



Arboricultural Report

Title: Tree Inspection, Condition and Management
Recommendations Report re the Ash in Rear Garden of
9 Rhiwlas, Waunceirch, Neath, SA10 7RB.

Instructed by: Mr Gerald Fowler.

Prepared by: Graham Chesterton Tech Cert (ARBOR A) Cert Arb (RFS)

Date: 26th June 2020

Contents

	Page
Instructions	2
Introduction	3
Tree Inspection	4
Conclusions	8
Recommendations	11
Appendix	14

Arboricultural Report

Tree Inspection, Condition and Management Recommendations **Report re the Ash in Rear Garden of 9 Rhiwlas, Waunceirch, Neath,** **SA10 7RB.**

References:

- A. Text reply dated 14/06/20 to GCA quotation dated 14/06/20.
- B. BS3998:2010 Tree work – Recommendations.

1 Instructions

- 1.1 I have been instructed in writing (Ref A) by Mr Gerald Fowler with regard to arboricultural concerns regarding the condition and safety of the large mature ash tree which is at the end of the rear garden of his home in Neath. On 4th June, the tree dropped a significant higher order branch with a basal diameter of > 50mm and a length of 5.5m onto the tramway below which fortunately did not cause injury to person(s) or damage to property. Accordingly, I have been instructed by the property owner to inspect the tree and compile a tree condition and management report on her behalf as follows:
 - 1.1.1 Visual ground based and climbing assessment of the ash tree concerned.
 - 1.1.2 Individual hazard assessment, recording and risk management recommendations for tree defect(s) which pose a threat to the property and to the adjacent bridleway, and neighbouring property.
 - 1.1.3 Plot tree on an Ordnance Survey base map.
 - 1.1.4 Compile an arboricultural report re the above.

2 Introduction

2.1 Background

I am an experienced Certified Arboricultural Technician qualified to Level 6 in Arboriculture (ABC Awards). I have gained the Technicians Certificate of the Arboricultural Association at distinction level and I also hold the Royal Forestry Society Certificate in Arboriculture again at distinction level. Furthermore, I am qualified in Professional Tree Inspection (Lantra), trained in practical visual tree assessment (VTA) and I am a registered licence holder for Quantified Tree Risk Assessment (QTRA). Lastly, I hold current full professional memberships of the Arboricultural Association (including the Utility Arboriculture Group), the Royal Forestry Society and the Forestry Industry Safety Accord (FISA).

2.2 Limitations

- 2.2.1** My tree inspection and hazard assessment was conducted from ground level and by climbing the tree using a rope and harness and using binoculars where necessary.
- 2.2.2** No soil / decay samples were taken.
- 2.2.3** No use was made of decay detection equipment other than a IML metal probe supported by tape and diameter tape measures.
- 2.2.4** The presence of any protected wildlife in the trees concerned remains the responsibility of the landowner.
- 2.2.5** Enquiries have not been made with the Local Planning Authority (LPA), Neath Port Talbot County Borough Council, to ascertain whether or not the tree concerned is the subject of a Tree Preservation Order (TPO) or lies within a Conservation Area. However, anecdotal evidence suggests that the site does not lie within a designated Conservation Area. However, it is believed that the tree is by a designation under a current TPO which was made by Neath Port Talbot County Borough Council.
- 2.2.6** Trees and shrubs are dynamic living organisms whose health and condition can change rapidly. The health, condition and safety of trees in particular should be checked on a regular basis, preferably annually, in order to exercise a duty of care.

Accordingly, the validity period of my recommendations relating to tree condition is 12 months from the date of inspection.

2.3 Site Location

2.3.1 Rhiwlas is a residential development of modern detached houses laid out in a cul-de-sac in the Waunceirch area of the town of Neath. The houses were built in the mid 1990's and on the western side abut an old coal tramway which runs downhill from north to south. The tramway is now a single track metalled bridleway without regular vehicle access which is a popular route for local walkers and cyclists.

2.3.2 Number 9 lies on the western side of Rhiwlas and shares a continuous rear boundary with the old tramway. The ash tree in question is at the bottom north western end of the small rear garden which measures 6m deep by 10m across and dominates the old tramway, the rear of the house and adjacent rear gardens in Rhiwlas.

2.3.4 The current site layout is shown in the Tree Inspection Map (pdf) which is appended to this report.

2.4 Tree Cover

2.4.1 Tree cover in the locality comprises mainly established mature broadleaved and coniferous stock which is growing out of lapsed hedgerows on earth banks lining both sides of the old tramway. Dominant species within this range include mature ash, sycamore and oak with an understorey of hazel, hawthorn, holly and privet.

2.4.2 The mature ash tree in question is growing on top of the earth bank out of the managed holly hedging which is just outside of the rear wooden boundary fence. Top of the bank is about 1.6m above the tarmac bridleway wearing surface.

3. Tree Inspection

3.1 Site Visit

3.1.1 I conducted an accompanied site visit on 24th June 2020. All my observations and detailed investigations were initially from ground level using binoculars where necessary, a Thor 710 Nylon Hammer and an IML metal probe, whilst all dimensions were measured using a Trupulse 360R laser rangefinder, diameter

tape and tape measure. The weather at the time of inspection was clear with good visibility and light winds. My measurements and findings are recorded in the Tree Inspection Schedule (pdf) which is appended to this report

3.1.2 Tree position and relevant data were fixed, plotted and recorded on an Ordnance Survey base map using a Trimble Yuma 2 enhanced GPS rugged tablet computer and I affixed a numbered metal tag (1997) to the tree for clear identification purposes.

3.1.3 A climbing inspection of the tree was also conducted in order to examine the architecture and condition of the main forks and branching in the lower, mid and upper crown in order to identify any defects in the structural or physiological condition of the tree.

3.2 Tree Defects

3.2.1 For the purposes of a tree hazard assessment, only tree(s) with a diameter greater than 150mm at 1.3m above ground level (dbh @ 1.3m agl) are considered, i.e. those from the results of current arboricultural research (US Tree Failure Database) with a size to cause potential harm to persons or property.

3.2.2 The presence of deadwood as a tree defect is a recurring theme. Deadwood is a valuable ecological resource and forms the base of the woodland food chain. As such it is desirable to retain it on standing trees where possible subject to safety constraints in areas of high target value in terms of public occupation levels and property value. Accordingly, I differentiate within my findings to minor deadwood which is of a size (<50mm dia) or disposition unlikely to cause significant injury or damage to a target beneath it and major deadwood which is of a size (>50mm dia) or disposition likely to cause significant injury or damage to a target beneath it.

3.3 Tree Hazard Management

3.3.1 Potential tree hazards from defect(s) identified during the inspection have been evaluated using the Tree Hazard Risk Evaluation and Treatment System (THREATS) which is an established arboricultural method for identifying, recording and managing hazards from trees (FLAC UK Ltd June 2010).

3.3.2 Central to the THREATS system is the risk assessment arising from the relationship between the likelihood of tree failure (or part thereof), target value and occupancy levels and the impact score from the size and weight of the tree (or part thereof). Target values for the site have been calculated using the current / historic land use and occupancy levels. Therefore, if land use and occupancy

levels around this tree changes in the future, then the hazards and concomitant risks from the tree will need to be revisited and tree risk management revised.

3.4 **Findings**

3.4.1 I visually inspected the tree in question and include its current relevant characteristics and dimension (including average stem diameter and radial tree spread in the Tree Inspection Schedule (pdf) which is appended to this report. However, the main details are summarised in Table 1 below:

Table 1: Tree Data

Tree Tag Number	1997
Botanical Name	Fraxinus excelsior
Common Name	Common Ash
Height	22m
Stem Diameter (at 1.3 m agl)*	595mm
Crown Spread (radius from centre of stems)	North 8m East 9m South 9m West 8m

*agl = above ground level

3.4.2 **Roots and Surrounding Ground**

3.4.2.1 The base of the tree is situated on top of an earth bank 1.6m above the tarmac wearing surface of the old tramway beneath it. An examination of the bank from the tramway showed an exposed lateral rooting pattern with lateral roots running off along the bank in both directions above the tramway. Passing vehicle damage was evident in the form of horizontal lateral scraping to the surface of some of the roots in five separate locations above the road surface. The scrape wounds were relatively shallow and partially occluded with no sign of active decay or fungal fruiting bodies.

3.4.2.2 Base and Root Plate.

3.4.2.2.1 The buttress and structural roots appeared functional to examination with the probe and acoustic sounding with the

nylon hammer and there is no evidence of soil movement, buckling or displacement around the tree root plate.

- 3.4.2.2.2** A basal cavity on the north flank of the stem is evident from the historic removal of a primary limb at ground level. The cavity is open and measures 30cm high, 20cm wide and 60cm deep where it runs through the base of the tree and into the bank. The walls of the cavity are made up of rolls of young sapwood and there is no active decay within it.

3.4.3 Main Stem

- 3.4.3.1** The lower stem above the cavity appears functional to sounding with the nylon hammer.

- 3.4.3.2** The main stem rises up uniformly from the top of the bank through the holly hedge to a height of 4.5m agl whereupon it forks into two primary stems which are aligned roughly on a north / south axis. These two primary vertical stems then sub-divide to form the main crown architecture between 7.5m agl (N) and 8m agl (S).

- 3.4.3.3** The main fork is aligned at an acute angle. The climbing inspection revealed that the fork has an open crack up to 0.5cm wide running down through the fork with a length of 60cm on the eastern (garden) side and 30cm on the western (tramway) side.

3.4.4 Primary Branches

Primary branching commences at around 8m agl from both vertical stems with an open branch architecture which is appropriate to species and forms the tree canopy.

3.4.5 Secondary Branches and Foliage

- 3.4.5.1** There is evidence of the build-up of dead branching and broken branch stubs from the lower crown upwards. Extensive grey squirrel damage is evident across the upper surfaces of crown branching. The wounds from this gnawing do not appear to have occluded satisfactorily and some branches have been more or less ring-barked close to the main vertical limbs.

3.4.5.2 Minor branches and twigs demonstrate reasonable extension growth appropriate to form and species. However, ash dieback disease (*Hymenoscyphus fraxineus*) has become established in the tree with progressive wilting and dieback of branch tips in the upper crown and smaller to medium branching in the mid and upper crown. An examination of recent fallen branches below the tree found minor bordering on major deadwood with necrotic foliage still attached and twigs displaying the characteristic surface lesions of the disease.

3.4.5.3 The base of the recent fallen branch onto the tramway (para 1.1) also displayed teeth marks from grey squirrel damage

4. Conclusions

4.1 Amenity Value.

This ash tree is, in my opinion, a reasonable landscape tree, offering amenity value to the local area and a contribution to the history, landscape and visual amenity of the neighbourhood. The size and life stage of this tree indicates to me that it is around 75 years old. However, the structural and physiological condition of this example places it near the end of the safe useful life expectancy (SULE – Helliwell) for the species in a garden or parkland environment and as such tree replacement should be considered for the benefit of wildlife, current and future residents and visitors alike.

4.2 Tree Hazard Assessment.

4.2.1 The development of physiological and structural defects in this tree constitutes a hazard to the site and its environs which requires remediation.

4.2.2 The size, location and disposition of this ash tree pose a significant foreseeable risk to property, residents, visitors, and passersby. Therefore, tree risk management is required for the site in order to maintain the balance of safety with tree value and to operate to a predetermined limit of reasonable or acceptable risk for the owners of the property.

4.3 Tree Defects

4.3.1 Stem Decay

The decay cavity in the base on the northern side of the main stem is not considered to be a significant defect. Active decay in the cavity is not in evidence

and strong reactive growth around the periphery indicates that the cavity and decay therein has been contained without significant impact on the health and stability of the tree. Root damage above the tramway caused by wide passing work vehicles appears to be similarly contained and non-invasive.

4.3.2 Form and Spread Above Main Fork

- 4.3.2.1** Due to the combined effects of form, spread, phototropism, end-weighting and over-extension, both vertical stems above the cracked main fork are a likely and foreseeable failure hazard to the property and adjacent rear gardens and the old tramway below. Slater and Ennos (2016) have shown that a cracked branch fork has a safety factor of 1 or less, meaning that failure is highly likely once an open crack has formed.
- 4.3.2.2** The targets below the main fork have significant property values and high levels of public occupation. The size of the stems concerned and their branch mass indicates that severe structural damage and fatal or disabling injuries are foreseeable on impact caused by failure during future severe weather events with high wind speeds.

4.3.3 Ash Dieback Disease

Ash dieback affects mainly common ash trees (*Fraxinus excelsior*) and is caused by the ascomycete fungus *Hymenoscyphus fraxineus* as follows:

- 4.3.3.1** It blocks the water transport systems in trees causing leaf loss, lesions in the wood and on the bark and ultimately the dieback of the crown followed by the death of the tree. Young trees are particularly vulnerable and die quickly once they succumb. Older trees are killed by a yearly cycle of worsening infection.
- 4.3.3.2** Spread of the disease in the UK is now widespread due to wind borne distribution of the fungal spores. The spores are produced from fruiting bodies which grow on the central stem (rachis) of the previous year's fallen ash leaves. As it grows, the fungus destroys the infected tree's phloem and xylem, which results in the tree being unable to move water and nutrients around its structure. This lack of water and nutrient movement will cause the branches of the tree to fail and the tree 'dies back', hence the name.
- 4.3.3.3** Repeated loss of nutrition and water, the depletion of energy reserves because of the lack of leaves, and the invasion of secondary root killing pathogens (e.g. *Armillaria*) or other latent pests or diseases, causes the tree to become brittle, lose branches and eventually succumb to the disease. A 10%-15% decline in the canopy in a single season is a typical rate of decline in ash trees with the disease in the UK. However, some individual trees (depending on their health and condition) can decline much more rapidly and will need to be monitored closely.

- 4.3.3.4** Some mature ash trees with ash dieback can die more rapidly if other pathogens like honey fungus (*Armillaria*) or basal lesions are also present. Where basal lesions are observed these can develop into a butt or root rot and the affected trees can become unstable and dangerous very quickly. The rot is usually associated with other secondary pathogens such as honey fungus or shaggy bracket and can occur without any obvious dieback symptoms in the canopy. Death from ash dieback disease can also be accelerated in mature trees which are already under sustained stress from established decay or fungal infection.
- 4.3.3.5** The presence of this disease causes increased health and safety issues due to declining ash trees – particularly amongst roadside trees and where affected trees are adjacent to target (property / people) areas. Both factors apply in this case. The branches of this tree will become more brittle over time as the infection spreads and worsens annually. This will result in branches breaking away from the main stems and if not dealt with, then the stems and scaffold branches themselves will collapse in turn presenting danger to the property and people below.
- 4.3.3.6** Risks are also heightened for arborists dealing with infected and declining ash trees as in the later stages of the disease, advanced crown dieback is in evidence along with desiccated and brittle branch structures, leaving affected trees unsafe to climb and where manual ground based felling techniques are not possible, more costly removal methods e.g. cranes and/or mobile elevated working platforms (MEWPS) become necessary instead.

4.3.4 Significant Grey Squirrel Damage

- 4.3.4.1** Grey squirrel damage is latent across the entire canopy branching of this ash tree. The grey squirrel is regarded as an invasive non-native species and is included under Schedule 9 of the Wildlife and Countryside Act (WCA) 1981 (as amended). Grey squirrels are also listed in the International Union for Conservation of Nature (IUCN) international list of 100 worst invasive non-native species. This highlights the damage that grey squirrels cause to our native flora and fauna; a problem severe enough to be recognised at a level of global significance. As such, the grey squirrel is regarded as a pest species and is afforded no protection under the WCA. Under Schedule 9 of the WCA, it is illegal to release a grey squirrel into the wild, or allow one to escape. Damage by grey squirrels to the young branches of mainly deciduous trees, (sycamore, ash, oak, beech & sweet chestnut) can lead to ring barking and the death of distal parts of damaged branches causing crown dieback and the death of younger stock

which is unable to recover following catastrophic loss of photosynthetic material. Up to 50% of young woodland trees aged 10 – 40 years can be killed as a result.

4.3.4.2 Squirrel damage along the rear boundaries of this side of Rhiwlas which border with the old tramway is particularly prevalent as ash, sycamore, oak and beech, staple favourites of the grey, are the dominant species.

4.3.4.3 Apical dieback from ash dieback disease appears to be causing increased levels of stress on the tree when coupled with the extensive grey squirrel damage causing further branch loss (as at para 1.1) and further downward spiral of depletion of energy reserves from the repeated loss of dead and damaged branching.

4.4 Overall Assessment

4.4.1 A reasonable balance has to be struck for the tree owners between managing this tree for the safety of their house and rear garden, the old tramway and adjacent property and maintaining the amenity, conservation and environmental benefits that it provides. The evaluation of what is reasonable should be based upon a balance between tree benefits and risk in order to discharge the legal duty of care held by the tree owners.

4.4.2 Under normal circumstances, the primary stem failure hazard caused by the open crack in the main fork which is exacerbated by the factors of lean, phototropism, branch end-weighting and overextension, could be mitigated by a heavy crown reduction. The tree could then be retained as a monolith at 4.5m tall as an amenity and conservation resource in a relatively un-dangerous condition subject to a cyclical programme of reduction to maintain it in that state.

4.4.3 However, the location of the tree, its target profile and the fact that it is infected by ash dieback disease - and will die from it - mean that it is not reasonable or practical for the tree owners to retain it even in a heavily reduced form – particularly when the loss of benefits provided by the tree can be mitigated by the property owners by replanting with a suitable replacement species elsewhere along the hedgerow.

5. Recommendations

5.1 Present Requirements.

The works required to continue to maintain acceptable levels of risk for the tree and the rest of the group are listed in Table 2 below and should be carried out within the time scales indicated. Work priority is derived from the relevant THREATS category.

Table 2: Schedule of Tree Works

Location	Work Description	Time scale
Stems, Lower, Mid & Upper Crown	Dismantle tree to ground level by sectional felling and lowering operations. Tree and timber condition should be assessed prior to the use of tree climbing & lowering operations. Use of other techniques in the hierarchy of risk maybe required e.g. crane and/or MEWP.	Within 6 months
Stumps	Stump regrowth managed and cut to height as part of the rear boundary hedge.	After tree removal.

5.2 Implementation of Works.

All tree work should be carried out to current tree industry standards (Ref B) and best practice by suitably qualified, experienced and insured arborists. It should also be noted that as the trees overhang a public highway, the works should also conform to the provisions of the Approved Code of Practice (ACOP) for Safety at Street Works and Road Works (as amended in September 2014) in accordance with the New Roads and Street Works Act 1991

5.3 Statutory Wildlife Obligations.

The Wildlife and Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000 and the Conservation of Habitats and Species Regulations 2010 provides statutory protection to birds, bats and other species that inhabit trees. All tree work operations are covered by these provisions and advice from an ecologist must be obtained before undertaking any works that might constitute an offence.

5.4 Tree Replacement

Tree replacement by replanting with a suitable garden species such as rowan (*Sorbus aucuparia*) - which will be able to achieve independence in the landscape - should be undertaken elsewhere along the rear hedgerow in mitigation for the loss of the ash tree.

5.5 Grey Squirrel Control

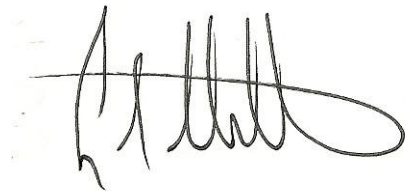
The grey squirrel population around the site should be controlled at a level of 5 per hectare to prevent further tree damage. Authorised methods of control are by trapping and shooting only. Details of grey squirrel control programmes are available from Natural

Resources Wales (NRW) and professional woodland bodies such as the Royal Forestry Society and the Woodland Trust.

6 Other Considerations

6.1 Trees Subject to Statutory Controls.

As this tree is protected by a designation under a current TPO, it will be necessary to consult the LPA (Neath Port Talbot County Borough Council) before any tree works other than certain exemptions can be carried out. The works specified above are, in my professional opinion, necessary for the safe and reasonable management of the tree and should be acceptable to the Council. However, site owners should appreciate that they may take an alternative point of view and have the option to take different action within current planning legislation.

A handwritten signature in black ink, appearing to read 'G. Chesterton', with a large, stylized flourish at the end.

Graham Chesterton *Tech Cert (ARBOR A) Cert Arb (RFS)*

26/06/2020

Appendix:

1. Glossary of Terms.

Appendix 1

Tree Inspection Glossary of Terms

Tree Tag No.

The tree tag number relates to the metal tree tag number affixed to the stem of the tree.

Height (m)

Tree height measured in metres (m)

Branch spread (m)

The average radial crown spread measured in metres from the centre of the stem.

Glossary of Terms

A definition of arboricultural terms used in this report as follows:

Crown. That part of a tree which is composed of the branches and foliage

Crown lifting. An arboricultural operation which involves the removal of lower branches to a given height above ground level to achieve safe passage of vehicles / pedestrians or clear lines of sight / daylight. It is achieved either by the removal of whole branches, or by the removal of only those parts which extend below the desired clear height.

Crown reduction. Operation that results in an overall reduction in the height and/or spread of the crown by means of a general shortening of twigs and/or branches to strong growth points, (natural targets), whilst retaining the main framework of the crown.

Phototropism. The growth of an organism in response to a light stimulus. Phototropism is most often observed in plants, but can also occur in other organisms such as fungi. The cells on the plant that are farthest from the light have a chemical called auxin that reacts when phototropism occurs. This reactive growth towards a light source is called positive phototropism, while growth away from light is called negative phototropism (skototropism).

Stem. Principal above ground structural component of a tree that supports the branches (trunk).

Windblow/Windthrow. The fall of a tree in a high wind, with the breakage of outer roots, so that the tree is partially or fully uprooted. This can be caused by the reduction and/or felling of

adjacent trees which lessens companion shelter and support and increases damaging turbulent air flow within a stand.

Windfirm. A tree displaying no elevated risk of windthrow.

