



4 North Court, South Park Business Village, Maidstone, ME15 6JZ
01622 608810

Subject Property Address:

20 Grove Farm Park
NORTHWOOD
Middlesex
HA6 2BQ

INSURANCE CLAIM

CONCERNING SUBSIDENCE DAMAGE

ENGINEERING APPRAISAL REPORT

This report is prepared on behalf of , or 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: 10/02/2021

Our Ref: 8697629

INTRODUCTION

This report has been prepared by our Chartered Builder, Gavin Catheline MCIOB, 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 a five-bedroom detached house constructed in approximately 1978, in a residential area and on a plot that is generally level. To the rear of the property is a dining room bay window extension which was added by the previous owner in 1988.

The claim concerns damage to the rear single storey bay window extension constructed in 1988, and the external features of the property, including the patio and garden retaining walls.

CIRCUMSTANCES OF DISCOVERY OF DAMAGE

The Policyholder and homeowner, _____ first discovered the damage in July 2019.

_____ suddenly discovered cracking in the dining room bay window. I _____ sought advice from a loss assessor and then notified Insurers of a possible claim.

NATURE AND EXTENT OF DAMAGE

Description and Mechanism

The principal damage takes the form of vertical and diagonal cracking to the walls of the single storey bay window extension, which have formed at the junction with the main house.

The Policyholder has also reported cracking and distortion to the external features, including the patio and garden retaining walls, which are alleged to have occurred at the same time as the damage to the extension.

The indicated mechanism of movement is downward towards the rear.

Significance

The level of damage is moderate, and is classified as category 3 in accordance with BRE Digest 251 - Assessment of damage in low-rise buildings.

Onset and Progression

as advised that damage first commenced in summer 2019.

We consider that the damage to the bay window extension has occurred recently, but that some of the damage to the external features is historic. This evidenced by the nature and appearance of the damage and sign of previous repairs.

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

SITE INVESTIGATIONS

Site investigations were undertaken by CET Property Assurance Ltd on 5th December 2019, and comprised the excavation of two trial pits extended by hand augured boreholes.

Trial pit 01/borehole 01 was excavated adjacent to the rear wall of the single storey bay window extension, within the area of damage, and this revealed a concrete foundation with an overall founding depth of 750mm below ground level. The founding subsoil is described as stiff, orange/brown, silty CLAY with numerous roots up to 20mm in diameter observed beneath the foundations. The stiff clay subsoil extended throughout the borehole to a depth of 5.0m, becoming very stiff from 2.0m and with further roots being observed to a depth of 4.0m below ground level. The borehole was dry and open on completion.

Trial pit 02/borehole 02 was excavated adjacent to the rear right corner of the main house, and this revealed a concrete trench fill foundation with an overall founding depth of 3.0m below ground level. The founding subsoil at this location is described as very stiff, orange/brown, silty CLAY. No roots were observed beneath the foundations. The very stiff clay subsoil extended throughout the borehole to a depth of 5.0m below ground level. No roots were observed throughout the borehole, which was dry and open on completion.

The subsoil samples retrieved from both boreholes were sent to a laboratory for analysis. This has revealed that the clay subsoil is of very high plasticity index, meaning that the subsoil is very susceptible to movement due to shrinkage and swelling with variations in moisture content. This is to say that if moisture is withdrawn from the subsoil, for example due to the action of roots, then shrinkage, i.e. a volumetric reduction will occur.

The roots samples retrieved from beneath the single storey bay window extension foundations were sent to a laboratory for analysis and have been identified as *Quercus* – which are Oaks. These roots clearly emanate from the Oak tree to the rear of the property, on land which appears to come under the control of a local authority or a third party.

MONITORING

Crack width and level monitoring has been carried out to the property within the area of damage.

The level and crack width monitoring readings taken between 14th May 2020 and 7th December 2020 indicate downward movement during the summer and recovery during the recent wetter winter months. This pattern of movement confirms the operation of a clay shrinkage and swelling mechanism and the involvement of the Oak tree, T6 as identified in the Arboricultural Report from PRI UK Ltd.

CAUSE OF DAMAGE

Based on the information detailed above, we are of the opinion that damage has occurred due to clay shrinkage subsidence. This has been caused by moisture extraction by roots altering the moisture content of the clay subsoil, resulting in volume changes, which in turn have affected the foundations.

RECOMMENDATIONS

Our recommendation is that mitigation measures are undertaken to address the cause of damage and restore stability to the clay subsoil and building foundations.

MITIGATION

We consider the damage will not progress if appropriate measures are taken to remove the cause. In this instance it is likely that vegetation for which a Local Authority or commercial third-party are responsible is contributing toward the cause of damage.

We recommend that tree management works are undertaken to include removal of an Oak tree on land to the rear of the property. This Oak tree has a height of approximately 15.4 metres and stands approximately 15.1 metres from the rear right corner of the property on land which appears to come under the control of a local authority or commercial third-party.

We recommend that this Oak tree referred to as T6 in the Arboricultural Report is removed to mitigate against further damage to the property.

REPAIR

We have not decided on the final type of repair required as our investigations have not yet been concluded, but repairs are most likely to involve undertaking superstructure repairs and redecoration. This decision will be taken based on our knowledge and experience of dealing with similar claims. In addition, the results of the site investigation, laboratory testing and monitoring will be taken into account.

HEAVE ASSESSMENT

We have assessed whether significant heave will occur should the vegetation as referred to above be removed.

We 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, we have concluded that significant heave will not occur should the vegetation management described above be undertaken.

REPAIR COSTS

If the Local Authority Oak tree is removed then we consider that works including structural crack repair and redecoration at an approximate cost of £10,000.00 will be appropriate in order to repair the damage in this case.

If the Local Authority Oak 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 £50,000.00.

Gavin Catheline MCIOB
Building Consultant

Mark Fairweather Cert CILA
Claims Technician
Direct dial: 01622 301421
E-mail: Mark.Fairweather@uk.sedgwick.com