# Subsidence Report

## For Westways

**Property:**

**12 Greville Road, London, NW6 5JA**

| | |
|---|---|
| **Insured:** | TBC |
| **Insurer:** | TBC |
| **Our Reference:** | 02929Rv2 |
| **Client Ref:** | NA |
| **Consultant:** | Keiron Hart (BSc Hons, C.Env, F.Arbor.A, MICFor, MEWI) |
| **Report Date:** | 18.7.2019 |

## Scope of Report

To assess trees within potential influencing distances. Identify their current & future potential to cause or contribute to damage to the property by way of direct or indirect damage.

## Note

This report is based on the assumption engineers are satisfied that any damage is attributable to vegetation related subsidence. It is intended for use between the client, Tamla Trees Ltd and any parties detailed within the report.

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## 1. Property Description

The property is a semi-detached 4 storey semi-detached building dating from circa 1880. With No 14 it can be considered to be in the 'villa' style.

It has partial basement/ lower ground floor living accommodation and is accessed via steps to the front. The immediate front garden is at a slightly higher level than the remaining site with a retention wall to the front boundary and also towards the lower ground floor/ basement living accommodation. The larger trees are to the rear of the property where there is a communal garden area which is generally level with no adverse topographical features.

Work by the Clay Research Group indicates that a properties risk profile (where there is a known clay soil) can be influenced by the year of construction. Generally older properties have shallower foundations and are more susceptible to movement.

We are advised that there has been previous movement at the property and it appears that the property has been underpinned previously. It is not clear whether this is a full or partial underpin. There also appears evidence of previous tree removal works.

Further to the inspection in 2018 this is a reinspection at the request of insurers/ the client.

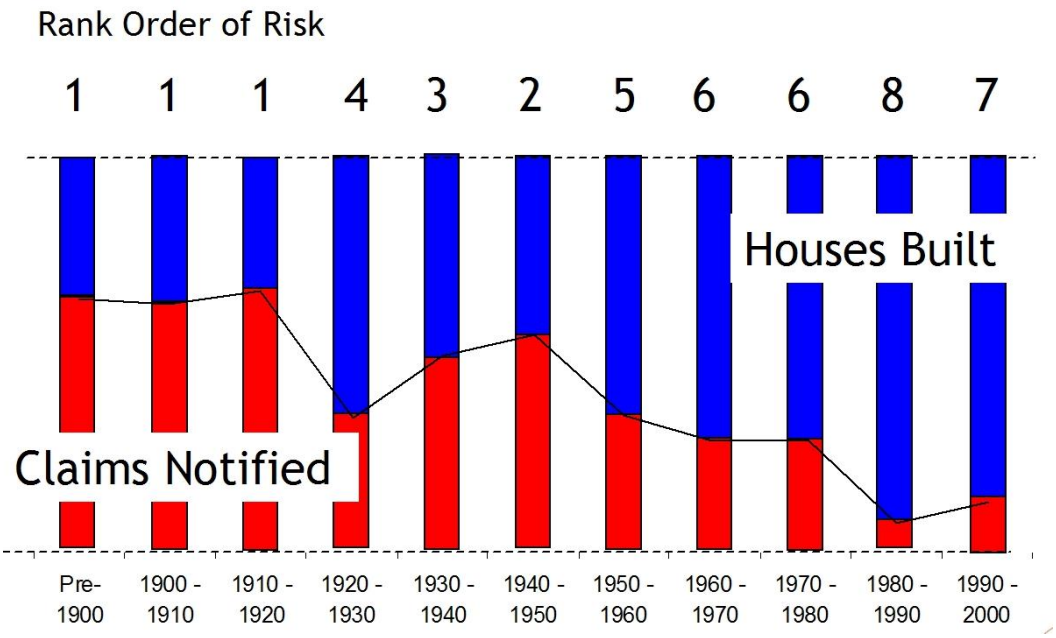



**Fig 1 – A properties age can influence the risk of subsidence damage**

## 2. Underlying Soil

For vegetation related subsidence damage to occur an underlying clay soil is required. An assessment of the British Geological Soil open source data for the property has identified the following:


| Soil Description |
| --- |
| **London Clay Formation**<br><br>Clay And Silt. Sedimentary Bedrock formed approximately 48 to 56 million years ago in the Palaeogene Period. Local environment previously dominated by deep seas. |

## 3. Site Investigations

The following site investigations were available for the formation of our report but date from the 2014 claim:

~~**Soil Suction Testing**~~
~~**Atterberg Soil testing**~~
~~**Engineers Report**~~

~~**Trial Pit & Borehole Logs**~~
~~**Root Identification**~~
~~**Level/ Crack Monitoring**~~

***Note:*** *We are in receipt of Angell Thompson (Structural Engineers) letter dated 19.7.2018*

## 4. Tree Ownership & Protected Status

| Ownership | |
|---|---|
| Are trees all located within grounds of property | Yes |
| Are 3rd Party trees a current or future risk factor? | No |
| **Protected Status** | |
| Is the property within a Conservation Area | Yes |
| Is the property affected by a Tree Preservation Order | Yes |

| Conservation Area Status | |
|---|---|
| Is the site located within a Conservation Area | Yes |
| **Notes:** (i) All trees larger than 7.5cm diameter at 1.5m above ground level are subject to regulations within a Conservation Area. Exemptions apply for trees which are dead and dangerous but clarification before any tree works is advised. A notification is required in many circumstances. | |
| **Tree Preservation Order Status** | |
| Are inspected trees subject to a TPO? | Yes |
| Type of TPO | ~~Area~~ |
| | ~~Individual~~ |
| | ~~Group~~ |
| | ~~Woodland~~ |
| TPO Reference | C661 2006 |
| Date TPO Made | 2006 |
| **Notes:** (i) The type and details of any TPO determine which trees are 'protected'. Exemptions apply for trees which are dead and dangerous but clarification before any tree works is advised. An application may be required before undertaking works. (ii) At the time of writing London Borough of Camden have advised the site is within a conservation area but that the TPO may not be confirmed, if the TPO has not been confirmed then it will not be applicable. | |

## 5. Report Detail

The British Geological Survey describes the underlying geology London Clay Formation Clay And Silt. Sedimentary Bedrock formed approximately 48 to 56 million years ago in the Palaeogene Period. Local environment previously dominated by deep seas.

Subsidence from vegetation and trees occurs when the vegetation dries the underlying soil and if this contains clay it can shrink in size and the building subsides. The soil then rehydrates during the wet winter months giving classic cyclical movement profiles. At present there is no monitoring data for the building or confirmation that any internal cracking observed by Angell Thompson is attributable to the drying of the underlying soil.

Whilst no on site soil testing has been completed the BGS data shows a shrinkable London Clay and given the sites location it is likely that this will be present. This, combined with the fact that the property is advised as having been previously the subject of such movement suggests shrinkable clay soil is present below foundation level.

At present there are no site investigations to confirm that the building is subject to movement induced by the action of trees/ vegetation drying underlying soil. As a result any vegetation within potential influencing distance can only be considered 'future risk' at this stage. Furthermore, in the event the property has been fully underpinned and subject to the confirmation of the extent and depth of such underpinning there would likely be no future risk regardless of vegetation remaining present. This is on the basis that underpinning generally takes foundations to depths below which trees and vegetation retain the capacity to affect buildings.

In the event that underpinning was not for the whole of the building then the main elements of potential risk vegetation would be T3 (Cherry) as it relates to the front steps (as these tend to have a shallower footing than the building itself) and T4 (Lime) to the rear.

In addition to the above TG1 is a small self-set group of Ash saplings which have significant growth potential. At their current size they pose little risk but action now would remove the risk. In addition the trees within TG1 are below the size threshold for any Conservation Area notification.

T4 is located 10m from the property. Cutler & Richardson (1997) indicate that in 75% of subsidence claims Lime will be closer to the property than 8m. This suggests a lower risk (as the 75% level is often referenced when assessing potential risk). However the tree is large enough and close enough to have a zone of potential influence extending to and below the property.

Only the complete removal of trees can mitigate the likely influence and whilst this is proportionate for TG1 given their small size, high growth potential and lack of suitability for retention in their current location there is insufficient evidence at this time for this recommendation to be applied to T3 (Cherry) or T4 (Lime). Recommendations area therefore made on the basis of seeking to maintain the current situation but will be reviewed in the event of further technical information becoming available.

It should also be noted that the presence of a Conservation Area means notification for tree works to T3 & T4 would be required. In our experience without evidence to demonstrate their role in any movement there is a real risk that a notification seeking to remove T4 (Lime) would result in a TPO being served on this tree.

It is noted that the pruning works to T4 (Lime) and implementation of cyclical management to trees T1 – T3, & T5 have not been initiated following advice in 2018. These recommendations remain.

TG1 (Ash) has been reduced but we would recommend complete removal given location and proximity to the building.

To aid future inspections we would recommend the removal of undergrowth from around the base of T4 & T5 (Lime).

Please note if the intention is to complete tree work between the 1st March & the 31st July (inclusive) a due diligence check for nesting birds must be completed before work starts in order to comply with the Wildlife & Countryside Act 1981. This check should be recorded in the Site Specific Risk Assessment. If active nests are found work should not take place until the young have fledged. Further information is available here:

All tree works should be carried out by qualified, trained and fully insured operators in accordance with BS 3998 (2010): 'Recommendations for Tree Works'.

If required tree surgeons can be sourced here.

| | |
|---|---|
| Is vegetation management likely to contribute to the future stability of the property | **Yes** |
| Is there a risk of heave if trees are removed | **No** |

## 6. Recommendations

## 6.1 Immediate Action

**No works**

| Tree No. | Species | Age Cat | Approx. Height (m)* | Distance to Building (m) | Ownership | Observations | Subsidence Risk Action | Recommended Tree Work |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| **Tree Age Category**: A = Younger than property; B = Similar age to the property; C = Significantly older than property | | | | | | | | |

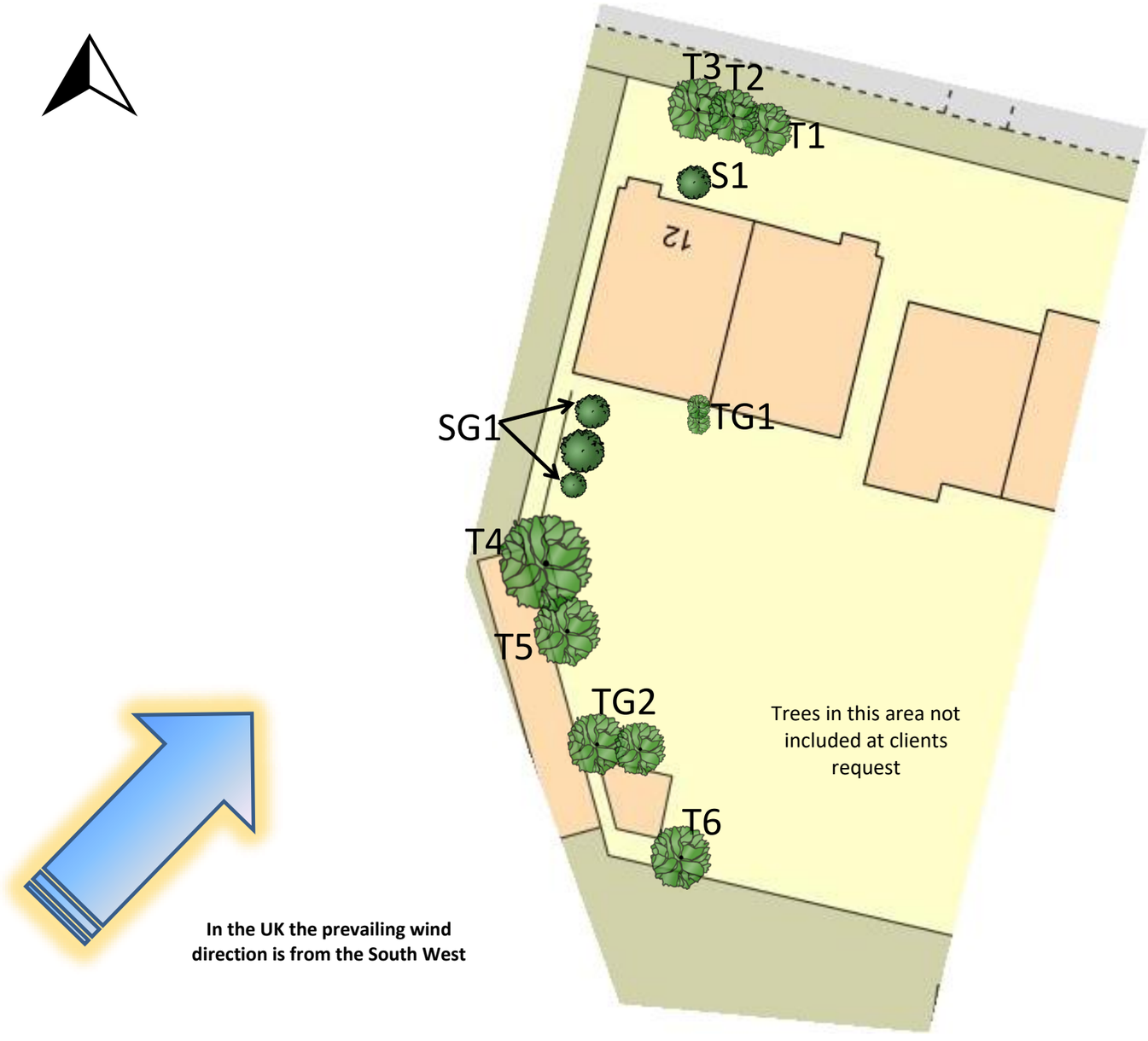
## 6.2 Future Risk Tree Works

| Tree No. | Species | Age Cat | Approx. Height (m)* | Distance to Building (m) | Ownership | Observations | Subsidence Risk Action | Recommended Tree Work |
|---|---|---|---|---|---|---|---|---|
| T1 | Rhus | A | 4.7 | 7.1 | No 12/ 14 TBC | Established tree with low growth potential. | Action to Avoid Future Risk | Do not allow to exceed current dimensions |
| T2 | Rhus | A | 4.5 | 6 | No 12 | Established tree with low growth potential. Distance to building but only 2.8m to steps. | Action to Avoid Future Risk | Do not allow to exceed current dimensions |
| T3 | Cherry | A | 6.2 | 2 | No 12 | Distance to steps. 6.2m to building. Tight v Union. | Action to Avoid Future Risk | Do not allow to exceed current dimensions |
| T4 | Lime | A | 18.5 | 10 | No 12 | No sign of previous management. | Action to Avoid Future Risk | Crown reduce by 2m, reshape and then maintain at reduced dimensions. Clear basal undergrowth for future inspections |
| T5 | Lime | A | 8 | 12 | No 12 | Establishing tree with some deadwood evident. | Action to Avoid Future Risk | Do not allow to exceed current dimensions. Clear basal undergrowth for future inspections. |
| T6 | Elder | A | 5 | 14 | No 12 | Established tree | Action to Avoid Future Risk | No works |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| TG1 | Ash | A | 2.3 | 0.5 | No 12 | Self-set trees poorly located for longer term retention. | Action to Avoid Future Risk | Previously reduced but removal recommended given location and growth potential. |
| TG2 | Elder x 2 | A | 4.9 | 20 | No 12 | Established trees with low growth potential. | Action to Avoid Future Risk | No works |
| S1 | Cornus (TBC) | A | 2.3 | 0.9 | No 12 | Established multi stemmed shrub possibly Cornus spp. | Action to Avoid Future Risk | No works |
| SG1 | Rose & Mahonia | A | 2.2 | 1.3 | No 12 | Established shrubs. | Action to Avoid Future Risk | No works |
| **Tree Age Category**: A = Younger than property; B = Similar age to the property; C = Significantly older than property | | | | | | | | |

* Estimated

## 7. Site Plan




| | |
|---|---|
| T/TG | Tree/ Tree Group |
| S/SG | Shrub/ Shrub Group |
| H | Hedge |
| C/CG | Climber/ Climber Group |

**Job Reference:** 02926Rv2

**Site Location:**
12 Greville Road, London, NW6 5JA

**Date:** July 2019

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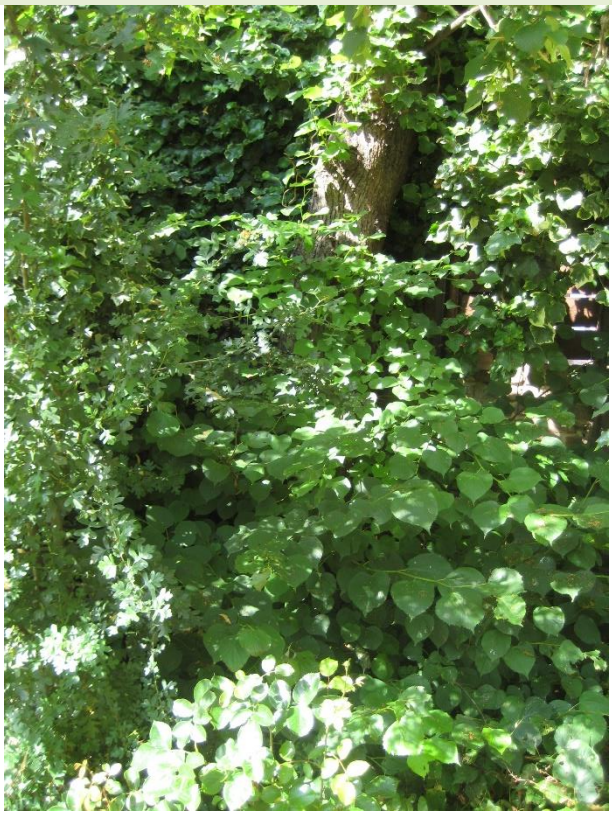
## 8. Photographs

**The property with T1, T2 & T3 visible**

**T4 & & TG1 also visible**

**TG1 Ash has been pruned but should be removed**



**Clearing around the base of T4 & T5 will assist future inspections.**

## 9. Limitations

This report is intended as a preliminary appraisal of trees >7.5cm dbh, their health and safety condition. The potential influence on the property now and for a period of 5 years as 'future risk' from tree related subsidence. Recommendations for tree works and future management are made to meet the primary objectives of making trees safe and limiting any soil stability/ subsidence issues to the purchase property. In achieving this, it should be appreciated that recommendations may in some cases be contrary to best Arboricultural practice for tree pruning/management and is a necessary compromise between competing objectives.

The presence of Tree Preservation Orders (TPO) or Conservation Area status must be determined prior to any tree works being implemented, failure to do so can result in fines in excess of £20,000.

**A legal Duty of Care requires that any tree works specified in this report should be performed by qualified, arboricultural contractors who have been competency tested to determine their suitability for such works in line with Health & Safety Executive Guidelines. Additionally all works should be carried out according to British Standard 3998 (2010) *Recommendations for Tree Work***