

Arboricultural Subsidence Report



SUBSIDENCE INVESTIGATION AT:

**4 Teal Drive
Northwood
HA6 2PT**

Client:	Crawford and Company Adjusters UK
Reference No:	1875934
Enviro Trees UK Ref No:	TM2069
Report Date:	22/01/2026

Contents

Introduction	3
Shrinkable clay soil	3
Environmental Impact Assessment (EIA)	4
Limitations	4
Property details	5
Council area	5
Details of damage	5
Recorded information	5
Data for subsidence risk	6
Underlying geology	6
Site Investigations	6
Site investigation plan showing location of boreholes	7
Drilling Report	8
Foundations	8
Roots	8
Soils	8
Drains.....	8
Level Monitoring.....	8
Schedule of findings.....	9
Tree plan.....	12
Analysis.....	13
Conclusions	14
Recommendations - Current claim.....	14
Recommendations - Future risk	14
Statutory protection.....	15
Trees and wildlife.....	15
Implementation of tree works	15
Replacement planting	16
Photographs.....	17

Introduction

Enviro Trees UK was instructed by Crawford and Company Adjusters UK to visit the insured property to:

- identify trees and shrubs within potential influencing distance of the area of damage at the insured property
- provide an opinion on the trees and shrubs being a causal factor in the damage to the insured property
- make recommendations on the immediate and future management of the trees and shrubs in relation to the damage at the insured property

The property was attended and assessed on 30/10/2025.

Shrinkable clay soil

Also known as shrink/swell clay, shrinkable clay soil shrinks as it dries and swells as it rehydrates. The top few metres of soil will tend to dry out in the summer months when the water demands of vegetation and evaporation exceed the replenishment by rainfall. During the winter months when trees have lost their leaves and/or become dormant, heavier rainfall exceeds the water demand of the vegetation and the soil moisture level increases again.

The composition and volume change potential of clay soils can be determined by laboratory analysis of soil samples.

Approximately 70% of all subsidence problems can be attributed to the behavior of clay soils. Structures built on clay soil will move up and down as the clay swells and shrinks through the seasons. Problems arise when different parts of a structure move at different rates leading to cracking of walls and foundations. This can be caused by a range of factors:

- Trees and other vegetation abstracting water leading to the drying and shrinking of the soil in one area more than another causing cracking. Approximately 60% of clay-related subsidence is exacerbated by the presence of trees and/or other vegetation.
- Leaking pipes can cause clay to swell and soften with a resultant drop in bearing capacity. The leak may also wash away the softened clay or smaller particles in non-cohesive soils leading to a loss of support for foundations.
- Different foundation depths: shallow foundations will be much more susceptible to seasonal volume changes of the clay whilst deep foundations may be founded below the level of seasonal influence. Different parts of a property built on different foundation depths may be subject to differential movement leading to cracking at the join.

This report concerns the first of these factors.

Almost half of all structural subsidence problems involve trees, and in a drought year this can increase to 70% of all claims. Size and leaf area are important factors in the water demand of vegetation so significant pruning will reduce the amount of water abstracted from the soil, but the effects are often short-lived. Trees and shrubs often respond to pruning with a prolific flush of growth that quickly replaces the lost leaf area. For this reason, removal of the influencing vegetation often offers a more reliable solution to rehydrate the moisture content of clay and stabilise the building. Where there are many trees and shrubs within potential influencing distance it may be appropriate to remove some and prune others. Follow-up monitoring will show whether the property has stabilised or whether further measures are required.

Environmental Impact Assessment (EIA)

The environmental impact assessment (EIA) process evaluates the potential biophysical, social and other effects of a subsidence request to avoid, mitigate or offset significant adverse effects. Its function is to identify problems, recommend solutions and promote and maximise the proposals' positive effects.

Trees are important assets in rural and urban landscapes. Their benefits include:

- **Social:** trees line our streets forming prominent features in parks and gardens that create aesthetically pleasing and peaceful environments. Trees are landscape features and strengthen landscape character and sense of place. Research has found positive links between trees and human wellbeing, with corresponding reductions in the rates of non-communicable diseases such as cancer.
- **Environmental and ecological:** trees contribute to improving air quality and their canopies provide shade and help regulate temperature. They support a wide range wildlife and are important source of food and habitat, supporting biodiversity and ecological networks.
- **Economic:** they provide timber, food and fuel.

Trees also have perceived negative attributes, including:

- damage to buildings and structures from root and canopy encroachment
- inconvenience of leaf litter and honey dew
- overshading and overbearing effects
- unwanted wildlife such as loafing birds and insects
- risk of harm to people and property.

Arboricultural inputs play an increasingly important role in informing the process, demonstrating that the interrelationship between trees and subsidence impact has been fully considered and a solution is sustainable. For instance, whilst trees absorb carbon dioxide, concrete underpinning may emit more CO₂ than could be absorbed by the trees if they were retained.

Enviro Trees UK considers the carbon absorption for the trees' life span relative to other remedial measures such as root barriers and underpinning in our recommendations.

Limitations

This report assumes that engineers are satisfied that the damage to the insured property is attributable to clay soil shrinkage resulting from moisture abstraction by vegetation.

The report may be subject to review upon receipt of additional site investigation data, monitoring, engineering or other information.

The trees were inspected from ground level. Trees and shrubs that are not recorded are considered to be beyond the range of influence and/or are not significant in the context of the current damage or expected to pose a threat in the foreseeable future. Our assessment was made externally (no entry into the building required).

The report does not include a detailed assessment of tree condition or safety. The health, condition and safety of trees should be checked on a regular basis – best practice recommends that trees are inspected every 18 months when they are alternately in and out of leaf and following extreme weather events. Third-party owners are advised to seek their own advice on tree health, structural integrity and risk. Conclusions and recommendations are valid for a period of one year and validity

may be reduced in the case of any change in conditions in proximity to the trees/shrubs or built structures.

All rights in this report are reserved. The content and format are for the exclusive use between the client, Enviro Trees UK and any parties detailed within the report.

Property details

The property is a two-storey detached house. External walls are of red brick with mock-Tudor style timber detailing to the upper front elevation, and a pitched tiled roof.

The site rises slightly from the front boundary towards the main entrance, with no adverse topographical features noted.

Council area

London Borough of Hillingdon

Details of damage

Damage observed to the front left corner, right hand elevation and rear elevation.

Recorded information

The following details were recorded for each tree or shrub and tabulated in the schedule of findings:

- Species
- Height in metres
- The radius of the canopy spread in metres
- Trunk diameter measured 1.5m above ground level (diameter at breast height – DBH) and number of stems (# denotes estimated measurement where trunk is inaccessible)
- Estimated age and life stage based on trunk diameter and species
 - Young: establishing, usually with good vitality but as yet of limited significance in the landscape.
 - Semi-mature: established, normally vigorous, increasing in height and of increasing landscape significance.
 - Early-mature: established; approaching mature height with crown spreading.
 - Mature: fully established trees around the middle of their typical life expectancy; generally retaining good vitality and achieving full height but their crowns still spreading.
 - Over-mature: fully established trees toward the end of their typical life expectancy with declining vitality.
- Distance from property in metres (*# denotes estimated distance*)
- Tree owner/location
- Vitality, previous works and comments
- Statutory protection (Tree Preservation Order or Conservation Area)

Data for subsidence risk

Arboricultural assessment considered the Crawford and Company Subsidence Site Note Pack.

Underlying geology

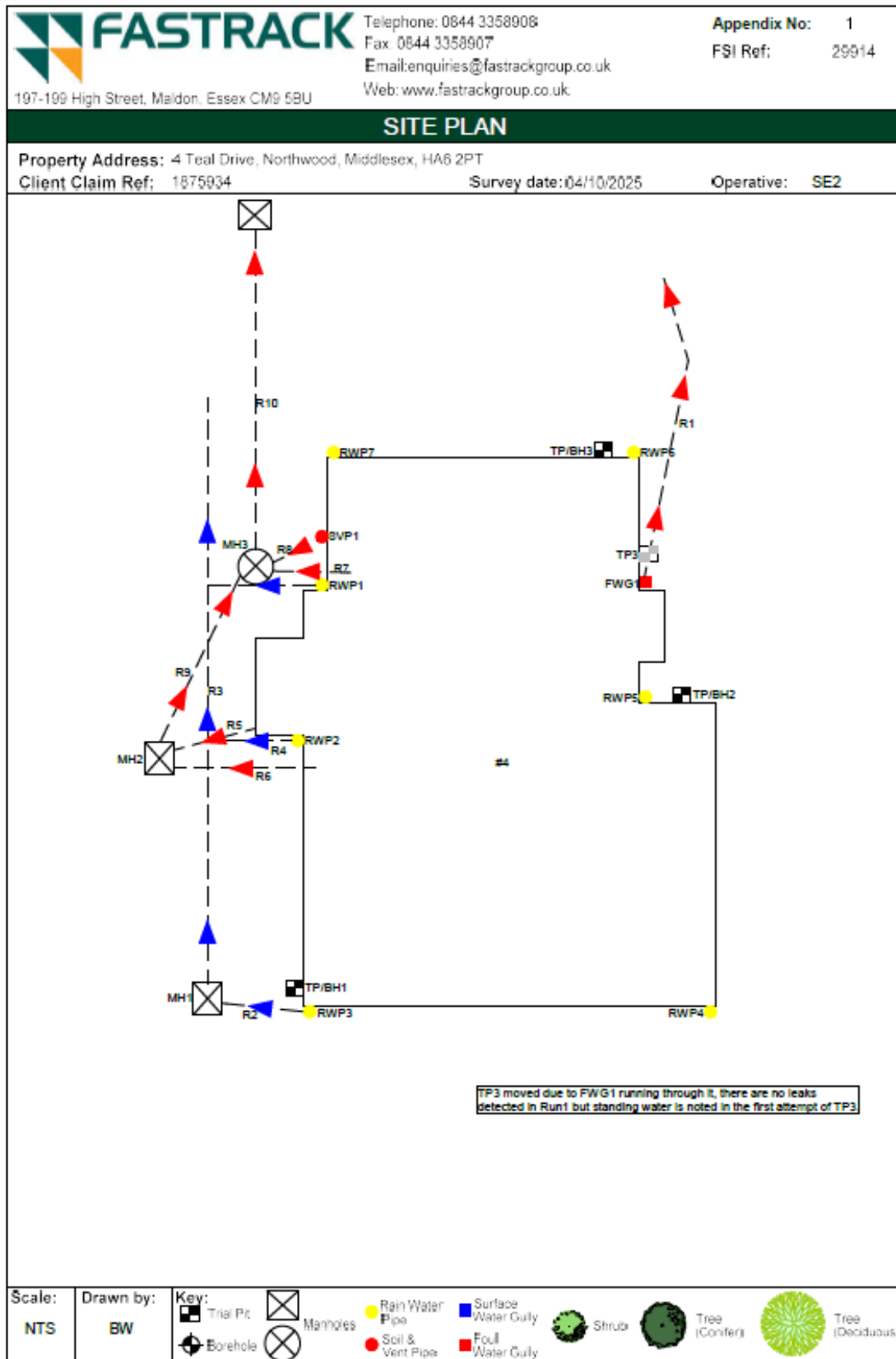
The BGS Geology Viewer suggests that the bedrock geology is likely to be London Clay Formation - Clay, silt and sand. Sedimentary bedrock formed between 56 and 47.8 million years ago during the Palaeogene period.

Site Investigations

Site investigations involve digging trial pits to determine foundation depths, soil type and plasticity (shrinkability), and to identify any roots found below the foundations. They can also investigate other possible influences such as the integrity of drains. The information they provide can be useful in determining the cause of structural movement.

Site investigations were carried out by Fastrack on 04/10/2025 when trial pits were excavated to reveal the foundations and to determine subsoil conditions. The results are summarised in the plan and tables below.

Site investigation plan showing location of boreholes



Drilling Report

Date	04/10/2025
Service Provider	Fastrack
Number of Trial pits (TP)	3
Number of Bore Holes (BH)	3

Foundations

TP/BH Number	Type	Depth at Underside (mm)
TP1	Concrete	1100
TP2	Concrete	1200
TP3	Concrete	1100

Roots

TP/BH Number	Roots observed to depth (mm)	Identification	Root Dia. (mm)	Starch
TP/BH1	1100	Quercus spp; oaks (both deciduous and evergreen)	8	Abundant

Soils

TP/BH Number	Description	Plasticity Index %	Volume Change Potential (NHBC)
BH1	Stiff grey / brown silty CLAY containing orange mottle	41	High
BH2	Firm grey / brown silty CLAY containing orange mottle	40 - 42	High
	Firm grey / brown silty CLAY containing orange mottle and gypsum		
BH3	Firm grey / brown silty CLAY containing orange mottle and sand pockets	42	High
	Firm grey / brown silty CLAY containing orange mottle and gypsum		

Drains

The survey of the below ground drainage system revealed several defects that require repair. The defects in the below ground drainage system may have been caused by ground movement.

Level Monitoring

Level monitoring measures the seasonal movement of the foundations. Downward movement over the summer and upward recovery in the winter can highlight the influence of nearby vegetation.

No level monitoring reports were available at time of writing so recommendations will be based on the limited data available.

Schedule of findings

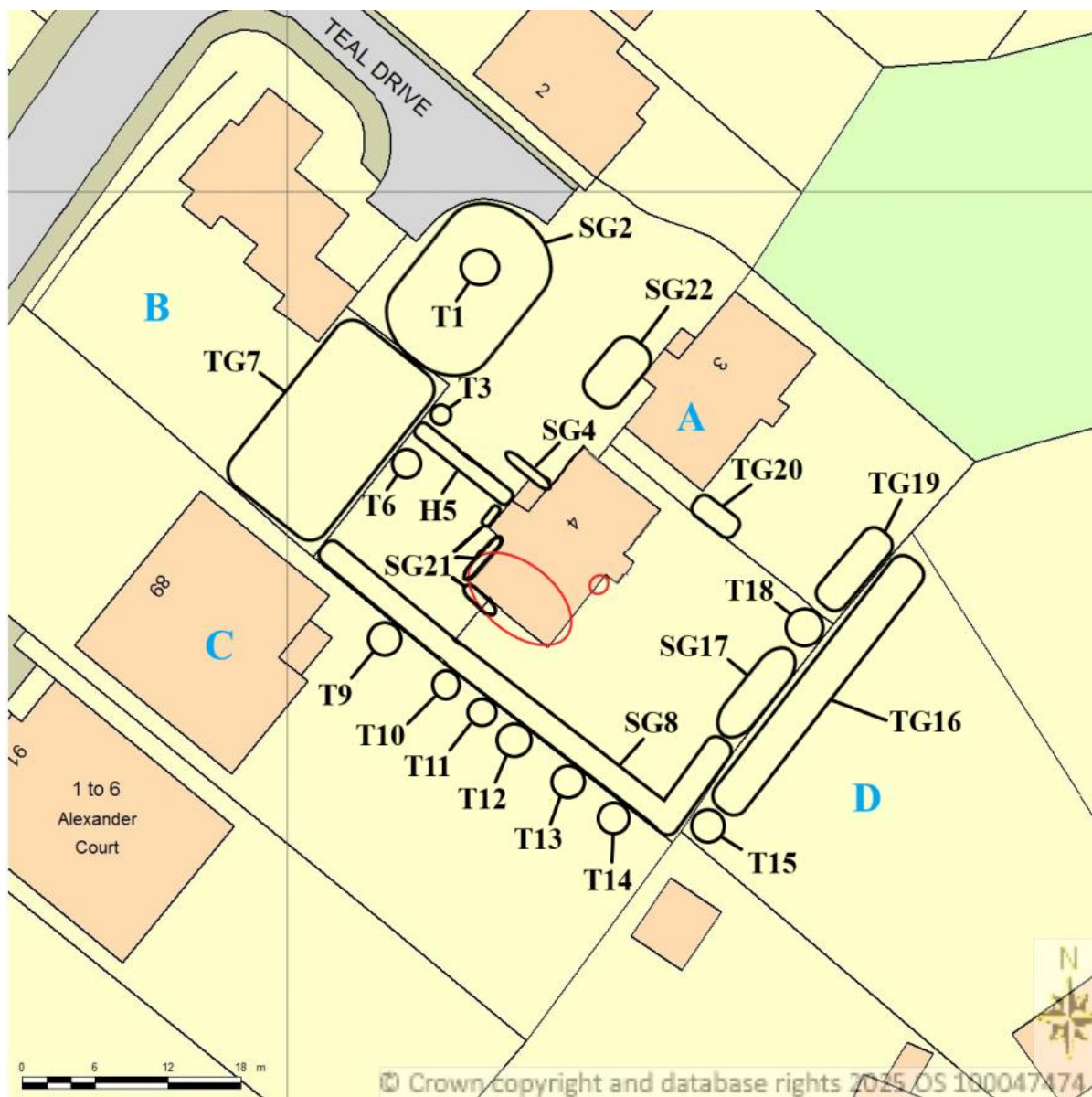
Ref.	Species	Height (m)	Canopy radius (m)	DBH (cm) No. of stems	Estimated age and Life stage	Distance to area of damage (m)	Tree owner/ location	Vitality, previous works, comments	TPO/ CA
T1	Oak	15	4.5	50 # 1	100 Early-mature	22 #	Neighbour	Good. Reduced High-water demand.	TPO
SG2	Portugal laurel, Laurel, small cypress , Ivy	3				17 #	Neighbour	Good. Regular pruning Moderate-water demand.	No
T3	Hornbeam	4.5	1.5	12 # 1	30 Semi-mature	3.7 #	Insured	Poor. Low-water demand.	TPO
SG4	Mixed shrubs, Rose	2				9 #	Insured	Good. Moderate-water demand.	No
H5	Leylandii	2				4.5 #	Insured	Good. Regular pruning High-water demand.	No
T6	Hornbeam	5.5	2	35 # 1	70 Early-mature	9.7 #	Insured	Good. Pollarded Low-water demand.	TPO
TG7	Hornbeam, Field maple, Ash	6	2	30 #	60 Early-mature	7.7 #	Neighbour	Good. Reduced Low-water demand.	TPO
SG8	Hazel, Holly, Mixed shrubs, Cotoneaster	3				12 #	Insured	Good. Reduced Low-water demand.	No
T9	Oak	12	2	50 # 1	100 Early-mature	8.5 #	Neighbour	Poor. Reduced High-water demand.	TPO
T10	Oak	14	2.5	60 # 1	120 Early-mature	6.7 #	Neighbour	Good. Reduced High-water demand.	TPO

Ref.	Species	Height (m)	Canopy radius (m)	DBH (cm) No. of stems	Estimated age and Life stage	Distance to area of damage (m)	Tree owner/ location	Vitality, previous works, comments	TPO/ CA
T11	Lawson cypress	8	1.5	24 # 1	50 Semi-mature	6 #	Neighbour	Good. High-water demand.	TPO
T12	Macrocarpa	18	4	80 # 4	140	7.4 #	Neighbour	Good. Moderate-water demand.	TPO
T13	Birch	16	2	32 # 1	30 Early-mature	12 #	Neighbour	Good. Low-water demand.	TPO
T14	Leylandii	9	1.5	28 # 1	40 Early-mature	17 #	Neighbour	Good. High-water demand.	TPO
T15	Oak	18	4	48 # 1	100 Early-mature	20.5 #	Neighbour	Good. High-water demand.	TPO
TG16	Hornbeam, Oak	15	3.5	40 # 0	80 Early-mature	20.4 #	Neighbour	Good. Low-water demand.	TPO
SG17	Laurel, Portugal laurel, Small cypress, Hawthorn, Hazel	4.5				12.5 #	Insured	Good. Regular pruning Moderate-water demand.	No
T18	Hornbeam	4	2	25 # 1	50 Early-mature	17.4 #	Insured	Good. Low-water demand.	TPO
TG19	Hawthorn, Cherry	14	2	35 # 0	70 Mature	21.3 #	Neighbour	Good. High-water demand.	TPO
TG20	Cherry	4	1	22 # 0	30 Early-mature	12.36 #	Neighbour	Good. Reduced Moderate-water demand.	TPO

Ref.	Species	Height (m)	Canopy radius (m)	DBH (cm) No. of stems	Estimated age and Life stage	Distance to area of damage (m)	Tree owner/ location	Vitality, previous works, comments	TPO/ CA
SG21	Choisya, Pyracantha, Acuba, Camilia , Mixed shrubs	2				0.5 #	Insured	Good. Moderate-water demand.	No
SG22	Cotoneaster, Hydrangea, Mixed shrubs	2				19.5 #	Neighbour	Good. Regular pruning Moderate-water demand.	No

denotes that the distance was estimated

Tree plan



Tree plan showing area of damage with red circle and location of neighbours as detailed below.

Reference	Address
A	3 Teal Drive, Northwood, HA6 2PT
B	5 Teal Drive, Northwood, HA6 2PT
C	Bluebell House 89 Ducks Hill Road, Northwood, HA6 2SQ
D	5 The Covert, Northwood, HA6 2UD
Council	London Borough of Hillingdon Civic Centre, High Street, Uxbridge, Middlesex, UB8 1UW

Analysis

- Oak (T1) has a high-water demand and is toward the maximum distance for damage in the C&R study.
- Portugal laurel, Laurel, small cypress , Ivy (SG2) is unlikely to be of influence.
- Hornbeam (T3) is toward the maximum distance for damage in the C&R study.
- Mixed shrubs, Rose (SG4) is unlikely to be of influence.
- Leylandii (H5) has a high-water demand and is toward the maximum distance for damage in the C&R study.
- Hornbeam (T6) is toward the maximum distance for damage in the C&R study.
- Hornbeam, Field maple, Ash (TG7) is toward the maximum distance for damage in the C&R study.
- Hazel, Holly, Mixed shrubs, Cotoneaster (SG8) is unlikely to be of influence.
- Oak (T9) has a high-water demand and is within the 50% distance for damage in the C&R study. Laboratory analysis of the roots found below foundation depth during the site investigation identified them as Quercus spp.
- Oak (T10) has a high-water demand and is within the 50% distance for damage in the C&R study. Laboratory analysis of the roots found below foundation depth during the site investigation identified them as Quercus spp.
- Lawson cypress (T11) has a high-water demand and is within the maximum distance for damage in the C&R study.
- Macrocarpa (T12) is within the zone of influence defined by NHBC.
- Birch (T13) is unlikely to be of influence.
- Leylandii (T14) has a high-water demand and is toward the maximum distance for damage in the C&R study.
- Oak (T15) has a high-water demand and is within the maximum distance for damage in the C&R study.
- Hornbeam, Oak (TG16) is unlikely to be of influence.
- Laurel, Portugal laurel, Small cypress, Hawthorn , Hazel (SG17) is unlikely to be of influence.
- Hornbeam (T18) is unlikely to be of influence.
- Hawthorn, Cherry (TG19) has a high-water demand but is unlikely to be of influence.
- Cherry (TG20) is unlikely to be of influence.
- Choisya, Pyracantha, Acuba, Camilia , Mixed shrubs (SG21) is within 50% of the radius of influence defined by NHBC.
- Cotoneaster, Hydrangea, Mixed shrubs (SG22) is unlikely to be of influence.
- At time of writing, no level monitoring reports were available to confirm seasonal movement therefore any recommendations to mitigate current or future risk are based on the limited data available.

Note: the radius of the zone of influence is taken from “*Tree Roots & Buildings*” Cutler, D.F. and I.B.K. Richardson, (1989) or determined in accordance with NHBC Standards Chapter 4 2021.

Conclusions

- Reference to the British Geological Society Geological Viewer indicates that the underlying soils are likely to include shrinkable clay.
- The site investigations have shown the presence of shrinkable clay soil.
- This survey has identified woody vegetation within influencing distance of the property.
- The site investigations have found roots below the foundations which have been matched to the vegetation identified in the schedule of trees and shrubs in this report.
- Engineers are satisfied that the damage to the insured property is attributable to clay soil shrinkage resulting from moisture abstraction by vegetation.

Recommendations - Current claim

These recommendations are made based on the information available and may be revised on receipt of additional information.

A period of level monitoring is also recommended to establish a seasonal pattern of movement that would indicate the influence of nearby vegetation.

Consideration has been given for pruning alone as a means of mitigating the vegetation impact. However, in this case this is not considered a viable long-term solution.

Ref.	Species & estimated age	Hight DBH (m)	Dist. to area of damage (m)	Vitality & previous works	Tree owner/ location	Recommendation	TPO CA
H5	Leylandii	2	4.5 #	Good Regular pruning	Insured	Remove stems within 5 metres of area of damage and maintain remainder at no greater than current size through regular pruning.	No
T9	Oak 100 Early-mature	12 (0.50)	8.5 #	Poor Reduced	Neighbour (see plan)	Remove close to ground level and treat stumps with herbicide to inhibit regrowth.	TPO
T10	Oak 120 Early-mature	14 (0.60)	6.7 #	Good Reduced	Neighbour (see plan)	Remove close to ground level and treat stumps with herbicide to inhibit regrowth.	TPO
SG21	Choisya, Pyracantha, Acuba, Camilia , Mixed shrubs	2	0.5 #	Good	Insured	Remove close to ground level and treat stumps with herbicide to inhibit regrowth.	No

denotes distance was estimated

Recommendations - Future risk

The following recommendations are made to reduce the risk of a recurrence of the damage in the current claim.

Ref.	Species & estimated age	Hight DBH (m)	Dist. to area of damage (m)	Vitality & previous works	Tree owner/ location	Recommendation	TPO CA
T1	Oak 100 Early-mature	15 (0.50)	22 #	Good Reduced	Neighbour (see plan)	Maintain at no greater than current size through periodic pruning.	TPO
T3	Hornbeam 30 Semi-mature	4.5 (0.12)	3.7 #	Poor	Insured	Maintain at no greater than current size through periodic pruning.	TPO
T6	Hornbeam 70 Early-mature	5.5 (0.35)	9.7 #	Good Pollarded	Insured	Maintain at no greater than current size through periodic pruning.	TPO
TG7	Hornbeam, Field maple, Ash 60 Early-mature	6 (0.30)	7.7 #	Good Reduced	Neighbour (see plan)	Maintain at no greater than current size through periodic pruning.	TPO
T11	Lawson cypress 50 Semi-mature	8 (0.24)	6 #	Good	Neighbour (see plan)	Maintain at no greater than current size through periodic pruning.	TPO
T12	Macrocarpa 140	18 (0.80)	7.4 #	Good	Neighbour (see plan)	Maintain at no greater than current size through periodic pruning.	TPO
T14	Leylandii 40 Early-mature	9 (0.28)	17 #	Good	Neighbour (see plan)	Maintain at no greater than current size through periodic pruning.	TPO
T15	Oak 100 Early-mature	18 (0.48)	20.5 #	Good	Neighbour (see plan)	Maintain at no greater than current size through periodic pruning.	TPO

denotes distance was estimated

Statutory protection

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

Trees and wildlife

Trees are hosts to nesting birds and mammals. Under the Wildlife and Countryside Act it is an offence to disturb any nesting bird or bat. Before carrying out any works it is important to ensure that there are no birds or bats in residence.

Implementation of tree works

Tree work is skilled and potentially dangerous. Work should be carried out by trained and certificated contractors working to BS 3998: 2010 *Recommendations for Tree work*.

Replacement planting

Replacement planting may be possible but would require careful choice of species and position to avoid a recurrence of the current claim.

Photographs



T1



T1



SG2



SG2



SG2



SG2



T3



T3



SG4



SG4



H5



H5



H5



H5



T6



T6



TG7



TG7



TG7



TG7



SG8



SG8



SG8



SG8



T9



T9



T10



T10



T11



T11



T12



T12



T13



T13



T14



T14



T15



T15



TG16



TG16



TG16



TG16



SG17



SG17



SG17



SG17



T18



T18



TG19



TG19



TG20



TG20



SG21



SG21



SG21



SG21



SG22



SG22