



2 The Boulevard, City West One Office Park, Gelderd Road, Leeds, LS12 6NY
01924 428691

Policyholder

Subject Property Address:

2c Padnell Avenue
WATERLOOVILLE
Hampshire
PO8 8DY

INSURANCE CLAIM

CONCERNING SUBSIDENCE DAMAGE

ENGINEERING APPRAISAL REPORT

This report is prepared on behalf of [REDACTED] for the purpose of investigating a claim for subsidence. It is not intended to cover any other aspect of structural inadequacy or building defect that may otherwise have been in existence at the time of inspection.

Date: 23/01/2024

Our Ref: [REDACTED]

INTRODUCTION

This report has been prepared by our Chartered Builder, Neville Ingley , and is being investigated in accordance with our Project Managed Service.

Unless stated otherwise all directions are referred to as looking towards the front door from the outside the property.

DESCRIPTION OF BUILDING

The subject property is Semi detached bungalow in a residential estate on a plot that is level. The overall layout is recorded on our site plan.

The property also has .

The general layout of the site is shown on the attached sketch plan.

There are trees within influencing distance of the property. Two English oak trees in excess of 18m tall are located beyond the site boundary within 4m of the rear right-hand corner of the property which are the responsibility of a commercial third party.

The drainage system is a separate/combined system which is shown on the attached plan.

There is a water main/service pipe in the position indicated on the plan.

CIRCUMSTANCES OF DISCOVERY OF DAMAGE

The policyholder and homeowner [REDACTED] first discovered the damage in August 2022. When he perceived the floor had dropped and cracks began to appear in the walls of the bungalow.

The policyholder noticed that the floor had dropped and cracks were starting to appear in the bungalow. The policyholder reported the matter to his insurers..

NATURE AND EXTENT OF DAMAGE

Site notes containing photographs the layout of the site and the damage are attached.

Description and Mechanism

The principal damage takes the form of downward movement of the internal floor notably in the ensuite bathroom

Internal damage takes the form of cracking to internal walls in the area of the rear right-hand corner predominantly.

There is damage evident to the exterior walls in the form of diagonal cracking through the render finish replicating that evident internally.

Indicate any damage to other external features such as garages, outbuildings, paths drives walls etc. State crack widths, type and orientation.

The indicated mechanism of movement is a downward rotation to the rear right-hand corner in the direction of the implicated oak trees.

Significance

The level of damage is severe, and is classified as category 4 in accordance with BRE Digest 251 - Assessment of damage in low-rise buildings..

Onset and Progression

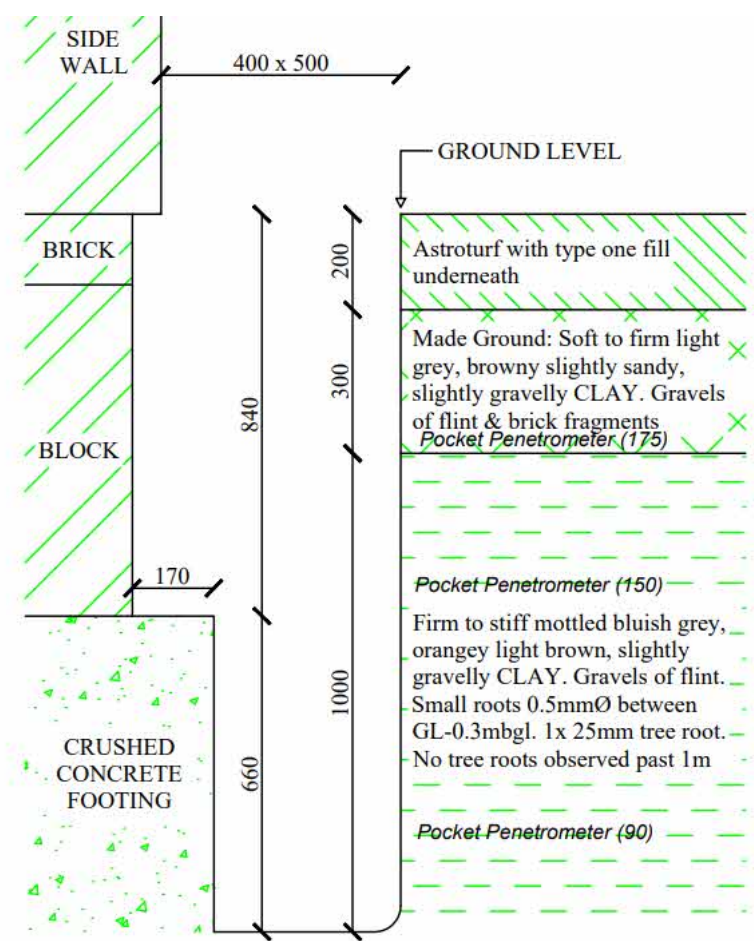
[REDACTED] has advised that damage first commenced in August 2022.

We consider that the damage has occurred recently.

It is likely that movement will be of a cyclical nature with cracks opening in the summer and closing in the winter.

SITE INVESTIGATIONS

Reference to the solid and drift geological survey map shows the anticipated subsoil as clay subsequently confirmed by site investigations.



The ground investigation was carried out by CET Safehouse Ltd on 14/02/2023for details of the trial pit and borehole locations, together with test results, please refer to the attached CET factual report.

This was located at the rear right-hand corner of the property.

The underside of the foundation is at 1.5m below ground level with the foundation comprising a crushed concrete strip. The soil beneath the property foundations has been identified as firm to stiff mottled bluish grey orangey light brown slightly gravelly clay with roots identified as oak as described in the section above.

Samples of root taken from beneath the foundations have been analysed and originate from an oak tree. There are 2 oak trees located directly beyond the rear boundary of the site which are in the ownership of a commercial third party.

The site investigation results confirm clay shrinkage due to the action of the oak tree roots upon the clay subsoil.

No drainage investigations have been undertaken as the drains are a significant distance from the area of damage and the site investigation has shown the soil to be dry which suggests the drains have not adversely affected the soils.

Further investigations were considered such as DNA root testing and discounted as there are no other similar species in close proximity to the property.

MONITORING

Crack width/level monitoring has been underway since April 2023 and will continue for 8 months with readings taken every 8 weeks.

In summary, the results to date show seasonal movement characteristic of root exacerbated clay shrinkage particularly in the area of the right-hand elevation.

Results of the crack width/level monitoring carried out to date are attached in table/graphical format together with a plan showing the location of the monitoring studs within the insured property.

CAUSE OF DAMAGE

Taking an overview of all the site investigation results referred to above, it is my opinion that the cause of damage results from clay shrinkage subsidence brought about by the action of roots from the oak trees located in the slightly beyond the rear boundary of the risk address.

I base this view on the fact that the foundations of the property in the area of damage, although not at a relatively shallow depth, bear onto shrinkable clay subsoil. The soil is susceptible to movement as a result of changes in volume of the clay with variations in moisture content and analysis of the site investigation results indicates that the soil has been affected by shrinkage. Oak tree roots are present in the clay subsoil beneath the foundations. In this case, I am satisfied that the damage has therefore been caused by clay shrinkage subsidence following moisture extraction by the oak trees.

I have also considered whether there could be any other influencing factors however the evidence provided by the site investigations together with the advice received from our arborist and the lack of any alternative potential causation lead me to conclude that the oaks are responsible for the damage to the insured property.

I am satisfied that there is no factor, other than the oak trees, that is causing the damage.

RECOMMENDATIONS

It is recommended that the oak tresstree located in the grounds of the neighbouring commercial property beyond the boundary of the risk address and close to the property are removed to mitigate against further movement. The Mitigation Centre will liaise with the Local Authority in this regard.

Level monitoring will continue after removal of the trees in order to check for stability. A detailed scope of repairs will be finalised upon conclusion of the monitoring.

HEAVE ASSESSMENT

I have assessed whether significant heave/ground recovery will occur should the vegetation as referred to above be removed.

I conclude that this is not the case as no desiccation has been found in the soil samples. The reason for the lack of desiccation is that the clay subsoil has rehydrated over the wetter winter months such that the moisture deficit that would have existed last summer has been replenished, and equilibrium moisture content has returned. Consequently, as there is no desiccation then there cannot possibly be any heave/swelling of the clay subsoil.

In summary, based on the site investigation results, the timing of the investigation and the nature and extent of damage within the property, I have concluded that significant heave and/or ground recovery will not occur should the vegetation management described above be undertaken.

REPAIRS

If the trees are removed, then I consider that works including structural crack repair and redecoration at an approximate cost of £75,000 will be appropriate in order to repair the damage in this case.

If the street tree is not removed, then it may be necessary to consider underpinning of the foundations of the property in the area of damage, in addition to structural crack repair and redecoration needed to repair the damage. The total cost of this option is estimated at £160,000.

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