mark Christie	<b>Date of discovery</b>	Summer 2018
<b>Risk Address</b>	Oakfield, Saint John 's Avenue, Thorner, West Yorkshire, LS14 3BZ	<b>Our Ref</b>	IFS-ESU-SUB-18-0078349
<b>Location of damage</b>	Front left-hand parts of the property	<b>Date of relevant construction</b>	01/01/1960
<b>Nature of Damage</b>	Cracking internally to the front left-hand parts of the property	<b>Property Type</b>	Two storey detached house
<b>Crack Widths</b>	Category 2 and would be classified as slight.	<b>Indicated mechanism of movement</b>	Downward rotational movement towards the implicated vegetation
<b>Occupiers' Observations</b>	The PH noted cracking in 2018, drain repairs were carried out and cracks repaired in 2021. Damage reappeared in summer 2022.	<b>BRE Classification</b>	Category 2
<b>Comments</b>	Damage first noted in 2018. Investigations noted drainage defects and these were repaired in June 2020. Site investigations implicated the Beech tree, however monitoring showed low levels of movement and therefore no TPO application was submitted. Superstructure repairs were carried out in 2021. Damage reappeared in summer 2022.		

#### Investigation Evidence

<b>Examination by Building Professional</b>	<input type="checkbox"/> Yes	Stephen Rutherford	BSc (Hons) MCIQB
<b>Trial Hole/Bore Hole Excavations</b>	<input type="checkbox"/> Yes	Intermediate plasticity clay soils below the front of the property	Date of related SI <input type="text" value="09/12/2019"/>
<b>CCTV Drainage survey</b>	<input type="checkbox"/> Yes	The drains are not implicated in the damage	Date of Drain survey <input type="text" value="28/11/2019"/>
<b>Soil Laboratory Testing</b>	<input type="checkbox"/> Yes	Shrinkable soils <input type="checkbox"/> Yes	Desiccated soils <input type="checkbox"/> No
<b>Root Analysis</b>	<input type="checkbox"/> Yes	Fagus (Beech) roots to 1.7m below ground level	Date of related SI <input type="text" value="29/05/2020"/>
<b>Arboriculture Assessment</b>	<input type="checkbox"/> Yes	Removal of T1 Beech, H1 Beech and section of SG1 Mixed Species Group	Date of related SI <input type="text" value="16/11/2022"/>
<b>Heave Risk after tree removal</b>	<input type="checkbox"/> No	Assesed By	Stephen Rutherford stephen.rutherford@innovation.group
<b>Building Monitoring</b>	<input type="checkbox"/> Yes	Crack Width <input type="checkbox"/> No	Level/Distortion <input type="checkbox"/> Yes
<b>Monitoring to date confirms</b>	Seasonal movement to the damaged areas of the property during 2023		
<b>Supporting Comments</b>	The level monitoring confirms seasonal movement over summer/autumn 2023, with the most pronounced movement being to point 6a, on the front left-hand corner of the property, this being closest to T1 Beech. This is the dominant vegetation at the property.		

#### Repair Scope

<b>If prompt vegetation removal</b>	Only Superstructure repairs required	Initial likely cost of repairs	£10,000
<b>If NO vegetation is removed</b>	Intervention or sub-structure stabilisation	Potential additional costs	£70,000
<b>Supporting Comments</b>	If the TPO application seeking removal of T1 Beech is not approved and we are unable to remove this tree, we will need to obtain a design/quote for either a root barrier or underpinning/piling from a specialist company		

#### Conclusions & Recommendations

The subject property is a 2 storey detached house with 4 bedrooms. Damage was first noted in 2018. Drainage repairs were completed in June 2020. Site investigations confirmed plastic clay soils and roots from the Beech species below the damaged areas of the property. However monitoring at that time did not support a TPO application. Therefore superstructure repairs were carried out in 2021. Damage reoccurred in summer 2022. Level monitoring recommenced in November 2022.

The site investigation has confirmed that the cause of the subsidence is clay shrinkage. The foundations to the front elevation of the house are 600mm deep and bear on a clay soil with adequate bearing capacity. The clay soil is intermediate plasticity with roots to a depth of 1700mm. The roots were identified as emanating from a Beech tree, which we are aware to be the policyholder protected tree T1 in the front garden of the risk address. The tree is protected by a TPO.

The drains at the front of the property have been surveyed and repairs were completed to minor defects in June 2020. Leaking drains were therefore eliminated as a potential cause at that time.

Level monitoring has shown noted seasonal movement to the front left-hand parts of the property during summer/autumn 2023. This implicates T1 Beech, this being the dominant vegetation within influencing distance of the damaged areas of the property.

Given the above factual evidence we conclude that the policyholder protected tree T1 Beech is the cause of the damage and we require its removal to arrest the current episode of subsidence. A TPO application will be submitted seeking approval to remove this tree. Once removed, monitoring will continue to confirm stability. If the TPO application is refused, we will obtain a design and quote to stabilise the damaged areas of the property with the tree remaining in-situ. We will then instruct solicitors to seek recovery of the cost of this from the local authority.