

Engineers Report

Risk Address

48 Gwendoline Drive
Countesthorpe
Leicester
LE8 5SE

360 Reference LIV-SN-22-005359
Insurer Reference 100-50-196159
Policy Holder Mr. Barry Hibberd

Date Notified 14.09.2022
Date Instructed 14.09.2022
Report Date 28.10.2022



Description of Premises

The Insured's property is a 3-bedroom, two storey semi-detached house. It was constructed circa 1970's from masonry cavity walls, under a pitched, concrete tile covered roof. There is a garage to the rear of the left-hand side of the property and a single storey extension, built by a previous owner to the rear of the property.

The property is located within a residential area of similar type properties, with no apparent adverse site features.

Discovery of Damage

The Insured noticed cracking in September 2022 to the garage and extension at the rear of their property. Insurers were subsequently notified, and a subsidence claim registered, in view of the policyholder's concerns.

Focus of Damage and Report

This document addresses damage notified to Insurers in relation to minor internal and external cracking to the house, generally orientated towards the right-hand side of the property. All directions are stated when viewing the property from the front.



14-09-22

Internal Damage

Rear Extension

Vertical cracking, up to approximately 2/3mm wide is evident at the junction of the left and right elevations and internal division wall where these abut the rear elevation of the main house. The cracking extends the full height of the walls. There is also horizontal cracking evident to the ceiling, running from left to right, at the junction with the rear elevation of the main house.

Stairs

There is a diagonal crack up to approximately 1/2mm wide evident below the left elevation window cill extending down to the stair wall stringer.

External Damage

The internal damage to the extension is generally reflected externally, in the form of a tapered, diagonal / stepped crack, varying in width up to approximately 2mm wide, to the left-hand side elevation at the junction with the rear elevation of the house. The crack extends from external ground level, up towards the roof.

To the garage there is horizontal and stepped cracking to the rear left-hand corner of the garage, varying in width up to approximately 10mm wide. There is a crack running across the rear section of the garage, left to right.



Picture 1: Internal cracking to rear extension



Picture 2: : Internal cracking to rear extension



Picture 3: External cracking to rear extension



Picture 4: External cracking to garage

Non-Subsidence Related Damage

There is no further damage of significance understood to be present elsewhere within the property.

Classification of Damage

It is common practice to categorise the damage in accordance with B.R.E. Digest 251 "Assessment of Damage in Low-Rise Buildings". In this case, the damage falls into Category 3 "Moderate" as there is cracking up to approximately 10mm wide.

| Category | Crack Width | Degree of Damage |
|----------|---|------------------|
| 0 | Hairline cracks of less than 0.1 mm | Negligible |
| 1 | Typical crack widths are 0.1 to 1mm. | Very slight |
| 2 | Typical crack widths are 1 to 5mm. | Slight |
| 3 | Typical crack widths are 5 to 15mm, or several of, say, 3 mm. | Moderate |
| 4 | Typical crack widths are 15 to 25mm, but also depends on number of cracks. | Severe |
| 5 | Typical crack widths are greater than 25mm but depends on number of cracks. | Very Severe |

Site Geology and Ground Conditions

The geological data indicates the ground to be a clay soil, which is susceptible to shrinkage in dry periods, particularly in the presence of vegetation.

Indicative Site Geology and Soils Data for: 48 Gwendoline Drive, Countesthorpe, Leicester, LE8 5SE

| | |
|--|------------|
| No of SI's within 3.6km from address on identical lithology. (See comments) | 5 |
| Closest - Furthest distance of a site investigation from the address (km). | 0.44 - 3.6 |
| Total number of boreholes. | 9 |
| Percentage of site investigations where root samples were taken. | 100% |
| Percentage of site investigations where drainage was recorded. | 40% |
| Number of samples tested at greater than 0.5m depth. | 31 |
| BRE Digest 240. "Volume change potential" from Av. Modified Plasticity Index (I _p) of 26%. | Medium |

| Previous Soils Data nr = Non recorded | Depth m. | M.C. (%) | L.L. (%) | P.I. (%) | P.L. (%) | 425um (%) | Suction kPa | Oed Strain |
|---|--|-------------|-------------|-------------|-------------|--------------|----------------|---------------|
| Sample population | 31 | 31 | 14 | 14 | 14 | 14 | 9 | 13 |
| ~ Minimum (Av - 1 StdDiv) | 0.7 | 17 | 41 | 23 | 16 | 88 | 31 | 0.0067 |
| ~ Maximum (Av + 1 StdDiv) | 2.7 | 25 | 49 | 31 | 20 | 99 | 542 | 0.0190 |
| Average | 1.6 | 21 | 45 | 27 | 18 | 94 | 210 | 0.0067 |
| General soils description | Firm brown/grey sandy CLAY with some fine-medium gravel / silt and rare chalk | | | | | | | |
| BGS 1:50 000 maps as a: Superficial Deposit | 1:50 000 scale bedrock geology description: Blue Lias Formation - Mudstone And Limestone, Interbedded. Sedimentary Bedrock formed in the Jurassic period. Local environment previously dominated by shallow lime-mud seas. Setting: Shallow lime-mud seas and shallow seas. These sedimentary rocks are shallow-marine in origin. They are detrital and biogenic, generally comprising fine-grained sediments, with carbonate material (coral, shell fragments) forming interbedded sequences. | | | | | | | |
| BGS 1km Hexagonal Superficial Deposit Depth Data | 1:50 000 scale superficial geology description: Till, Mid Pleistocene - Diamicton. Superficial Deposits formed in the Quaternary period. Local environment previously dominated by ice age conditions (U). Setting: Ice age conditions (U) with glacial tills deposited by ice. These sedimentary deposits are glacial in origin. They are detrital, created by the action of ice and meltwater, they can form a wide range of deposits and geomorphologies associated with glacial and inter-glacial periods during the Quaternary. | | | | | | | |
| Mean Depth = 3m Max Depth = 7m Coverage = 100% Note: The BGS only record superficial deposits greater than 1m in depth | | | | | | | | |
| BGS 1:50,000 Artificial Ground | Non recorded | | | | | | | |

| BGS "GeoSure" 5km Hexagonal Hazard Ratings | |
|---|---|
| Shrink/Swell | Moderate |
| Collapsible Deposits | Low |
| Compressible Ground | Low with areas of localised significant rating. |
| Landslides | Low with areas of localised significant rating. |
| Running Sand | Low with areas of localised significant rating. |
| Soluble Rocks | Low |
| Mining (not coal) 1km hx grid | Localised small scale mining may have occurred in the area. |

| | |
|--|-------------------------------------|
| Government Coal Authority Data (<25m = found within 25m) | No data recorded for this location. |
|--|-------------------------------------|

Comments: The location is in a low SI density area. The five SIs reported above are on exactly the same Superficial deposit. The superficial deposit is relatively shallow with an average depth of ≈3m and a maximum depth of ≈7m. The underlying bedrock has an Av. Modified Plasticity Index (I_p) of 37% - Medium volume change potential.

Evidence of External Influences

Trees

There are a number of trees located on the disused railway line to the rear of the property and these trees are likely to be influencing ground conditions beneath the property.

Drains

The property is served by domestic drainage, predominantly to the rear and left-hand side. We will need to check the drains in close vicinity of the damage, to see if they are leaking and having any influence on ground conditions.

Summary and Conclusions

The pattern and orientation of damage noted to the property is indicative of localised subsidence. A valid claim is therefore accepted for the damage to the property, subject to the subsidence policy excess of £1000.

The cause of the localised subsidence, generally orientated towards the rear extension and the rear of the garage, appears to be clay shrinkage, exacerbated by the water demand of the nearby vegetation, within the disused railway line to the rear of property.

In order to mitigate further subsidence damage occurring, it will be necessary to remove the cause of the problem, and this may be any implicated trees / vegetation and / or leaking drains. This should allow the ground to stabilise.

The removal of trees or vegetation belonging to third parties, however, can be problematic and the success of securing any agreement can vary dependant on the individual circumstances. A course of level monitoring may need to be introduced over a 6-12 month period to obtain evidence that will support our request to the tree owners for tree removal, along with any further site investigations deemed necessary.

An Arborist report is being obtained, in order to assist discussions with the neighbours, and the local authority, where applicable.

Following completion of the mitigation works described above, and a period to allow the ground to rehydrate, crack repairs and redecoration to the affected areas of the property can proceed. A repair schedule will be drawn up and agreed in due course.

Next Steps

A valid claim arises under the terms of the insurance policy, subject to the applicable excess of £1000, for the localised subsidence damage to the property, generally orientated towards the rear extension and the rear of the garage.

The key steps required to progress the claim are as follows:

- Contact the Insured and arrange for site investigations to be undertaken at a suitable date. These will include trial hole excavations at the rear extension and garage along with a drainage survey of the drains along the rear of the house.
- Instruct an Arborist to survey and identify the extent of tree works required to mitigate further damage.
- Liaise with the relevant owners of any implicated vegetation to arrange any recommended tree removal to be undertaken as soon as possible.
- Arrange repairs to leaking drains where required, under the terms of the insurance policy.
- Following completion of the above mitigation, allow the ground to rehydrate, before proceeding with repairs to the property.

Provided vegetation removal can be achieved, it is anticipated that the ground will recover, with only crack repairs and redecoration works therefore being required to the affected areas. A repair schedule has been drawn up, although this will be finalised following completion of any mitigation measures, as applicable.

Ian McKenna BSc (Hons) MRICS MCIQB Dip CII
360Globalnet Subsidence Team