Arboricultural Report

Subsidence Risk Assessment

(Suitable for buyers, lenders and insurers)

Site address

Church View
2 Netherfield Close
Kirkburton
Huddersfield
HD8 0UR

Dated

20th May 2019

CROWN
Tree Consultancy

Branching out through England and Wales

Contents

1. Introduction

1.1. Instructions

1.1.1. We are instructed by Benjamin Philpott to:

- Inspect the trees potentially within influencing distance of the property at Church View, Netherfield Close.
- Catalogue our findings in a report.
- Inspect the property for signs of movement.
- Assess the likely shrinkability of the soils based on records from the British Geological Society.
- Provide a qualitative assessment of the risk of vegetation related subsidence.
- Provide a qualitative assessment of the risk of heave due to potential future vegetation management.
- Assess the physiological and structural condition of each tree within the curtilage of the property and provide appropriate management recommendations.
- Determine if any of the trees are growing within a conservation area or are protected by a tree preservation order.

1.2. Limitations of the Report

1.2.1. This report is based on a survey carried out from ground level within the grounds of the subject property and adjacent public areas. No climbed inspections or specialist decay detection were undertaken. No laboratory analysis of soils has been undertaken.

1.2.2. This report is based on a qualitative assessment rather than a quantitative assessment. This means that it is based on an assessment of geological data available from the British Geological Survey as well as an understanding of the characteristics of relevant tree species, their growth potential, location and age relative to the property. Where appropriate any known history of building movement is also considered.

1.3. Tree Survey, Data Schedule and Site Plan

1.3.1. Information recorded for each tree gathered in our survey on 14th May 2019 is presented in the Tree Data Schedule and the Site Plan at Appendix 5. The final column of the Tree Data Schedule reflects the ***Soil Influence Category*** which has been allocated to each tree according to the likely impact the tree will have upon soil conditions close to the foundations of the property. The following key explains the *Soil Influence Categories*:

Soil Influence Category	Colour on the Site Plan	Definition
1	Green	Vegetation considered unlikely to be having any significant influence on soil moisture conditions close to the foundations at present and in the future.
2	Cyan	Relatively young tree, not likely to be influencing soil moisture conditions close to the foundations at present, but capable of doing so if allowed to mature.
3	Orange	Vegetation potentially within range of influence, though unlikely to be having a significant impact on soil moisture conditions below the foundations.
4	Red	Vegetation within potential range of influence and potentially able to have a significant impact on soil moisture conditions at significant depths.

1.3.2. The reader should also refer to Appendix 3 in order to correctly interpret the tree data.

2. Subsidence Risk Evaluation

2.1. Introduction

2.1.1. Vegetation related subsidence occurs during periods of prolonged dry weather when tree roots absorb significant quantities of water from shrinkable soils beneath building foundations. If this moisture is not replenished during the following months then a persistent moisture deficit occurs and the soils may shrink causing a downwards movement of the building. If this is not consistent throughout the entire footprint of the building then differential settlement occurs which can cause cracks to appear in the building walls.

2.1.2. For this to occur, all three of the following three conditions need to be met:

A) Vegetation need to be present which are near enough and large enough to significantly influence soil moisture conditions in the vicinity of the property foundations.

B) The soils beneath the foundations need to be of a shrinkable nature.

C) The depth of the foundations needs to be relatively shallow so that roots are able to grow beneath them.

2.1.3. If any of these conditions are not met then the risk of vegetation related subsidence will be low. These three conditions are discussed below:

2.2. A) Effect of Roots on Soil Moisture Levels

2.2.1. The table below indicates which vegetation is likely to be impacting on soils close to the property foundations, based purely on the species characteristics, size and distance to the property.

Likely influence upon soils close to the foundations	Tree Numbers
Negligible/no influence	T1, T2, T3
Potential future influence	H8
Potential current influence	T4, T5, T6, T7
Likely current influence	None

2.2.2. Because there are trees present which are capable of influencing soil moisture levels it is important that we try to assess the likely shrinkability of the soils.

2.3. B) Soil Shrinkability – British Geological Survey

2.3.1. The Natural Subsidence Report for this site acquired from the British Geological Survey (see Appendix 4) states that the ground conditions are predominantly non-plastic (i.e. they are not shrinkable) so there is only a very minor potential for soils to shrink due to the action of tree roots. No special ground investigation is required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink swell clays.

2.3.2. For the purpose of this report, such soils are assumed to have a relatively low shrinkage potential due to the high proportion of sand and gravel that they are assumed to contain and the relatively low proportion of clay content.

2.4. C) Foundation Depth

2.4.1. Taking into account the species present, their distance from the property and the soil types, current NHBC foundation depth charts (NHBC 4.2) recommend a foundation depth of 1.8m (based upon the Lawson Cypress hedge, H8).

2.4.2. The depth of the foundations is not known and we are not instructed to determine the foundation depth by site investigation. We understand from Mr Philpott that the property was constructed circa 1970.

2.4.3. Properties built around this time are sometimes vulnerable to vegetation related subsidence because their foundations tend not to be as deep as those built from circa 1990 onwards.

2.5. Evidence of Building Movement

2.5.1. The external masonry was inspected for any signs of movement. A hairline crack was observed to the left-hand side of the patio doors at the rear of the property (see Photograph 13). It is not considered likely to be vegetation related, but due to the installation of the patio doors, or due to initial settlement. No further cracks or signs of movement were observed close to any windows / doors as would normally be expected if subsidence movement had occurred.

2.5.2. For the purpose of this report, it is assumed that the crack observed is not due to building movement. However, the origin of the crack should be investigated by a qualified building surveyor.

2.5.3. We have not been supplied with any information indicating that there has been a history of movement to the building.

2.5.4. This suggests that there has been no previous vegetation related movement despite recent dry periods of 1995-1997 and 2003-2006[1].

2.6. Other Nuisance

2.6.1. We observed no other damage to structures such as drives, paths, garden walls etc.

2.6.2. The roots of trees and shrubs are capable of penetrating faulty or leaking drains and exploiting them as a water source. Drains which are in good condition and are not leaking will not be infiltrated by tree roots. You may wish to consider commissioning a drain survey to ascertain the condition of the drains.

[1] *It must be stressed here that we are not qualified to offer expert opinions on structural matters relating to buildings. Such opinions should be sought from appropriately qualified building surveyors.*

2.7. Conclusion and Recommendations

2.7.1. The Natural Subsidence Report acquired from the British Geological Survey (see Appendix 4) states that the ground conditions are predominantly non-plastic (i.e. they are not shrinkable) so there is only a minor potential for soils to shrink due to the action of tree roots.

2.7.2. This indicates that the likelihood of vegetation related subsidence occurring to this property will be low.

2.7.3. However, due to the proximity of T4, T5, T6, T7 and H8, it would be prudent to undertake some vegetation management. We therefore recommend the following mitigation:

1) Maintain the sizes of T4, T5, T6 and T7 at their current height and spread.
2) Maintain H8 as a hedge, at its approximate height and spread, by regular trimming.
3) Annually inspect the masonry of the building for signs of movement (cracking). If any such movement occurs you should consult with a building surveyor and inform Crown Tree Consultancy at the earliest opportunity. Early autumn is the optimum time for annual inspections because any vegetation related cracks will be at their widest following the summer months.

2.7.4. Such vegetation maintenance will maintain the risk of vegetation related subsidence occurring at a low level.

2.7.5. A more accurate analysis would require site investigations to ascertain foundation depths, laboratory analysis of soils beneath the foundations to determine their plasticity & moisture content, and a structural engineers report to ascertain if there has been any history of movement. Such a detailed geological investigation would not generally be deemed necessary except where the perceived risk is particularly high or where building movement has already occurred.

3. Heave Risk Assessment

3.1. Heave and Recovery Explained

3.1.1. Where vegetation is removed from desiccated shrinkable soils, the soils will re-hydrate and may swell. This can push buildings upwards.

3.1.2. For relatively new buildings adjacent to old trees, the ground may have been desiccated prior to the house being built, so vegetation removal may push the building up above its original level and cause damage. This is known as ***heave.***

3.1.3. For recently subsided buildings, the ***recovery*** of the ground following vegetation removal is usually welcomed as it causes buildings to recover to their pre-subsidence levels and cracks to close. If repairs have been made which do not account for ground recovery (such as filling cracks with mortar), then the ground recovery may cause further cracks to appear.

3.2. Risk of Heave – Specific

3.2.1. It is not possible that the roots of any of the trees or vegetation included within our survey have maintained desiccated soil conditions beneath the property foundation since it was built around 50 years ago. Hence there is no risk of *heave* occurring due to any vegetation management in the future (see 3.1.2).

3.3. Risk of Ground Recovery – Specific

3.3.1. This type of damage can only occur where a tree has caused a building to subside and is subsequently removed/ reduced after repairs have been made (such as filling cracks). A report by a structural engineer would be required to ascertain for certain if any building movement has occurred.

3.3.2. However, during our brief examination of the building, we observed no evidence of significant building movement and we understand that the purchaser of the building is unaware of any evidence of movement or history of movement. Based on the understanding that no such vegetation related movement has occurred, the risk of damage occurring due to ground recovery is also effectively non-existent.

3.3.3. This assessment is supported by the geological data which indicates that the soils have a low shrinkability.

4. Tree Condition Assessment

This section gives a summary of the trees surveyed and an in depth discussion of any safety concerns. Recommendations are made in order to reduce risks to an acceptable level. The tree data schedule at Appendix 5 should also be consulted as this gives further information on each specimen.

4.1.1. T1 is an early mature Sycamore. This tree was observed to have two cavities with decay present on the north-west side of its stem at 1.5m and 2.5m above ground level, along with minor cavities developing at old pruning wounds, tear wounds from snapped our branches in the south-western side of its canopy, scattered dead branch stubs within its upper crown and a bark wound to the western side of its stem. We recommend that a decay detection investigation is carried out to in order to better assess the extent of decay associated with the two cavities.

4.1.2. T2 is an early mature Sycamore. The canopy of this tree is fairly sparse with scattered dead twigs and branch stubs throughout. However, the tree is considered to be in an acceptable condition at present and no pruning works are deemed necessary at this time.

4.1.3. T3 is a mature Sycamore with a fairly sparse inner canopy, scattered dead twigs and small dead branches within its canopy. No pruning works are deemed necessary at this time, however we do recommend that the condition of this tree is closely monitored.

4.1.4. T4 is an early mature Horse Chestnut with occasional scattered dead twigs within its canopy. No other defects were observed upon inspection and consequently, no pruning works are deemed necessary at this time.

4.1.5. T5 is an early mature Sycamore. Scattered dead twigs and small dead branches are present within the canopy and the lowest scaffold branch growing in a northern direction is showing a slight sign of subsidence on its underside. We recommend this tree is monitored and regularly inspected.

4.1.6. T7 is a semi mature Beech tree situated on third party land. Access prevented a detailed inspection of this tree; however it was observed that the boundary fence had rubbed against the stem of the tree. No action is deemed necessary at this time; however it is likely that the fence may cause further damage as the tree matures.

4.1.7. T6 and H8 are deemed to be in an acceptable condition and no works have been recommended for safety purposes.

4.2. Work Priority

4.2.1. It is recommended that the works suggested for safety purposes are prioritised according to the table below:

Work Priority	Definition	Tree Number:
Urgent	As soon as possible	None
Very High	Within 1 Month	None
High	Within 3 Months	T5
Moderate	Within 1 year	T1 and T3
Low	Within 3 years	None

4.3. Future Inspection

4.3.1. It is recommended that the retained trees are regularly inspected according to the following schedule:

Inspection Frequency (years)	Tree Number:
0.5	None
1	T1, T3, T5
1.5	T2, T6 and T7
3	T4 and T8

5. Summary of Recommendations

The table below summarises all of the recommended works:

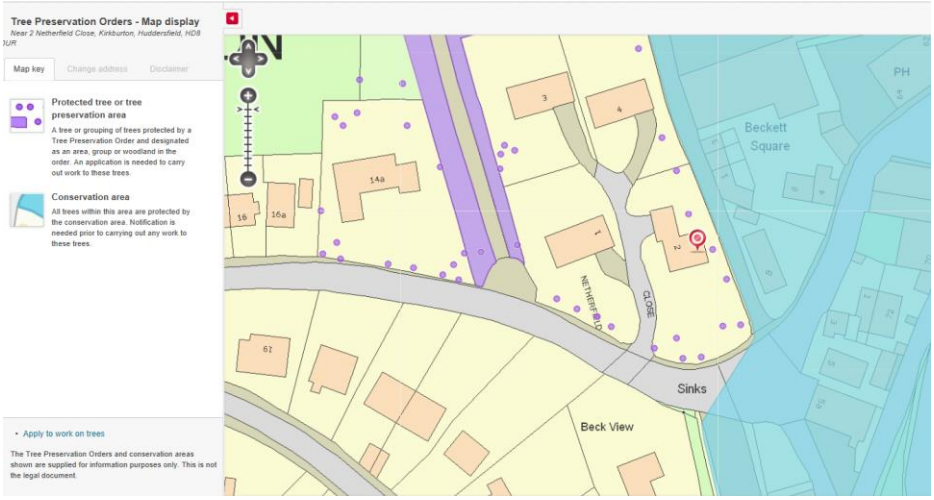
Tree No	Subsidence Risk	Safety Issues	Recommendation	Reason
T1	No, due to distance from property.	Yes	Undertake decay detection instigation.	To better assess the extent of decay associated with the two cavities.
T3	No, due to distance from property.	Not at present	Monitor.	To observe any further defects that may develop.
T5	Low risk due to soil type.	Yes	Monitor.	To monitor any further signs of branch subsidence.
T4, T6, T7	Low risk due to soil type.	No	Maintain at current height and spread.	To maintain the risk of vegetation related subsidence at a low level.
H8	Low risk due to soil type.	No	Maintain as a hedge at its approximate current height and spread.	This species have a very large growth potential and a high water demand and such works shall maintain the risk of vegetation related subsidence at a low level.

5.1.1. Heavy fines exist for carrying out unauthorised works to protected trees so we advise that the local authority are contacted before any tree work is undertaken. Further information can be found overleaf.

6. Tree Protection Status

6.1. Tree Protection Status

6.1.1. On 17th May 2019, we visited the Local Authority website. A screen shot of the TPO Map is pasted below:



6.1.2. We interpret this to mean that:

- The site does not lie within a Conservation Area.
- There are Tree Preservation Orders affecting trees within the site. We believe trees T1, T2, T3, T4 and T5 (according to our numbering system) to be protected by a TPO. TPO ref numbers: 07/89/t61 (T1), 07/89/t65 (T2), 07/89/t66 (T3), 07/89/t67 (T4), 07/89/t68 (T5). It is unclear whether any of the other trees included within our survey are protected by a TPO as there are some discrepancies between the positions of the trees on the TPO Map and the trees measured on site during our survey.

6.2. Tree Protection Guidance

6.2.1. Before undertaking works to trees protected by a Tree Preservation Order, consent needs to be obtained from the local authority which will provide application forms and further guidance to potential applicants. The local authority is likely to grant consent for works that are in accordance with good arboricultural practice. When making an application is essential that works are described in detail so that there may be no ambiguity.

6.2.2. Where the works are proposed for reasons of safety or ill health, a report from a suitably qualified arborist will usually be required. Trees or branches that are dead, dangerous or dying are technically exempt from protection, though it would be prudent to give the local authority notice of intention and take photographs before undertaking works without prior consent being granted. Fines of up to £20 000 per tree exist for unauthorised works to protected trees.

6.2.3. Further information relating to tree Preservation Orders may be found within the guide *Tree Preservation Orders: A Guide to the Law and Good Practice* which may be downloaded free from the following website:
http://www.communities.gov.uk/publications/planningandbuilding/tposguide

6.2.4. Crown Tree Consultancy will also be happy to provide further assistance if required.

7. Photographs

See the site plan in Appendix 5 for photo locations.

Photo 1.

Photo 2.

Photo 3.

Photo 4.

Photo 5.

Photo 6.

Photo 7.

Photo 8.

Photo 9.

Photo 10.

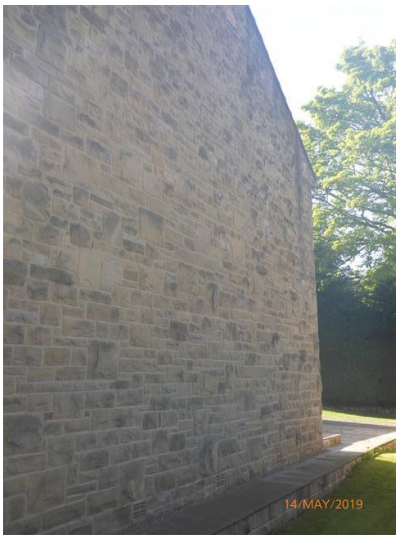


Photo 11.

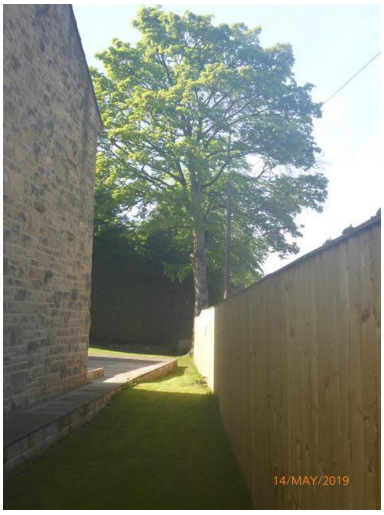


Photo 12.

Photo 13.

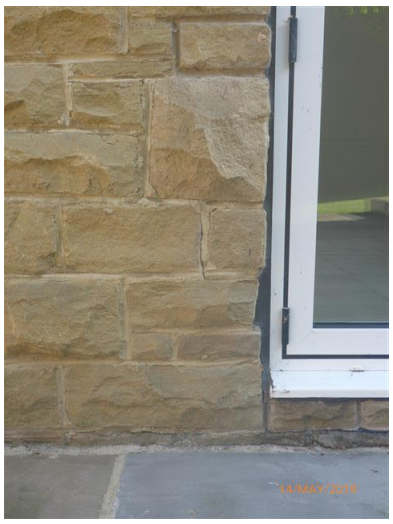


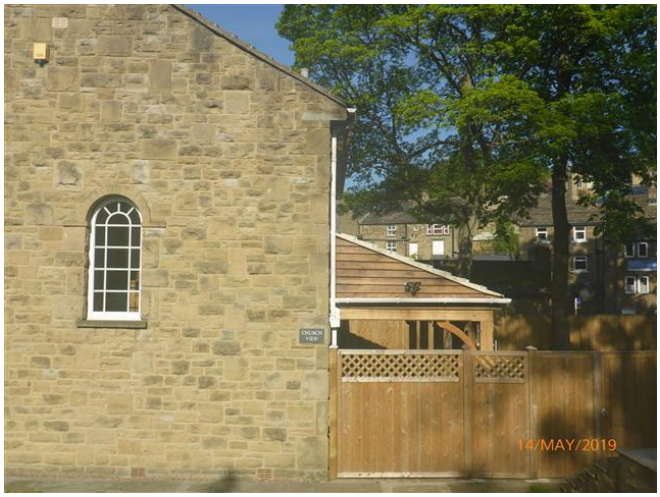
Photo 14.

Photo 15.

Photo 16.

Photo 17.

Photo 18.



8. Signature

This report represents a true and factual account of the potential influence of trees at

Church View
2 Netherfield Close
Kirkburton
HD8 0UR
Huddersfield

Signed

.....

Emma Hoyle FDSc (Arboriculture), ED (Forestry & Arboriculture), M. Arbor. A.

on behalf of

Crown Tree Consultancy

Dated

20th May 2019

CROWN
Tree Consultancy
Branching out through England and Wales

Appendix 1: Author's Qualifications

Qualifications & Experience of Emma Hoyle FDSc (Arboriculture), ED (Forestry & Arboriculture), M. Arbor. A.

Arboriculture

Emma is a qualified Arboricultural Consultant educated to Level 5 in Arboriculture at Askham Bryan College, is a professional member of the Arboricultural Association and is a LANTRA accredited Professional Tree Inspector. She has worked for Crown Consultants since 2015 and has since written numerous reports relating to all aspects of arboriculture including; planning and development, vegetation related subsidence, tree preservation orders and tree risk assessment. Emma regularly attends seminars and events in order to keep abreast with current knowledge and best practise in Arboriculture.

Prior to becoming an arboricultural consultant, Emma worked for two reputable tree surgery firms from 2008 and became an NPTC Qualified tree surgeon after completing a Level 3 Extended Diploma in Forestry and Arboriculture at Askham Bryan College.

Emma also has experience in other areas of arboriculture such as forest clearance, tree planting, tree maintenance and landscaping.

Insurance

Crown Consultants carry £2 Million Professional Indemnity cover, £5 Million Public Liability cover and £10 Million Employer Liability cover. Proof of cover is available on request.

Appendix 2: Condition Assessment Methodology

A2.1 Where instructed to include a Tree Condition Survey, this is carried out using the *Visual Tree Assessment* technique described by Mattheck and Broeler (1994) and endorsed by the Arboricultural Association (LANTRA Professional Tree Inspection course, 2007).

A2.2 Structural condition is assessed by inspecting the stem and scaffold branches from all angles looking for weak branch junctions or symptoms of decay. Particular attention is paid to the stem-base. Cavities are explored using a metal probe in order to assess the extent of any decay. If this is not possible further inspection is recommended in the form of a climbed inspection or using specialist decay detection equipment.

A2.3 The physiological condition is assessed by inspecting the stem, branches and foliage for symptoms of disease. The overall vigour of the tree is also taken into account.

A2.4 Where the condition of a tree is deemed to be unacceptable, recommendations are made according to a scale of priority in order to reduce the liability of the owner. The position of the tree and its potential targets are taken into account.

A2.5 Measurements are obtained using a diameter tape, clinometer, distometer and loggers tape. Where this is not practical measurements are estimated.

A2.6 Some trees are surveyed as groups, though this is avoided close to areas likely to be developed.

Appendix 3: Explanation of Tree Data and Glossary

This section explains the terms used in the **Tree Data Schedule** within Appendix 5.

A3.1 General Observations

A3.1.1 **Numbering System:** Each item of vegetation has its own unique number prefixed by a letter such that T1=Tree 1, G2=Group 2, H3=Hedge 3 and W4=Woodland 4, S5=Shrub 5.

A3.1.2 **Age Categories:**

Young	Usually less than 10 years old.
Semi-Mature	Significant future growth to be expected, both in height and crown spread (typically below 30% of life expectancy).
Early-Mature	Full height almost attained. Significant growth may be expected in terms of crown spread (typically 30-60% of life expectancy).
Mature	Full height attained. Crown spread will increase but growth increments will be slight (typically 60% or more of life expectancy).
Veteran	A level of maturity whereby significant management may be required in order to keep the tree in a safe condition.
Over Mature	As for veteran except management is not considered worthwhile.

A3.1.3 **Species:** Common names and Latin names are given.

A3.1.4 **Height:** Measured from ground level to the top of the crown.

A3.1.5 **Stem Diameter:** Taken at 1.5m above ground level where possible. On multi-stemmed trees this measurement may be taken at ground level, though usually an indication of the number of stems and average diameter is given, e.g. 3 x 30cm.

A3.1.6 **Crown Height:** Measured from ground level to the height at which the main crown begins. Where the crown is unbalanced it is measured on the side deemed to be most relevant. This is usually the side facing the area of anticipated development.

A3.1.7 **Tree Diagram:** This scaled drawing is computer generated based on measurements taken for stem diameter, crown height and spread, and overall height. It is designed to help the reader rapidly assess the data. It is not an accurate representation of the form of the tree.

A3.1.8 **Crown Spread:** Measured N, E, S & W, taken from the centre of the stem and usually rounded up to the nearest metre.

A3.1.9 **Observations:** If a tree's position is considered to be relevant it will be commented upon (e.g. overhanging a children's play area). Tree form and pruning history are also recorded along with an account of any significant defects. Defects and descriptive terms are dealt with in more detail at the end of this section.

A3.1.10 **Recommendations:** Usually based on any defects observed and intended to ensure that the tree is in an acceptable condition.

A3.1.11 **Priority Scale:** Depending upon the threat posed by the tree, and the likelihood of failure, recommendations should be carried out according to the following priority scale:

Urgent	To be carried out as soon as possible.
Very High	To be carried out within 1 month.
High	To be carried out within 3 months.
Moderate	To be carried out within 1 year.
Low	To be carried out within 3 years.

A3.1.12 **Inspection Frequency:** An interval of 6 months, 1 year, 1.5 years or 3 years is allocated before the next inspection is due. Wherever practical, consideration should be given to seasonal changes so that deciduous trees are not always surveyed in winter when they have no leaves, or in summer when leaves may obscure branches within the upper crown.

A3.1.13 **Vigour:** An indication of growth rate and the tree's ability to cope with stresses:

High	Having above average vigour.
Moderate	Having average vigour.
Low	Having below average vigour.
Very Low	Tree is struggling to survive and may be dying.

A3.1.14 **Physiological Condition:**

Good	Healthy and with no symptoms of significant disease.
Fair	Disease present or vigour is impaired.
Poor	Significant disease present or vigour is extremely low.
Very Poor	Tree is dying.

A3.1.15 **Structural Condition:**

Good	Having no significant structural defects.
Fair	Some defects observed though no high priority works are required.
Poor	Significant defects found. Tree requires monitoring or remedial works.
Very Poor	Major defects which will usually require significant remedial works or tree removal.

A3.1.16 **NHBC Water Demand Category:**
Taken from the National House-Building Council Standard 2008 *Section 4.2 Building Near Trees*, a classification of High, Moderate or Low is allocated to most tree species according to their ability to extract moisture from deep within clay soils.

A3.1.17 **Life Expectancy:** The estimated number of years before the tree may require removal. Classified as (<10), (10 – 20), (20 – 40), or (40+).

A3.1.18 **Influence Categories:** These are explained in detail in Section 4.

A3.2 Evaluation of Defects

A3.2.1 Cavities, wounds, deadwood etc are all evaluated as follows:

Major	Such that structural integrity is, or will become, compromised and the tree is, or will inevitably become, hazardous.
Significant	Defects that may over time become major defects, though not necessarily so. This will depend on the vigour of the tree and its ability to compartmentalise decay etc.
Minor	A defect that is not likely to compromise the tree's structural integrity.

Appendix 4: Natural Subsidence Report (British Geological Survey)

The Natural Subsidence Report purchased from the British Geological Society follows this page

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Natural Subsidence Report

Introduction

This report provides an indication of the potential for any significant natural ground instability to occur within a circle measuring 100m in diameter centred on the grid reference or point supplied. It has been generated automatically from BGS' GeoSure dataset, which is based on 1:50 000 scale digital data.

Ratings range from A (very minor) to E (very significant).

This report is designed for use by professionals involved in conveyancing or development of low-rise domestic properties, but it may also be useful for private individuals to help them judge whether or not further professional advice should be sought.

We recommend that members of the public should consult a qualified professional about the search results in this report before making any major decisions based on it.

For more information about the A-E ratings and the implications for your property please see the GeoSure web pages.

Collapsible Deposits

Definition: Ground that is liable to undergo a rapid reduction in volume when the ground is saturated with water after a critical load has been placed on it.

B - Minor potential

Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

Compressible Ground

Definition: Ground that is liable to undergo a slow reduction in volume, especially after a load has been placed on it.

A - Very minor potential

No indicators for compressible ground identified. No special actions required to avoid problems due to compressible ground. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible ground.

Landslides

Definition: Large-scale outward and downward movement of rock or soil on a slope.

C - Moderate potential

Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to the ground, such as drainage or excavations, take place. Possible increase in construction cost to reduce potential slope stability problems. For existing property, no significant increase in insurance risk due to natural slope instability problems.

Running Sand

Definition: Movement of water-saturated sand or silt into an underground void, or into an excavation or onto the surface.

A - Very minor potential

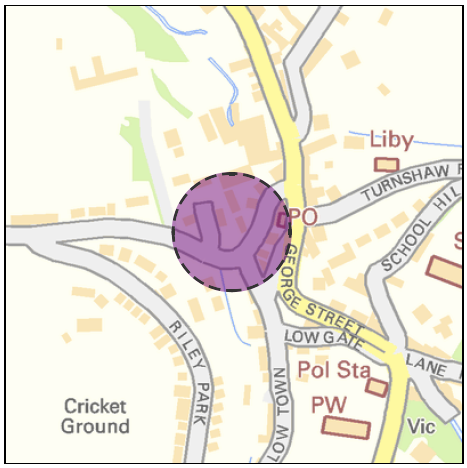
No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

Location

419704, 412667 (British National Grid)

14/05/2019 07:12:20 GMT

Location Map



Shrink Swell

Definition: Significant changes in the volume of clay-rich deposits that accompany changes in moisture content.

B - Minor potential

Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink swell clays.

Soluble Rocks

Definition: The formation of underground voids in limestone, gypsum or halite .

A - Very minor potential

Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

Definitions

For more information about each hazard please refer to the GeoSure pages on the BGS website

Natural Geological Hazards are shrink-swell, landslides (slope instability), soluble rocks (dissolution), compressible ground, collapsible deposits and running sand. This does not include mining related subsidence. Note that these geological hazards may occur in either natural or man-made deposits.

Natural Subsidence refers to the propensity for upward, lateral or downward movement of the ground that can be caused by a number of natural geological hazards. Some movements associated with particular hazards may be gradual and of millimetre or centimetre scale, whilst others may be sudden and of metre or tens of metres scale.

Significant natural ground instability has the potential to cause damage to some weaker buildings and structures. It should be noted, however, that many buildings, particularly more modern ones, are built to such a standard that they can remain unaffected in areas of significant ground movement.

Superficial deposits

Superficial deposits (formerly known as 'drift' by BGS) are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 2.6 million years from the present. They rest on older deposits or rocks referred to as bedrock.

Bedrock

Bedrock geology (formerly known as 'solid' geology by BGS) is a term used for the main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water. The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 2.6 million years ago.

Terms & Conditions

This report provides an indication of potential near-surface ground instability related to particular natural geological hazards. These are shrink-swell clay, landslides, soluble rocks (ground dissolution), compressible ground, collapsible deposits, and running sand. They do not give an indication of potential hazards at depth as might be encountered in a borehole, for example.

The search does not cover any man-made hazards, such as contaminated land or mining. Searches of coal mining should be carried out via The Coal Authority Mine Reports Service: www.coalminingreports.co.uk.

The results in this report are generated automatically from BGS'GeoSure dataset, based on 1:50 000 digital geological maps and the interpretation of other records in the possession of BGS at the time. Their scope and accuracy is limited by the methods used to create the dataset and they may differ from a geologist's interpretation of a wider array of geological information. The answer given should therefore only be treated as indicative for the search area.

Other more specific and detailed information may be held by BGS for the site, and an assessment of this could result in a modified assessment of ground stability potential. This more detailed assessment is available via other BGS GeoReports.

The search in this report is carried out for a circle 100m in diameter centred on the grid reference or point supplied, which takes into account the spatial accuracy of the geological hazards data described above.

The information is intended for use by suitably-qualified professionals involved in conveyancing or development of low-rise domestic properties. If in doubt users should consult a suitably-qualified professional about the search results in this report before making any major decisions based upon it.

An indication of natural ground instability does not necessarily mean that a building will be affected by subsidence. Such an assessment can be made only by inspection of the building itself by a suitably-qualified professional. This will take into account a variety of other contributing factors, such as building type and build quality, and nearby vegetation (in particular, the proximity and type of trees).

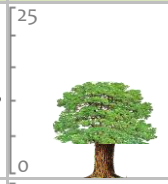
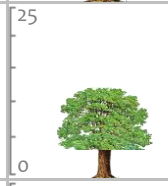
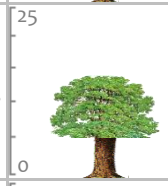
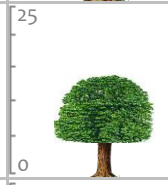
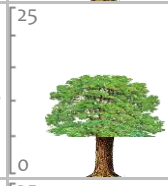
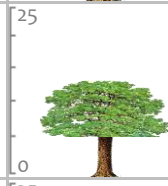
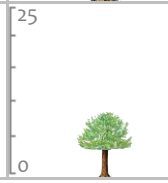
The topography shown on any map extracts is based on the latest OS mapping and is not necessarily the same as that used in the original compilation of the BGS geological map, and to which the geological linework available at that time was fitted.

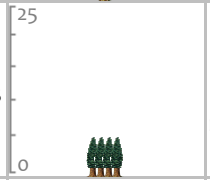
Note that for some sites, the latest available records may be quite historical in nature, and while every effort is made to place the analysis in a modern geological context, it is possible in some cases that the detailed geology at a site may differ from that described.

Report issued by: **BGS iGeology**
BGS Enquiries - enquiries@bgs.ac.uk - 0115 936 3143

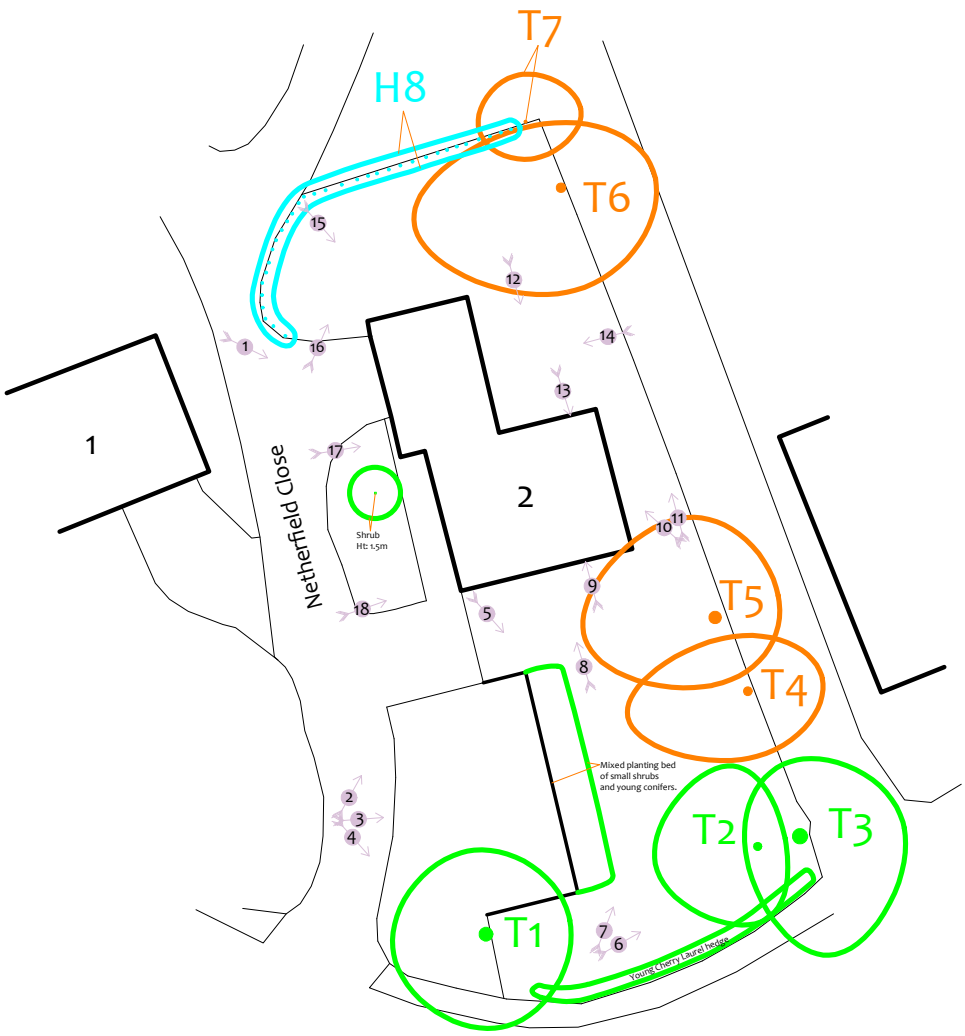
Appendix 5: Site Plan and Tree Data Schedule

The Site Plan and Tree Data Schedule Follow this Page.

Reference G = Group H = Hedge	Age & Species	Height (m)	Crown Ht (m)	Diameter (cm)	Crown Spread (m) N W E S	Scaled Tree Diagram (m) 9 0 9	Notes	Recommendations Priority / Inspect Freq (yrs)	Vigour Physiological Condition Structural Condition	NHBC Water Demand Life Expectancy (yrs) Soil Influence Category
T1	Early-Mature **Sycamore** Acer pseudoplatanus.	13	5	73	N 4.5 W 5 E 4.5 S 5		Position: Beyond influencing distance (in excess of 18m from dwelling). Form: Twin-stemmed at 7m with a slightly unbalanced crown. History: Occasional pruning wounds due to crown lifting (now healed). **Defects: Two cavities developing to north-west side of stem at 1.5m and 2.5m above ground level - decay present. Minor cavities developing at old pruning wounds, tear wounds from snapped out branches to south-west side of canopy, scattered dead branch stubbs to upper crown, bark wound to west side of stem.**	Decay detection required. Moderate / 1	Moderate Fair Fair	Moderate 10-20 1
T2	Early-Mature **Sycamore** Acer pseudoplatanus.	13	4.5	43	N 4.5 W 5.5 E 1.5 S 4		Position: Distance to property is 16.8m (beyond influencing distance). Form: Single stemmed and vertical with an unbalanced crown. History: Occasional pruning wounds due to crown lifting. **Defects: Fairly sparse canopy to east and scattered dead twigs and branch stubbs throughout.**	No action required. n/a / 1.5	Moderate Fair Good	Moderate 20-40 1
T3	Mature **Sycamore** Acer pseudoplatanus.	14	5.5	80	N 4 W 3 E 5.5 S 6.5		Position: Distance to dwelling is 17m (beyond influencing distance). Form: Twin-stemmed at 6m with a slightly unbalanced crown. History: Occasional pruning wounds due to crown lifting and crown reduction. **Defects: Fairly sparse inner canopy, scattered dead twigs and small dead branches within caopy.**	Monitor. Moderate / 1	Moderate Fair Fair	Moderate 20-40 1
T4	Early-Mature **Horse Chestnut** Aesculus hippocastanum.	14	5	46	N 3 W 6.5 E 4 S 3.5		Position: Distance to dwelling is 9.2m. Form: Single stemmed and vertical with a slightly unbalanced crown. History: Multiple pruning wounds due to crown lifting. **Defects: Scattered dead twigs throughout.**	Maintain at current height and spread. Moderate / 3	Moderate Good Good	Moderate 40+ 3
T5	Early-Mature **Sycamore** Acer pseudoplatanus.	14	6	65	N 5.5 W 7 E 3.5 S 3.5		Position: Distance to dwelling is 5.3m. Form: Twin-stemmed at 6m with a slightly unbalanced crown and a slight lean. History: Pruning wounds due to crown lifting and crown reduction (healing). **Defects: Scattered dead twigs and small dead branches throughout. Slight sign of subsidence to the lowest, northern scaffold branch.**	Monitor. Moderate / 1	Moderate Good Fair	Moderate 20-40 3
T6	Early-Mature **Sycamore** Acer pseudoplatanus.	13	6	50	N 3.5 W 8 E 5 S 5.5		Position: Distance to garage is 7m, distance to dwelling is 12m. Form: Twin-stemmed at 6m with a slightly unbalanced crown. History: Occasional pruning wounds due to crown lifting (now healed). **Defects: No significant defects observed.** Other: Fence prevented detailed inspection of stem.	Maintain at current height and spread. Moderate / 1.5	Moderate Good Fair	Moderate 40+ 3
T7	Semi-Mature **Beech** Fagus sylvatica.	8	3.5	15	N 2.5 W 2.5 E 3 S 2		Position: Distance to garage is 9.6m. Form: Single stemmed and vertical with a slightly unbalanced crown. History: No evidence of significant pruning. **Defects: Boundary fence is rubbing against stem.** Other: Situated on third party land, access prevented detailed inspection.	Maintain at current height and spread. Moderate / 1.5	Moderate Good Fair	Moderate 40+ 3

Reference G = Group H = Hedge	Age & Species	Height (m)	Crown Ht (m)	Diameter (cm)	Crown Spread (m) N W E S	Scaled Tree Diagram (m)	Notes	Recommendations Priority	Recommendations Inspect Freq (yrs)	Vigour Physiological Condition Structural Condition	NHBC Water Demand Life Expectancy (yrs) Soil Influence Category
H8	Semi-Mature **Lawson Cypress** Chamaecyparis lawsoniana.	3.6	0	15	0.5 0.5 0.5 0.5		Position: Closest distance to garage is 4m. Form: Several close growing specimens forming a headge. History: Trimmed and well maintainted. **Defects: No significant defects observed.**	Maintain as a hedge. High	3	High Good Good	High 40+ 2

Site Plan



Site:
Church View
2 Netherfield Close
Kirkburton
Huddersfield
HD8 0UR

Ref No: 10312/TLP
Scale: 1:400
Paper Size: A4

CROWN
Arboricultural Consultants

Soil Influence Category 1 tree
Vegetation considered unlikely to be having any significant influence on soil moisture conditions close to the foundations at present and in the future.

Soil Influence Category 2 tree
Relatively young tree, not likely to be influencing soil moisture conditions close to the foundations at present, but capable of doing so if allowed to mature.

Soil Influence Category 3 tree
Vegetation potentially within range of influence, though unlikely to be having a significant impact on soil moisture conditions below the foundations.

Soil Influence Category 4 tree
Vegetation within potential range of influence and potentially able to have a significant impact on soil moisture conditions at significant depths.

T1 Tree number 1

G2 Group number 2

H3 Hedge number 3

1 Location of Photo no 1