Pyle Consulting
Civil, Structural & Forensic Engineers
Surveyors & Project Managers

48 Church Street
Reigate
Surrey
RH2 0SN

NIG Insurance C/O
Woodgate & Clark
[redacted]

Our Ref: [redacted]

Date visited: 3rd January 2023
Date of report: 1st March 2023

ENGINEER'S SITE INVESTIGATION REPORT

POLICYHOLDER: 138 Haverstock Hill RTM Company Limited

SITUATION OF DAMAGE: 138 Haverstock Hill
London, NW3 2AY

1. EXECUTIVE SUMMARY

1.1 This matter concerns foundation movement happening during summer 2022 to the front entrance steps relative to the portico causing the following cracking:-

i) External cracking at the junction of the steps with the front portico in the order of 2 to 3mm in width.

ii) Internal cracking again at the junction of the entrance steps with the portico construction in the order of 2mm in width.

1.2 Enclosed is a copy of Fastrack's Geotechnical Survey Report based on investigations undertaken 14th February 2023.

These confirm the following:-

i) A foundation to the entrance steps of good quality construction bearing at a depth of 1.0m below ground level.

ii) A soil beneath the foundation comprising a clay of high plasticity with good bearing characteristics.

iii) Roots within the clay extending to a depth of at least 1.5m below ground level (i.e. 0.5m below the underside of the foundation to the steps).

1.3 Based on our inspection of the damage, the timing of the cracking/foundation movement and the results of the site investigations it is our opinion that the cause of the foundation movement of the entrance steps relative to the portico was the influence of adjacent trees and vegetation exacerbated by the exceptionally hot and dry climatic conditions experienced during spring/summer 2022.

1.4 In such circumstances the correct procedure to ensure long term stability is to attempt to address the cause at source (i.e. remove the influence of the trees and vegetation).

On this occasion we see no reason why such an approach should not be successful in terms of ensuring long term stability of the entrance steps.

Accordingly we have appointed professional arboriculturalists (MWA Arboriculture) to advise regarding the tree/vegetation works they consider appropriate on this occasion.

2. SITE INVESTIGATIONS

A copy of the factual site investigation report prepared by Fastrack is attached.

2.1 Trial Pits/Boreholes

A single trial pit extended to depth by hand auger was progressed to the front left-hand corner of the entrance steps (TP/BH1).

An additional borehole was progressed to the front right-hand corner of the entrance steps (BH2).

The trial pit/boreholes confirmed the following:-

TP/BH1

Location	=	Front left-hand corner of entrance steps.
Foundation depth	=	1.0m
Soil beneath foundation	=	CLAY containing sand and gravel
Soil in borehole	=	CLAY containing sand and gravel
Depth of borehole	=	3.0m
In-situ strength testing	=	1.00m = 78kPa 1.50m = 85kPa 2.00m = 93kPa 2.50m = 102kPa 3.00m = 100kPa
Presence of roots	=	Roots noted to at least 1.5m
Water	=	Borehole dry on completion

BH2

Location	=	Front right-hand corner of entrance steps
Foundation depth	=	Assumed to be 1.0m.
Soil beneath foundation	=	CLAY containing sand and gravel
Soil in borehole	=	CLAY containing sand and gravel
Depth of borehole	=	3.0m

In-situ strength testing	=	0.50m	=	67kPa
		1.00m	=	80kPa
		1.50m	=	86kPa
		2.00m	=	92kPa
		2.50m	=	100kPa
		3.00n	=	104kPa
Presence of roots	=	Roots noted to at least 1.5m		
Water	=	Borehole dry on completion		

2.2 Laboratory Testing of Soil Samples

Laboratory testing of soil samples was undertaken which confirmed the following:-

TP1/BH1

Description	=	Silty CLAY
Plasticity index	=	High
Evidence of severe desiccation	=	None

BH2

Description	=	Silty CLAY
Plasticity index	=	High
Evidence of severe desiccation	=	None

2.3 Monitoring

Monitoring utilising both crack width and accurate level techniques has been commissioned.

Readings will be distributed to all parties as this matter progresses.

3. DISCUSSION

3.1 Cracking as a result of foundation movement of the entrance steps relative to the portico happened during summer 2022.

The trial pit confirmed a foundation of good quality construction bearing at 1.0m depth below ground level. Such depth is sufficient to prevent movement happening to any significance as a result of seasonal moisture variation even during periods of exceptionally hot and dry climatic conditions.

3.2 The strength of the supporting soil was confirmed to be more than adequate to support the applied loadings.

Roots were noted within the shrinkable clay extending beneath the foundations to a depth of 1.5m below ground level (0.5m below the underside of the foundation).

3.3 Laboratory testing of soil samples did not indicate desiccation at the time of the site investigations.

It must however be appreciated that there was exceptionally heavy rainfall during autumn 2022 and, in our opinion, this would have replenished the moisture content of the shrinkable clay soil beneath the foundations at the time the trial pit/boreholes were progressed.

It is the return to very wet climatic conditions that accounts for why desiccation was not noted for the depth of the roots.

3.4 Based on our inspection of the property, the timing of the damage and the investigations, we are of the opinion that the site investigations have confirmed the cause of the foundation movement which happened during summer 2022 was primarily the influence of trees/vegetation exacerbated by the dry spring/summer periods of 2022.

In all normal circumstances when slight foundation movement has happened as a result of primarily the influence of trees and vegetation, the correct procedure is to address the cause at source by removing the influence of such trees/vegetation.

We see no reason on this occasion why such an approach should not ensure long term stability of the entrance steps.

4. RECOMMENDATIONS

4.1 We have appointed professional arboriculturalists (MWA Arboriculture) to report regarding the tree/vegetation works they consider appropriate to ensure long term stability of the steps.

Once the advices of MWA have been received, there can then be appropriate liaison with the tree owners to progress the recommendations of MWA.

Monitoring will continue during the course of further enquiries to provide evidence of seasonal movement (i.e. the influence of trees and vegetation).

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PYLE CONSULTING