Engineers Report

Risk Address	**Helios House Clarkes Lane Barsham NR34 8HN**
360 Reference	**LIV-SN-22-006091**
Insurer Reference	**610-11-000307**
Policy Holder	**Mrs. Ann Gaskin**
Date Notified	**11th November 2022**
Date of Assessment	**16th January 2023**
Report Date	**16th January 2023**

Description of Premises

The property is a detached house of traditional construction with part rendered masonry walls surmounted by a pitched tiled roof. The property is believed to have been constructed in the 1970s and benefits from a front porch and detached garage.

The property is located on a level site with no unusual features, in a residential location amongst other properties of a similar style and vintage.

Discovery of Damage

The policyholder has advised that was noted in August 2022 and Insurers were therefore 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 cracking, focussed mainly to the main building. It should not be considered to be an exhaustive list. All directions are stated when viewing the property from the front.

Internal Damage – All rooms

- Tapering cracking above and below windows up to 10mm wide.
- Tapering cracking above doors.
- Cracking to floor tiles.

External Damage – Front and rear elevations

- Tapering cracking above and below windows.
- External reader is in a poor state of repairs.

Tapering cracking above and below windows up to 10mm wide.

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Tapering cracking above and below windows up to 10mm wide.

Render in a poor state of repair on gable wall.

Tapering cracking above and below windows up to 10mm wide.

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 to the property falls into Category 3 “Moderate”.

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

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Site Geology and Ground Conditions

Indicative Site Geology and Soils Data for:

Helios House, Clarkes Lane, Barsham, NR34 8HN

No of SI's within 7.9km from address on identical lithology. **(See comments)**	**5**
Closest - Furthest distance of a site investigation from the address (km).	**4.1 - 7.9**
Total number of boreholes.	**8**
Percentage of site investigations where root samples where taken.	**100%**
Percentage of site investigations where drainage was recorded.	**0%**
Number of samples tested at greater than 0.5m depth.	**24**
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	24	24	11	11	11	16	15	1
~ Minimum (Av - 1 StdDev)	0.6	12	37	20	15	88	12	0.0210
~ Maximum (Av + 1 StdDev)	3.8	24	55	34	21	99	518	0.0210
Average	1.9	18	46	27	18	94	198	0.0210
General soils description	Firm brown/grey CLAY with some fine-medium gravel / sand / chalk / silt							
BGS 1:50 000 maps as a: Superficial Deposit	**1:50 000 scale bedrock geology description:** Crag Group - Sand. Sedimentary Bedrock formed in the Quaternary period. Local environment previously dominated by shallow seas. **Setting**: Shallow seas and swamps, estuaries and deltas. These sedimentary rocks are shallow-marine in origin. They are detrital, ranging from coarse- to fine-grained (locally with some carbonate content) forming interbedded sequences.							
BGS 1km Hex. Superficial Deposit Depth Data Mean Depth = 40m Max Depth = 47m Coverage = 100% The BGS only record superficial deposits greater than 1m in depth.	**1:50 000 scale superficial geology description:** Lowestoft Formation - 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 glacigenic 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.							
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
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 very low SI density area. The five SIs reported above are on exactly the same Superficial deposit. Please note above that five Atterberg tests were undertaken and proved "Non-plastic".

 11-11-22

Evidence of External Influences

Trees

There is significant vegetation surrounding the property under the control of an adjoining owners and or the Local Authority. We have been advised that some of the vegetation may be subject to preservation orders.

Drains

The property is served by a domestic drainage system, and this is concentrated at the rear of the property.

Summary and Conclusions

The pattern and nature of the cracks is indicative of an episode of subsidence, The cause of movement appears to be clay shrinkage. Although the cause of the movement needs to be dealt with, we note the potential involvement of a Local Authority trees and or Tree preservation orders. Unfortunately, they will require certain investigations to be carried out to demonstrate the influence of their vegetation.

Typically, these investigations would involve trial pit(s) to determine the depth and type of footings, boreholes to determine the nature of the subsoil/influence of any roots and monitoring to establish the rate and pattern of movement. It may also be necessary to obtain a specialist Arboricultural Report.

We will report further once these investigations have been completed.

Next Steps

A valid claim arises under the terms of the insurance policy, subject to the applicable excess of £1,000.00 for the localised subsidence damage to the main 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.
- Set up a period of level monitoring for an initial 12-month period.
- Once we have received and reviewed the site investigations then an arborists report will be obtained.
- A repair schedule has been drawn up, although this will be finalised following completion of any mitigation measures, as applicable.

Graeme Caird BSc (Hons) MCIOB, MFPWS, AssocRICS, ACABE, BDMA.insTech, Cert CILA
360Globalnet Subsidence Team