Engineers Report

Risk Address 1a Durley Avenue
Waterlooville
PO8 8XA

[redacted]

Date Notified 17 October 2022
Date Instructed 17 October 2022
Report Date 21 December 2022

Description of Premises

The insured property is a 4-bedroom, detached house. It was constructed in the 1970's with a hipped tiled roof and external cavity walls.

There is a detached double garage at the rear of the property. The garage is constructed of 100mm brickwork walls with integral brick piers supporting a pitched roof covered with profiled roofing sheets. The right hand flank wall of the garage forms the right hand boundary with the adjacent property.

The property is located within a residential area of similar type properties.

Discovery of Damage / Background

[redacted]

Focus of Damage and Report

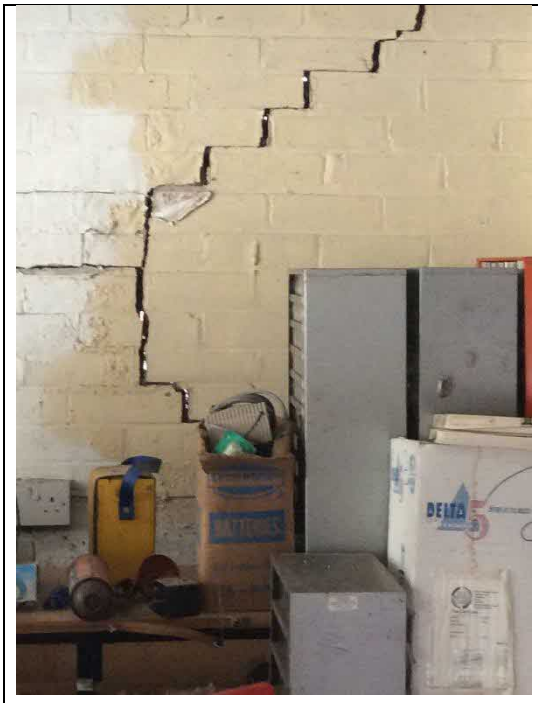
This document addresses damage notified to insurers in relation to cracking of the detached garage walls. All directions are stated when viewing the property from the front.

Garage:

There is stepped cracking to the bed joints of the rear wall and the right hand flank wall. The cracks are between 10mm and 15mm and are visible internally and externally. Several bricks are also cracked.

Front of garage

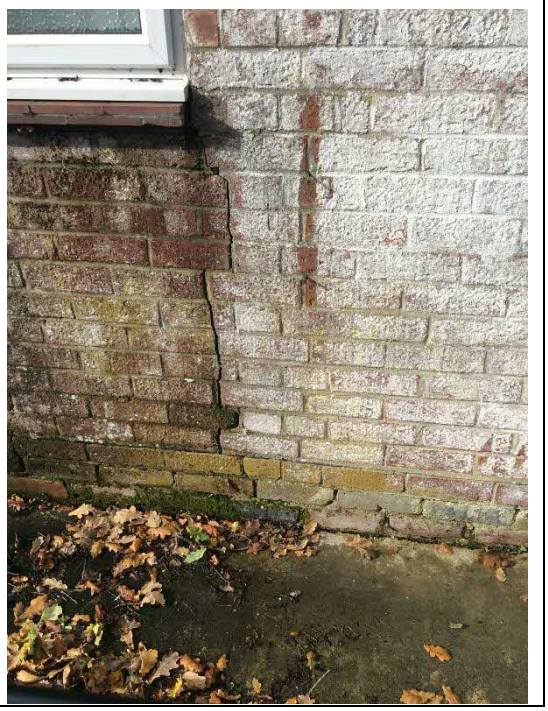
Left hand flank wall of garage



Cracks to right flank wall

Cracks to right flank wall

Cracks to right flank wall



Crack to rear wall

Non-Subsidence Related Damage

There is no other damage to the house relating to subsidence movement.

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 5-15 mm 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 highly susceptible to shrinkage in dry periods, particularly in the presence of vegetation.

360Globalnet

Indicative Site Geology and Soils Data for:

1A Durley Avenue, Waterlooville, PO8 8XA

No of SI's within 1.2km from address on identical lithology. (See comments)	9
Closest - Furthest distance of a site investigation from the address (km).	0.4 - 1.2
Total number of boreholes.	15
Percentage of site investigations where root samples where taken.	56%
Percentage of site investigations where drainage was recorded.	11%
Number of samples tested at greater than 0.5m depth.	90
BRE Digest 240. "Volume change potential" from Av. Modified Plasticity Index (I'p) of 43%.	High

Previous Soils Data nr = Non recorded	*Depth m.*	*M.C. (%)*	*L.L. (%)*	*P.I. (%)*	*P.L. (%)*	*425um (%)*	*Suction kPa*	*Oed Strain*
Sample population	90	90	26	26	26	26	53	19
~ Minimum (Av - 1 StdDiv)	0.5	24	52	31	20	98	7	0.0206
~ Maximum (Av + 1 StdDiv)	6.4	33	78	53	26	100	690	0.0510
Average	2.9	28	65	42	23	99	218	0.0206
General soils description	Firm brown/grey sandy CLAY with some fine gravel / silt							
BGS 1:50 000 maps as a: Bedrock Geology	**1:50 000 scale bedrock geology description:** London Clay Formation - Clay, Silt And Sand. Sedimentary Bedrock formed in the Palaeogene period. Local environment previously dominated by deep seas. **Setting**: Deep seas. These sedimentary rocks are marine in origin. They are detrital and comprise coarse- to fine-grained slurries of debris from the continental shelf flowing into a deep-sea environment, forming distinctively graded beds.							
BGS 1km Hexagonal Superficial Deposit Depth Data Mean Depth = 1m Max Depth = 1m Coverage = 19% Note: The BGS only record superficial deposits greater than 1m in depth	**1:50 000 scale superficial geology description:** None recorded.							
BGS 1:50,000 Artificial Ground	Non recorded							

BGS "GeoSure" 5km Hexagonal Hazard Ratings	
Shrink/Swell	Significant with areas of localised significant rating.
Collapsible Deposits	Moderate
Compressible Ground	Low with areas of localised significant rating.
Landslides	Low with areas of localised significant rating.
Running Sand	Moderate with areas of localised significant rating.
Soluble Rocks	Significant
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 high SI density area. The nine SIs reported above are on exactly the same Bedrock Geology with no overlying Superficial deposits.

Contains British Geological Survey materials © NERC [2022] 18-10-22

Evidence of External Influences

Trees

There is a large tree situated at the rear of the right hand neighbours property. This tree is likely to be influencing ground conditions beneath the porch.

Drains

We do not consider that drains are influencing the movement of the garage

Summary and Conclusions

The pattern and orientation of damage noted to the property is indicative of localised subsidence of the garage down towards the rear right hand corner.

The cause of the localised subsidence, appears to be clay shrinkage, exacerbated by the water demand of the nearby vegetation.

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

The removal of trees or vegetation belonging to third parties 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 12-month period to obtain evidence that will support our request for tree removal, along with any further site investigations deemed necessary.

An Arborist report is being obtained, in order to assist discussions with the owners of the tree 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, for the localised subsidence damage to the house.

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

- Contact policyholder and arrange for site investigations to be undertaken at a suitable date. These will include trial holes to the rear of the garage.
- Instruct an Arborist to survey and identify 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.
- Following completion of above mitigation, allow 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 redecorations 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.

David Preston *IEng AMIStructE, MCIOB, AssocRICS*
360Globalnet Subsidence Team