1008 – Leapings View Thurlstone

BS 5837:2012 Arboricultural Report, Impact Assessment and Method Statement

JG Pears Holdings Ltd

June 2024

TREEFELLAS
Arboriculture Limited

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Treefellas Arboriculture

Site: Leapings View, Thurlstone, S36 9QP

Report: BS 5837:2012 Arboricultural Report, Impact Assessment and Method Statement

Reference: 1008

Client: JG Pears Holdings Ltd

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Produced By:

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-			

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The Site survey and report have been carried out by Treefellas Arboriculture on behalf of the Client in accordance with the agreed terms.
This report is based on the information provided by the Client and on the observations made during any Site visits. Observations were limited based on the specific Site conditions, the weather and the time of year when any visits were made.
Treefellas Arboriculture makes no representation whatsoever concerning the legal significance of its findings or the legal matters referred to within this report.
Treefellas Arboriculture does not authorise, consent to or condone any party other than the Client relying upon the information provided. Any reliance by any party other than the client is made wholly at that party's own and sole risk and Treefellas Arboriculture disclaims any liability to such parties.
Treefellas Arboriculture accepts no responsibility for the accuracy of any third party data used within this report.

Contents

1. Introduction

1.1 On behalf of JG Pears Holdings Ltd (the Client), Treefellas Arboriculture Ltd has carried out a tree survey in accordance with BS 5837:2012 *Trees in relation to design, demolition and construction – Recommendations* at Leapings View, Thurlstone, S36 9QP (the Site). The Site location is shown in Figure 1.

Figure 1: Location Plan

1.2 The survey was a ground based visual inspection carried out by Dave Farmer FdSc MArborA, Principal Arboricultural Consultant at Treefellas Arboriculture on the 6th of June 2024.

1.3 During the survey the weather was clear and bright, which allowed for a thorough inspection of all trees and hedgerows. The deciduous trees at the Site were generally in full leaf.

1.4 The survey recorded all significant trees and hedgerows within the Site, and any beyond the Site boundary which may be affected by development proposed within it, recording a number of parameters including species, crown spread and Root Protection Area (RPA).

1.5 The information available on the Barnsley Metropolitan Borough Council website (www.barnsley.gov.uk) indicates that the Site is not located in a Conservation Area and no trees included in the survey are protected by a Tree Preservation Order (TPO).

1.6 Reference to the Multi Agency Geographical Information for the Countryside (MAGIC) website indicates that no ancient woodland is present at the Site or within 15.0m of its boundaries.

1.7 The Client proposes the demolition of existing structures and the construction of four new dwellings with associated access, landscaping and facilities.

1.8 The proposed development will require the removal of 8 individual trees, three tree groups, one hedgerow and a section of one additional tree group. The proposals will potentially have an impact on the roots, stems and canopies of retained trees unless suitable protection measures are put in place.

1.9 This report aims to provide detailed and independent arboricultural advice in the context of future Site development. The report discusses the potential arboricultural impacts that the proposed development may have on the surveyed trees and hedgerows and offers a range of protection measures and construction methodologies which should be adopted. These measures aim to prevent accidental damage and other adverse effects on the health of retained trees and hedgerows during the construction process.

2. Tree Survey Methodology

2.1 The survey recorded all individual trees or tree groups with one or more stem diameters of 75mm or more at a height of 1.5m above ground level, and any significant hedgerows, within the Site boundary. Any significant trees outside the boundary which could be significantly affected by the future development of the Site were also recorded.

2.2 For the purposes of this report a hedgerow is described as a line of trees or shrubs with canopies less than 5m wide which has been regularly managed through pruning. Where trees are present within a hedgerow that are significantly different in character from the remainder, these have been identified and recorded separately.

2.3 The following characteristics were recorded:

- Reference number
- Species
- Height
- Crown spreads in four cardinal directions (north, east, south and west)
- Minimum crown clearance
- Stem diameter, generally measured at 1.5m above ground level or in accordance with BS 5827:2012
- Estimate of the number of years that the tree is likely to remain suitable for retention
- Age class
- Overall condition
- Categorisation in accordance with BS 5837:2012:
    - Category U: Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years
    - Category A: Trees of high quality with an estimated remaining life expectancy of at least 40 years
    - Category B: Trees of moderate quality with an estimated remaining life expectancy of at least 20 years
    - Category C: Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm
- Sub-categorisation where appropriate in accordance with BS 5837:2012:
    - 1: Mainly arboricultural qualities
    - 2: Mainly landscape qualities
    - 3: Mainly cultural values, including conservation
- General notes about physiological and structural condition and any management recommendations

2.4 All tree survey data has been based on a topographical survey, provided by the client. Where the location of trees and hedgerows have not been identified, locations have been estimated using GPS technology and aerial imagery. Due the inaccuracies this can cause, further confirmation of these estimated locations through a further topographical survey may be required to ensure future design accuracy.

2.5 Where tree and hedgerow locations have been estimated, or where measurements have been estimated for trees with limited accessibility, this is highlighted with a hash (#) symbol on tree plans and in the Tree Survey Schedule.

2.6 Trees are living organisms that change over time. A re-survey of all trees and hedgerows should be carried out if there have been any significant storm events, if significant Site works have taken place or if more than 12 months have passed since the survey was carried out.

2.7 The Root Protection Area (RPA) is calculated according to the formulae set out in BS 5837:2012. This is a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure should be treated as a priority.

2.8 Due to the specific topography of the Site and the presence of surrounding structures the RPA is likely to be a simplified representation of the actual morphology and disposition of roots. Any deviation in the shape of the RPA from the calculated circular shape will largely be based on conjecture and so should generally be avoided. However, where significant Site features are present that could clearly influence the disposition of tree root growth (e.g. water courses, building foundations and retaining walls), the RPA may be amended to take these features into account.

3. Protected Species

Bats

3.1 Mature trees can often contain cavities or hollows which provide potential roosting locations for bats. Bats and the places they use for shelter or protection (i.e. roosts) are protected under *The Conservation of Habitats and Species Regulations* 2017 (Habitats Regulations 2017). They also receive legal protection under the *Wildlife and Countryside Act* (WCA) 1981. Consequently, causing damage to a bat roost constitutes an offence.

3.2 Generally, should the presence of a bat roost be suspected whilst completing works on any trees on site then an appropriately licensed bat worker should be consulted for advice.

Birds

3.3 Trees and hedgerows can provide habitat for nesting birds which are protected under the *Wildlife and Countryside Act* (WCA) 1981. Some species are further protected by special penalties. This legislation makes it an offence to intentionally or recklessly damage or destroy an active bird nest or part thereof.

3.4 As the vegetation at the site provides potential habitat for nesting birds all tree work should ideally be completed outside the peak nesting bird season (generally March to August inclusive).

3.5 If this is not possible then the vegetation should be subject to a nesting bird inspection by a suitably experienced ecologist prior to commencement of works. If active nests are identified then the vegetation, and a defined buffer zone, will need to remain in place until the young have fully fledged.

4. Tree Survey Results

4.1 The Site was a mixed use commercial property located to the south west of the village of Thurlstone, approximately 12km to the west of the town of Barnsley and 20km to the north west of Sheffield city centre.

4.2 Several large barn type structures were located along the western boundary of the Site with various smaller storage structures throughout the central areas. The land sloped steeply down at the north towards the River Don.

4.3 The significant vegetation at the Site was generally located close to the boundaries, both within the Site and in the surrounding areas.

4.4 The Tree Survey Schedule at Appendix 1 details the results of the tree survey and includes any management recommendations. The Schedule should be read in conjunction with the tree plans at Appendix 3 which show the location of each tree and hedgerow surveyed and the extent of their canopies and RPA.

4.5 The survey recorded 19 individual trees, 6 tree groups and 1 hedgerow. A summary of the tree survey findings is shown in Table 1.

Table 1: Summary of Tree Survey Findings

Category A	**Category B**	**Category C**	**Category U**
Individual Trees: 1 Tree Groups: 0 Hedgerows: 0	Individual Trees: 2 Tree Groups: 2 Hedgerows: 0	Individual Trees: 16 Tree Groups: 4 Hedgerows: 1	Individual Trees: 2 Tree Groups: 0 Hedgerows: 0
Total: 1	**Total: 4**	**Total: 21**	**Total: 2**

4.6 The most significant tree included in the survey was the large sycamore, T022, located at the north of the Site, close to the southern bank of the River Don. Although somewhat sheltered from view by the surrounding vegetation, this tree provided a high level of amenity value to the site and surrounding areas.

4.7 The sycamore trees T004, T007 and within G014 and G026 are all of moderate quality, retention category B. These trees were generally in a good overall condition and are likely to add value to any future development of the Site. In particular, the groups G014 and G026 both form significant landscape features at the west and east of the site respectively.

4.8 The remaining trees were generally of lower quality and limited significance, many with defects which are likely to limit their longer term suitability for retention. However, these trees provide some moderate collective amenity value. Large scale tree removals should be avoided where trees are not in conflict with design proposals.

4.9 The trees T006 and T023 have been categorised as retention category U, as they cannot realistically be retained in the current Site context for more than 10 years. In some circumstances category U trees can be retained for the short term amenity and ecosystem service benefits that they provide. However, in this instance it is advised that the trees are removed as soon as is reasonably practicable, as T006 is dead and large limbs of T023 are overhanging a public footpath.

Ash Dieback

4.10 Ash Die Back (ADB) also known as Chalara or Chalara Dieback of Ash, is a disease of ash trees caused by a fungus called *Hymenoscyphus fraxineus*. ADB causes leaf loss, crown dieback and bark lesions in affected trees. Once a tree is infected the disease is usually fatal, either directly or indirectly by weakening the tree to the point where it succumbs more readily to attacks by other pests or pathogens.

4.11 It is difficult to assign ash trees a retention category using the recommendations of BS 5837:2012 because of ADB. The general advice from public bodies is to retain ash trees and see how the disease develops within the local population. However, if clear signs of ADB are found on sites, it is highly likely that all the ash trees on that site will succumb in time. It could therefore be unreasonable to consider an ash tree a significant constraint to development.

4.12 The Tree Council has produced a document giving guidance to tree owners and managers on how to deal with ADB. Ash dieback: an Action Plan Toolkit (Summer 2019)[1]. This gives guidance on assessing the danger posed by trees infected with ADB. Treefellas have adopted the Suffolk County Council Ash Health Assessment System (Appendix 4). The system categorises ash trees with ADB symptoms into 4 classes:

- Ash Health Class (AHC) 1 – 100% - 75% Live Canopy (Vitality Class 0)
- Ash Health Class (AHC) 2 – 75% - 50% Live Canopy (Vitality Class 1)
- Ash Health Class (AHC) 3 – 50% - 25% Live Canopy (Vitality Class 2)
- Ash Health Class (AHC) 4 – 25% - 0% Live Canopy (Vitality Class 3)

4.13 Many local authorities have concluded that any trees which fall within AHC 3 and 4 require management and it seems reasonable to follow a similar system. The priority of that management depends on the severity of the tree's condition, with trees declining from AHC 2 into AHC 3 requiring work as part of a program of regular works. As the trees decline towards AHC 4, action becomes more urgent to abate any hazard, assuming the tree is in a high risk area.

[1] https://treecouncil.org.uk/wp-content/uploads/2019/11/Tree-Council-Ash-Dieback-Toolkit-2.0.pdf

5. Arboricultural Impact Assessment (AIA)

5.1 An Arboricultural Impact Assessment (AIA) has been carried out in accordance with BS 5837:2012, to evaluate the potential impacts the design proposals could have on the trees and hedgerows included in the survey. Where significant impacts have been identified, mitigation measures have been recommended.

5.2 BS 5837:2012 paragraph 5.4.2 states:

> *"The assessment should take account of the effects of any tree loss required to implement the design, and any potentially damaging activities proposed in the vicinity of retained trees. Such activities might include the removal of existing structures and hard surfacing, the installation of new hard surfacing, the installation of services, and the location and dimensions of all proposed excavations or changes in ground level, including any that might arise from the implementation of the recommended mitigation measures. In addition to the impact of the permanent works, account should be taken of the buildability of the scheme in terms of access, adequate working space and provision for the storage of materials, including topsoil."*

5.3 The Client proposes the demolition of existing structures and the construction of four new dwellings with associated access, landscaping and facilities. This AIA is based on the latest design proposals provided by the client.

Tree Retention and Removal

5.4 The design proposals indicate that 8 individual trees, 3 tree groups and 1 hedgerow (T001, G002, H005, T008 to T011, G013, T016, G017, T018 and T019) will need to be removed to facilitate the development, as they are situated in the footprint of, or in close proximity to, proposed structures and their retention and protection is not suitable.

5.5 The trees and hedgerows that need to be removed are detailed in the Tree Survey Schedule at Appendix 1 and located on the Tree Impacts Plan at Appendix 3. A summary of removal and retention is shown in Table 2.

Table 2: Summary of Removal and Retention

To Be Removed			**To Be Retained**		
Category A	**Category B**	**Category C**	**Category A**	**Category B**	**Category C**
Individual Trees: 0 Tree Groups: 0 Hedgerows: 0	Individual Trees: 0 Tree Groups: 0 Hedgerows: 0	Individual Trees: 8 Tree Groups: 3 (+1 Partial) Hedgerows: 1	Individual Trees: 1 Tree Groups: 0 Hedgerows: 0	Individual Trees: 2 Tree Groups: 2 Hedgerows: 0	Individual Trees: 8 Tree Groups: 1 Hedgerows: 0
Total: 0	**Total: 0**	**Total: 12 (+1 Partial)**	**Total: 1**	**Total: 4**	**Total: 9**

5.6 Due to the low value of the trees to be removed, their loss will have only a negligible overall arboricultural impact. The retention of all higher value trees throughout the Site and all trees close to the northern Site boundary will screen much of the loss from publicly accessible vantage points.

5.7 The loss of a high proportion of the tree group G015 will result in a minor loss of amenity value within the Site. However, the trees to be removed are of particularly low individual value. Their loss will open up views to the larger trees to either side of the River Don from within the Site and allow space for more suitable replacement planting.

5.8 The design proposals have allowed space for the planting of trees and hedgerows once construction is complete. The planting of diverse species that are in keeping with the surrounding landscape character and tolerant of climate change can mitigate for the required removals and, in the longer term, increase the amenity value and ecosystem service benefits that the site's trees provide.

Tree Pruning

5.9 The pruning of trees should only be undertaken where essential, to prevent open wounds that can lead to bacterial or fungal infection. Pruning works should generally be undertaken during the winter months when the tree is dormant or during the summer months when the tree is fully active.

5.10 Recommended pruning works are detailed in the Tree Survey Schedule at Appendix 1.

5.11 Tree pruning should be carried out by a suitably qualified and insured arboricultural contractor and in accordance with the recommendations of BS 3998:2010 *Tree work – Recommendations*.

Potential Impacts from Demolition and Construction Operations

5.12 Where proposed operations encroach beneath the canopy or into the RPA of retained trees and hedgerows there is the potential for damage to occur if measures are not implemented to provide adequate protection.

5.13 Existing hard surfaces lie within the RPA of the retained individual tree T004 and tree group G026, as shown on the Tree Impacts Plan at Appendix 3. While the hard surfaces and their sub-base will have created an inhospitable rooting environment, there is still the potential for roots to be present beneath them.

5.14 Therefore, if it is required to upgrade these surfaces, the works here should be carried out in a manner that precludes the likelihood of any root damage. This can generally be achieved by retaining the sub-base layer to build a new surface upon, and by avoiding compaction or contamination of the sub-base layer while it is temporarily exposed.

5.15 A new hard surfaced footpath, a retaining wall and the terracing of an embankment are proposed at the edge of the RPA of T004, T012 and T022 respectively. In these instances, root growth from the trees will have been restricted in the direction of the proposed works by various existing site

features; including the partially collapsed dry stone retaining wall in the case of T004 and T012 and the steepness of the embankment and competing roots of surrounding vegetation in the case of T022.

5.16 Fencing is proposed within the RPA of T007. Potential root damage can be avoided through the use of post and rail fencing and the avoidance of trenched footings. Post holes within the RPA should be excavated using hand tools only and re-positioned if significant roots are found.

5.17 All works beneath canopy spreads or within the RPA of retained trees have been detailed as part of the Arboricultural Method Statement (AMS) at Appendix 3.

Shading

5.18 The shade from trees can be considered both a constraint and an opportunity. Some shade from trees can be beneficial. In particular, deciduous trees provide shade in summer but allow access to sunlight in winter. However, the design proposals should avoid excessive shading and give adequate provision for future tree growth. The development should be fully considered to ensure a harmonious and sustainable relationship can be achieved.

5.19 When considering the position and orientation of new residential buildings in relation to existing trees, primary living areas should receive the largest proportion of natural sunlight. BRE guidelines recommend "*at least half of the garden or open space should receive at least two hours of sunlight on March 21 (Spring Equinox)*".

Mitigation and Protection

5.20 The retained trees will need protecting from development operations to ensure that they are not negatively impacted by development operations. This has been detailed as part of the AMS at Appendix 3.

5.21 Where existing hard surfaces are present within the RPA of retained trees they should be kept in place where possible, even if they are not part of the design proposals. These hard surfaces will provide ground protection for any roots present beneath the hard surface during development works.

5.22 Any works that are proposed beneath the canopy or within the RPA of retained trees and hedgerows must be carried out as specified in the AMS. It is likely that these works will need to be supervised by the Project Arboriculturist so that any tree related issues that may occur can be suitably dealt with.

5.23 The planting of suitable trees and hedgerows, as part of a wider landscaping scheme, can provide mitigation for any removals. Suitable species that are in keeping with the surrounding landscape character include alder, beech, cherry, rowan, whitebeam and willow.

5.24 It is recommended that tree planting follows a 5 – 10 – 20 – 30 formula (i.e. No more than 5% of any one cultivar, no more than 10% of any one species, no more than 20% of any one genus,

and no more than 30% of any one family.) This gives any new tree population maximum resilience against pests and diseases.

5.25 Tree planting and establishment should be carried out in accordance with BS 8545:2014 *Trees: from nursery to independence in the landscape – Recommendations*.

6. References

- BS 3998:2010 Tree work – Recommendations. ISBN 978 0 580 53777 6
- BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations. ISBN 978 0 580 69917 7
- BS 8545:2014 Trees: from nursery to independence in the landscape – Recommendations. ISBN 978 0 580 713170
- Littlefair P. (2011). Site layout planning for daylight and sunlight: a guide to good practice (BR 209). ISBN 978 1 84806 178 1.
- Volume 4 National Joint Utilities Group (NJUG) Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees, Volume 4: Issue 2: 16/11/2007, www.njug.org.uk

Appendix 1: Tree Survey Schedule

Table 3: Tree Survey Schedule

Key:	Symbols Used	Age Class	SLE	Comments	Management	Category
	< = less than ~ = approximately > = greater than # = estimated	Young, Semi mature, Early mature, Mature, Veteran or Ancient	Estimate of Safe Life Expectancy (<10 Years, 10+ Years, 20+ Years or 40+ Years)	AGL - Above Ground Level MS - Multi-Stemmed TD - Trunk Division (height in m) DED - Dutch Elm Disease ADB - Ash Die Back AHC (1, 2, 3 or 4) - Ash Health Class	*Tree works that are recommended regardless of future development are in Italics* **Tree works that are required to facilitate the proposed developmet are in Bold**	**BS 5837:2012 Retention Categories:** U - Unsuitable for retention A - High B - Moderate C - Low **Sub-categories:** 1 - Mainly arboricultural qualities 2 - Mainly landscape qualities 3 - mainly cultural values

Tree No.	Species	Height (m)	No. of Stems	Stem Dia. @ 1.5m (mm)	Crown Spreads (m)				Height of Crown Clearance (m)	Age Class	SLE	Overall Condition	Comments	Management	Category	RPA Radius (m)	RPA Area (m^2)
					N	E	S	W									
T001	Ash *(Fraxinus excelsior)*	8.0	1	210 #	2.5	2.5	2.5	2.5	1.5	Semi Mature	10+ Years	Fair	No access & limited visibility due to dense surrounding shrubs, 2 large diameter (approx 15cm) dead stubs overhanging a small shed, minor deadwood throughout crown	**Removal required for better value and longer lasting replacement planting at site entrance**	C2	2.5	20
G002	Blackthorn *(Prunus spinosa)*	6.0	>10	60 avg	See Plan				0.5	Young	20+ Years	Fair	Dense mass of stems limiting visibility of central area, occasional dead stem & failed branch throughout	**Removal required for better value and longer lasting replacement planting at site entrance**	C2	-	-
T003 #	Cherry *(Prunus avium)*	7.0	1	220 #	4.5	3.0	2.5	4.0	2.0	Semi Mature	40+ Years	Fair	No access & limited visibility due to dense surrounding undergrowth, sparse crown, minor deadwood throughout		C1	2.6	21

Tree No.	Species	Height (m)	No. of Stems	Stem Dia. @ 1.5m (mm)	Crown Spreads (m)				Height of Crown Clearance (m)	Age Class	SLE	Overall Condition	Comments	Management	Cate-gory	RPA Radius (m)	RPA Area (m^2)
					N	E	S	W									
T004	Sycamore *(Acer pseudoplatanus)*	13.0	3	440, 430, 220	5.5	3.5	4.0	5.0	2.5	Early Mature	40+ Years	Fair	Stones & various waste piled at base, multi-stemmed at 0.5m with decaying stub of historically failed stem on eastern side, fence attached to southern stem at 2m, long thin wound on lowest western branch, minor deadwood in centre of crown	*Crown raised to 5.2m over driveway for site traffic*	B1	7.8	191
H005	Leyland cypress *(X Cuprocyparis leylandii)*	6.0	1	150	See Plan				0.5	Semi Mature	40+ Years	Good	Largely unmanaged hedgerow, becoming overgrown, becomes generally larger to the north, southern stems suppressed by adjacent sycamore, growing into sycamore crown	**Removal required for better value and longer lasting replacement planting close to site entrance and to benefit T004**	C2	-	-
T006	Willow *(Salix caprea)*	7.0	6	180 avg	3.0	3.0	3.0	3.0	1.0	Dead	Dead	Dead	Standing dead tree with some small stems re-growing from roots at base	*Removal advised regardless of development proposals*	U	-	-
T007	Sycamore *(Acer pseudoplatanus)*	8.5	1	240	4.0	3.0	3.0	3.5	1.0	Semi Mature	20+ Years	Good	Growing from base of dry stone wall, large stones piled at base, slight northerly lean		B1	2.9	26
T008	Ash *(Fraxinus excelsior)*	8.0	2	260, 200	3.0	3.0	3.5	4.0	1.5	Semi Mature	10+ Years	Fair	Growing from within large pile of large stones, twin stemmed at 1m, various branch stubs & minor deadwood throughout crown	**Removal required as pile of stones will need to be removed for construction of adjacent dwelling**	C1	3.9	48
T009 #	Sycamore *(Acer pseudoplatanus)*	6.5	3	140, 120, 110	2.5	2.5	2.5	2.5	1.0	Young	20+ Years	Fair	Multi-stemmed at base, growing amongst pile of large stones	**Removal required for stabilisation of partially failed wall**	C2	2.6	21
T010	Sycamore *(Acer pseudoplatanus)*	7.5	8	130	2.0	3.5	2.0	3.0	1.5	Semi Mature	20+ Years	Fair	Growing against dry stone wall & amongst stones fallen from it, multi-stemmed at base, various long thin bark wounds on stems, minor deadwood in centre of crown	**Removal required for stabilisation of partially failed wall**	C2	4.4	61

Tree No.	Species	Height (m)	No. of Stems	Stem Dia. @ 1.5m (mm)	Crown Spreads (m)				Height of Crown Clearance (m)	Age Class	SLE	Overall Condition	Comments	Management	Cate-gory	RPA Radius (m)	RPA Area (m^2)
					N	E	S	W									
T011	Ash *(Fraxinus excelsior)*	6.0	1	140	1.0	2.5	2.5	1.5	0.5	Semi Mature	10+ Years	Good	Growing amongst pile of large stones, minor deadwood throughout	**Removal required for stabilisation of partially failed wall**	C2	1.7	9
T012	Ash *(Fraxinus excelsior)*	12.0	1	590	5.5	6.5	5.0	4.5	1.5	Mature	10+ Years	Poor	Fencing attached to stem near base, large 30cm diameter cavity on east of stem from 0.5m to 2.5m with evidence of central decay, high proportion of minor deadwood throughout crown		C1	7.1	158
G013	Elder *(Sambucus nigra)* Willow *(Salix caprea)* Alder *(Alnus glutinosa)* Sycamore *(Acer pseudoplatanus)*	9.0	>10	150 avg	See Plan				0.5	Semi Mature	40+ Years	Fair	Young to semi-mature group growing on steep embankment sloping down to north, surrounded by dense brambles & undergrowth, occasional dead stem to centre of group	**Removal required for remediation works and terracing of embankment**	C2	-	-
G014	Sycamore *(Acer pseudoplatanus)*	15.0	>10	380 avg	See Plan				1.0	Early Mature	40+ Years	Good	Semi-mature to early mature group growing on bank of stream to north, inaccessible due to dense surrounding vegetation & various obstructions, generally single or twin stemmed, no significant defects		B1,2	-	-

Tree No.	Species	Height (m)	No. of Stems	Stem Dia. @ 1.5m (mm)	Crown Spreads (m)				Height of Crown Clearance (m)	Age Class	SLE	Overall Condition	Comments	Management	Cate-gory	RPA Radius (m)	RPA Area (m^2)
					N	E	S	W									
G015	Willow *(Salix caprea)* Sycamore *(Acer pseudoplatanus)* Alder *(Alnus glutinosa)* Blackthorn *(Prunus spinosa)* Ash *(Fraxinus excelsior)*	10.0	>10	120 avg	See Plan				0.5	Semi Mature	40+ Years	Good	Dense young to semi-mature group growing on embankment sloping down to north, largely inaccessible due to dense undergrowth & various obstructions, occasional dead or fallen stem throughout	**Removal of large southern section required for remediation works and terracing of embankment and for construction of dwellings** *Remaining dense tree cover to be thinned to allow for remaining trees to fully develop*	C2	-	-
T016	Ash *(Fraxinus excelsior)*	8.5	1	240	3.5	3.5	3.5	3.5	1.5	Semi Mature	10+ Years	Fair	Growing between corrugated outbuilding & large pile of large stones, twin stemmed at 2m, minor deadwood throughout	**Removal required for construction of dwellings and hard surfacing**	C1	2.9	26
G017	Ash *(Fraxinus excelsior)* Laurel cherry *(Prunus laurocerasus)*	6.0	>10	80 avg	See Plan				0.0	Semi Mature	20+ Years	Fair	Large overgrown laurel shrubs with 1x ash in centre, overhanging various outbuildings & areas of hard surfacing	**Removal required for construction of dwellings and hard surfacing**	C2	-	-
T018 #	Ash *(Fraxinus excelsior)*	7.0	2	160, 130	2.5	3.5	3.0	2.0	2.0	Semi Mature	10+ Years	Fair	Growing against large shipping container, various waste at base, twin stemmed at base, minor deadwood throughout	**Removal required for construction of dwellings and hard surfacing**	C1	2.5	20
T019 #	Cherry *(Prunus avium)*	6.5	1	110	2.0	2.0	2.0	2.0	1.0	Young	40+ Years	Good	Various waste at base, no obvious defects	**Removal required for construction of dwellings and hard surfacing**	C1	1.3	5

Tree No.	Species	Height (m)	No. of Stems	Stem Dia. @ 1.5m (mm)	Crown Spreads (m)				Height of Crown Clearance (m)	Age Class	SLE	Overall Condition	Comments	Management	Cate-gory	RPA Radius (m)	RPA Area (m^2)
					N	E	S	W									
T020	Ash *(Fraxinus excelsior)*	14.0	1	480	4.5	3.0	3.0	4.0	6.0	Early Mature	10+ Years	Poor	Branch stubs & cavities with potential for decay from previous branch failures, high proportion of deadwood throughout crown, dieback of upper crown by up to approx 1.5m, may be unsuitable for retention if close to future development		C2	5.8	106
T021	Ash *(Fraxinus excelsior)*	17.0	2	590, 520	4.0	3.5	5.5	7.0	6.0	Mature	10+ Years	Poor	Branch stubs & cavities with potential for decay from previous branch failures, high proportion of deadwood throughout crown, dieback of upper crown by up to approx 1.5m, may be unsuitable for retention if close to future development		C2	9.4	278
T022	Sycamore *(Acer pseudoplatanus)*	18.0	2	650, 620	6.5	8.0	6.0	6.5	1.0	Mature	40+ Years	Good	Twin stemmed at base, ivy covered stems & lower crown, minor deadwood throughout		A1	10.8	366
T023	Ash *(Fraxinus excelsior)*	18.0	1	770	1.5	8.0	6.5	4.0	1.0	Mature	10+ Years	Poor	2x large stubs from previously failed limbs at 6m & 11m, large gaps in canopy & sparse upper crown due to these lost limbs, minor deadwood throughout, unsuitable for retention as it overhangs a public footpath	*Removal advised regardless of development proposals*	U	-	-
T024	Laburnum *(Laburnum anagyroides)*	7.0	2	170, 140 #	2.0	2.0	2.0	2.0	2.0	Semi Mature	40+ Years	Fair	No access & limited visibility due to dense surrounding undergrowth, minor deadwood throughout		C2	2.6	21

Tree No.	Species	Height (m)	No. of Stems	Stem Dia. @ 1.5m (mm)	Crown Spreads (m)				Height of Crown Clearance (m)	Age Class	SLE	Overall Condition	Comments	Management	Cate-gory	RPA Radius (m)	RPA Area (m^2)
					N	E	S	W									
T025	Rowan *(Sorbus aucuparia)*	8.0	1	150 #	3.0	3.5	1.5	2.0	1.0	Semi Mature	40+ Years	Good	No access & limited visibility due to dense surrounding undergrowth, dead branch stub in centre of crown, minor deadwood throughout		C2	1.8	10
G026	Sycamore *(Acer pseudoplatanus)*	15.0	>10	280 avg	See Plan				2.0	Early Mature	40+ Years	Fair	3 trees forming a single canopy, RPA's calculated individually, Twin or multi-stemmed at base, ivy covered stems, utility cables pass through crown, unsympathetically pruned back from cables & over driveway in the past, minor deadwood throughout	*Crown raised to 5.2m over driveway for site traffic*	B1,2	-	-

Appendix 2: Site Photographs

Photo 1: T001 and G002 from the north east

Photo 4: T012 from the north

Photo 2: T004 and H005 from the north east

Photo 5: G014 from the south

Photo 3: T006, T007 and T008 from the north west

Photo 6: South western end of G015 from the south west

Photo 7: North western end of G015 from the west

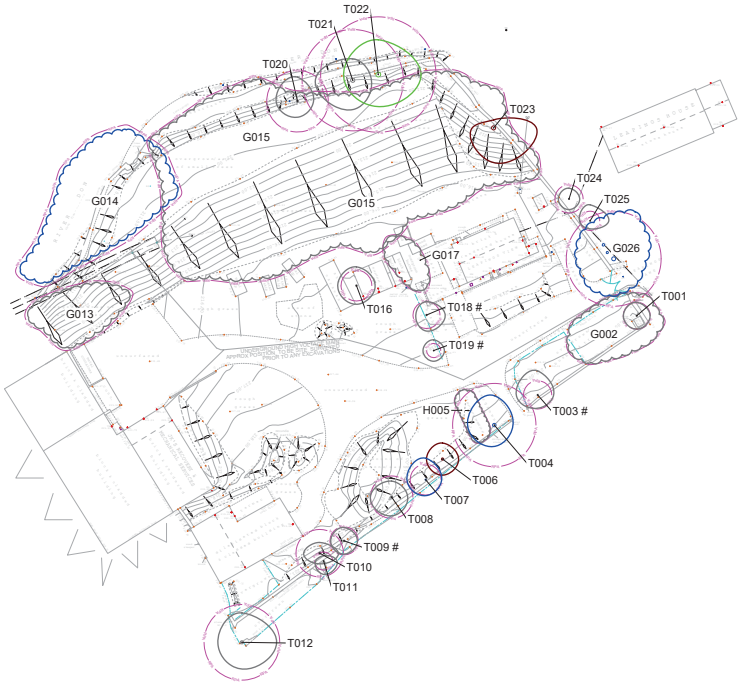
Photo 10: T023 within G015 from the east

Photo 8: T018 and T019 from the east

Photo 11: G026 from the east

Photo 9: T020, T021 and T022 from thenorth east

Appendix 3: Tree Plans



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KEY

o Stem Location

Location Estimated

Tree Categories (BS 5837:2012)

Category A Trees | Category B Trees | Category C Trees | Category U Trees

Root Protection Area (RPA)

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N

0m 10m 20m 50m

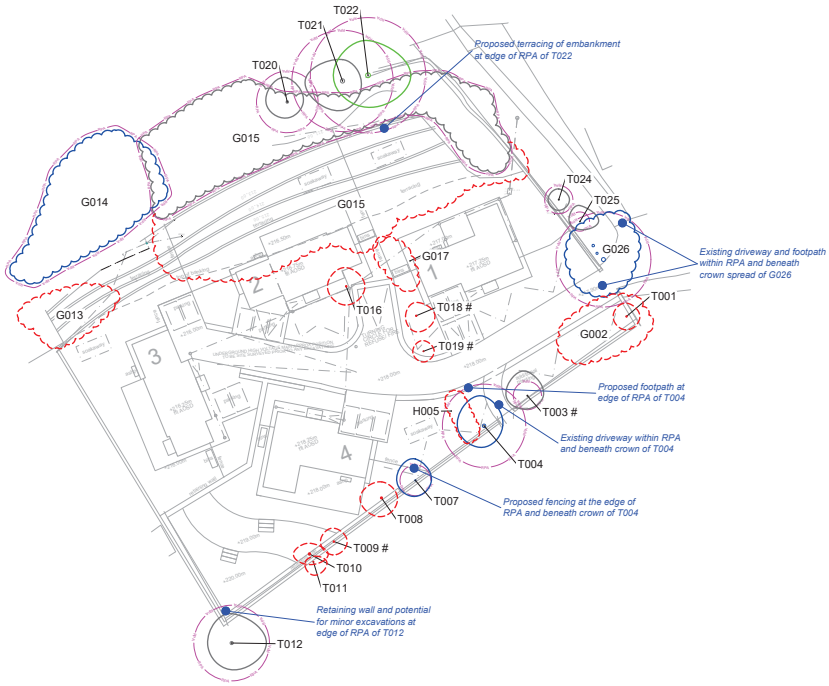
SCALE BAR 1:500

TREEFELLAS Arboriculture Limited
Outlane Farm
Hathersage
S32 1BQ
tel: 0114 2815150
www.treefellas.co.uk

Project Details
1008 - Leapings View Thurlstone

Drawing Title	Drawing Number
Figure 2 - Tree Constraints Plan	**1008-TAL-01**

Drawn By	Date	Scale	Revision
D Farmer	**13/06/24**	**1:500 at A2**	**-**



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KEY

o Stem Location

Location Estimated

Tree Categories (BS 5837:2012)

Category A Trees | Category B Trees | Category C Trees | Tree to be Removed

Root Protection Area (RPA)

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Project Details
1008 - Leapings View Thurlstone

Drawing Title	Drawing Number
Figure 3 - Tree Impacts Plan	**1008-TAL-02**

Drawn By	Date	Scale	Revision
D Farmer	**13/06/24**	**1:500 at A2**	-

General

This Arboricultural Method Statement (AMS) details the specific measures to be adopted to ensure the retained trees are suitably protected for the duration of the proposed development.

No equipment, machinery or materials shall be brought onto the site in connection with the development until this AMS has been submitted to and approved in writing by the Local Planning Authority.

Sequence of Events

For the purpose of protecting the retained trees, the development works on site should be completed in line with the following sequence of events:

- Tree works
- Installation of tree protection measures
- Demolition operations
- Construction operations including the upgrading of existing hard surfaces within the RPA of retained trees
- Removal of tree protection measures

Tree Works

Prior to the commencement of any development operations and the storage of plant, machinery and materials on site, the required tree works should be carried out. The trees to be removed and any pruning works that are required are detailed in the Tree Survey Schedule at Appendix 1 of the associated arboricultural report.

All tree works should be carried out by a suitably qualified and insured arboricultural contractor and in accordance with the recommendations of BS 3998:2010 Tree work – Recommendations.

It is recommended that trees should be checked in advance of any works by a suitably qualified ecologist to ensure there is no disturbance to nesting birds or roosting bats.

Tree Protection Fencing

Prior to the commencement of any development operations and the storage of plant, machinery and materials on site the tree protective fencing must be located as shown. Where possible this fencing should exclude all site activities from the RPA of retained trees, creating a sacrosanct Construction Exclusion Zone (CEZ).

It should be confirmed by the Project Arboriculturist that the fencing has been correctly set out on site, prior to the commencement of any other operations.

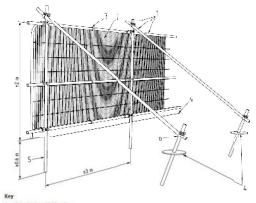
The default specification for tree protection fencing is shown here. However, where the site circumstances and associated risk of damaging incursion into the RPA do not necessitate the default level of protection, an alternative specification should be prepared by the project arboriculturist and, where relevant, agreed with the local planning authority.

An example of an alternative specification is 2.0m tall welded mesh panels on rubber or concrete feet. In such cases, the fence panels should be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The distance between the fence couplers should be at least 1.0m and should be uniform throughout the fence. The panels should be supported on the inner side by stabilizer struts, which should be attached to a base plate secured with ground pins or mounted on a block tray.

All-weather notices should be attached to the fencing to indicate that operations are not permitted within the CEZ, with words such as "CONSTRUCTION EXCLUSION ZONE – NO ACCESS".

Once the tree protection fencing has been installed it must not be altered or removed without prior consultation with the Project Arboriculturist. If the tree protection fencing needs to be re-positioned to allow for development operations to continue, this must be carried out under the supervision of the Project Arboriculturist and with prior consent from the LPA.

The tree protective fencing must remain in place until all construction operations on site have been completed and all plant and machinery has been removed.



Key
1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

Upgrading Existing Hard Surfaces

The upgrading of existing hard surfaces is likely to be required within the RPA of the retained individual tree T004 and tree group G026. The guidance below must be followed to remove the likelihood of damage to retained trees:

Removal of the upper surface must be carried out working away from the retained trees, with heavy plant or machinery working from the intact surface or outside of the RPA. Any roots that become exposed must be covered with damp hessian sheet to avoid desiccation.

If any roots become damaged they must be severed using a suitable sharp tool, leaving a clean wound with as small a surface area as possible. The severed root must then be immediately re-covered with earth.

The sub-base layer must remain unaffected, and should be used as the base for the upgraded surface. No plant or machinery is allowed on the exposed sub-base within the RPA of the retained trees.

Installation of Utilities and Services

Where possible all above and below ground utilities and services are to be directed away from the retained trees. Above ground services should be routed away from tree canopies, allowing sufficient space to allow for likely future crown growth. Below ground services should be grouped together and routed away from the RPA of retained trees.

Any below ground utilities or services that must be routed through the RPA should be installed in accordance with BS 5837:2012 clause 7.7.2 and NJUG 10: Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees.

Management of Exposed / Damaged Roots

Provided that works in close proximity to retained trees are carried out in line with the specifications detailed within this report the potential for damage to significant roots is low. However, on occasion approved works that are close to or within the RPA of retained trees can result in accidental root damage or roots becoming exposed.

If any exposed roots are smaller than 25 mm diameter they can be pruned back if required, however roots occurring in clumps or of 25 mm diameter and over should be retained where possible and worked around.

Where the severance of larger roots is unavoidable, the advice of the Project Arboriculturist must be sought, as such roots might be essential to the tree's health and stability. It may be determined that the design layout must be slightly altered to allow for the retention and adequate protection of significant roots.

Roots that are heavily damaged or severed during approved works may need to be pruned back using a suitable sharp tool, such as secateurs or a handsaw. The cut must be made cleanly, leaving the smallest surface area possible, and beyond any obvious damage, towards the tree that the root is likely to have come from. If it is not clear which direction the root has grown from, the root should be pruned back to both sides of the damage/severance.

A health and safety assessment should be carried out or a regular monitoring regime put in place for trees that have incurred damage to roots in close proximity to their stems or where the damaged roots are 100 mm in diameter or greater. Such damage could lead to instability or a decline in health and condition.

Exposed roots or roots that have been pruned should be immediately recovered with earth to prevent desiccation. If this is not possible they should be wrapped in hessian sheets which are dry in winter, wet in summer. These should be removed prior to backfilling.

Landscaping Works

Where soft landscaping is proposed within the RPA of retained trees, excavations must be kept to the minimum required to provide adequate conditions for the establishment of new shrubs and trees. Excavations must be carried out carefully and by hand, avoiding the severance of any roots larger than 25mm diameter.

Ground levels within the RPA should generally not be altered to avoid the potential for damage to tree roots. Roots are considered to be primarily within the top 0.6 m of the soil. Any excavations have the potential to damage or remove part of the root system and could affect the vigour or stability of the tree. Conversely, increasing the ground level can compact the soil, potentially suffocating the roots and causing them to die-off. If minor level changes are unavoidable as part of an approved landscaping scheme, the advice of the Project Arboriculturist should be sought.

Where fencing is to be installed within the RPA of retained trees this must consist of posts and panels or rails only, trenched footings are not acceptable within the RPA. The holes for posts must be kept to the minimum depth required and excavated using hand tools only.

Fence posts should be erected a minimum of 1.0 m from tree stems. The post locations may need adjusting if significant roots are uncovered, so that the roots remain intact. If wet concrete is to be used, post holes must be lined with an impermeable membrane to prevent soil contamination close to tree roots.

The fencing alignment should allow for a minimum distance of 0.5 m between any tree stem and the fence, providing sufficient room for future growth and minimising the risk of potential conflicts between the fence structure and tree stems.

Any landscaping works that are within the RPA of retained trees or will require the tree protection fencing to be temporarily breached must be carried out in consultation with the project arboriculturist.

Additional Precautions

Consideration must be given to site operations outside of the CEZ that could indirectly impact the retained trees, including the provision of adequate space for site cabins, welfare facilities and other temporary structures.

Site operations must take sufficient account of wide or tall loads in order that they can operate without coming into contact with retained trees. The movement of plant in proximity to trees should be supervised by a banksman, to ensure adequate clearance from trees is maintained at all times.

Fires on sites should generally be avoided. Where fires are unavoidable, they must not be lit in a position where heat could affect the foliage or branches of retained trees. The potential size of a fire and the wind direction should be taken into account when determining its location, and it should be attended at all times.

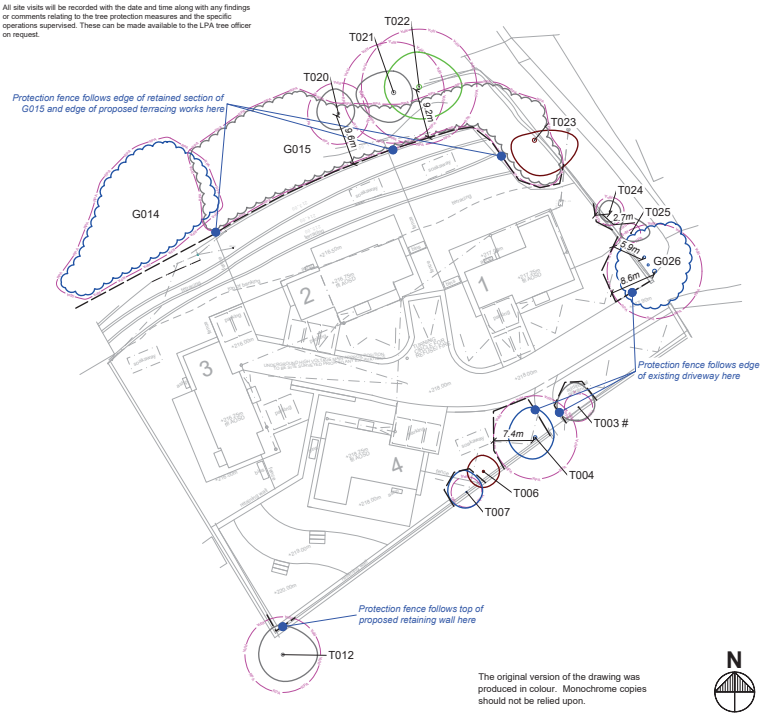
Any materials that could contaminate the ground around tree roots, such as fuels, oils or cement, must be stored and handled well away from the outer edge of the RPA.

Arboricultural Site Supervision

Input and advice from the Project Arboriculturist is likely to be required on a regular basis throughout the development and site monitoring and supervision may be required.

A minimum of one week's notice should be given to the Project Arboriculturist where possible before the start of any works where arboricultural supervision is required.

All site visits will be recorded with the date and time along with any findings or comments relating to the tree protection measures and the specific operations supervised. These can be made available to the LPA tree officer on request.



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0m 10m 20m 50m

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KEY

o Stem Location

Location Estimated

Tree Categories (BS 5837:2012)

Category A Trees

Category B Trees

Category C Trees

Root Protection Area (RPA)

Tree Protection Fencing

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Project Details

1008 - Leapings View Thurlstone

Drawing Title	Drawing Number
Figure 4 - Arboricultural Method Statement	**1008-TAL-03**

Drawn By	Date	Scale	Revision
D Farmer	**13/06/24**	**1:500 at A2**	**-**

Appendix 4: Ash Health Assessment System

Ash Tree Assessment

The Issue

Identifying the symptoms of Ash Dieback in large trees can be difficult, so a sysyem was needed to enable easy description of the current state of as Ash Tree. Tree Canopy assessment has been widely used since the late 1980's across Europe based on work produced in Switzerland in 1986. In 1990 the Forestry Commission produced a book – 'Assessment of Tree Condition' to enable a standard system for describing the condition of a tree based on the percentage of existing canopy remaining.

Using this methodology Suffolk County Council undertook to describe the health of an Ash in Suffolk.

The steps undertaken

During the summer of 2013/14 Suffolk County Council assessed and photographed Ash accross the county. They determined that there were 4 useful categories to describe Ash canopies. The categories chosen were

- 100% full canopy,
- 75% canopy,
- 50% canopy
- and 25% canopy.

These are represented photographically in the pictures at the end of this Case Study.

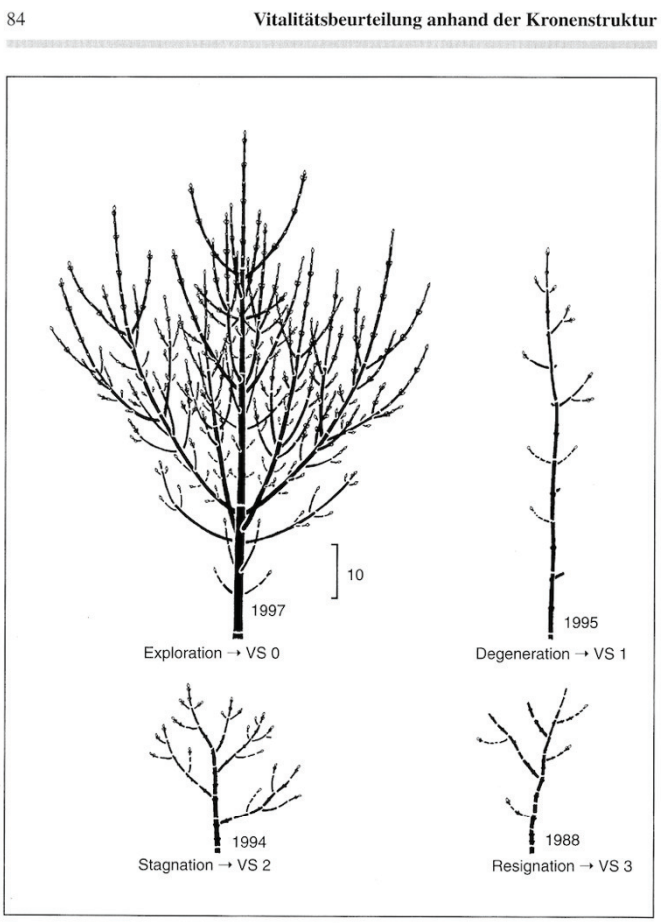
These 4 classes fit with work undertaken in Germany by Professor Andreas Roloff who has been describing the state of vitality of European Trees. He also uses 4 categories – described as

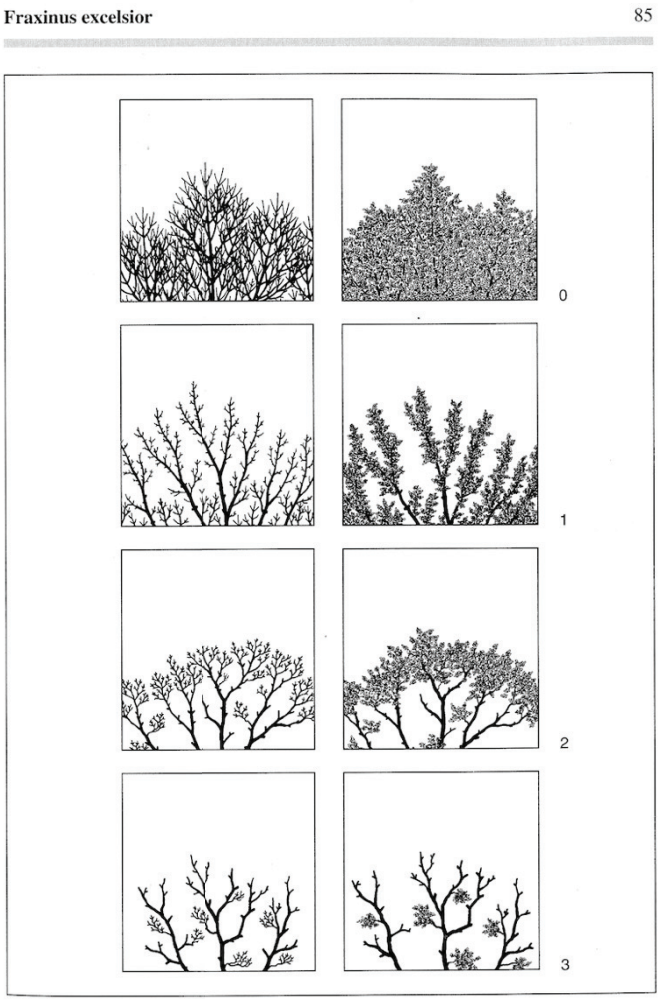
- Vitality Class 0: Healthy vigorous trees showing treetop shoots in the exploration phase: both the main axes and part of the lateral twigs consist of long-shoots. For this reason, a regular net-like branching pattern is developed, which reaches deep into the interior of the crown. The crowns are equally closed and domed, and do not show any greater gap unless a stronger intervention has occurred, such as pruning measures, because such a gap is closed quickly by the intensive ramification. In summer, a dense foliage arises without any greater gap.
- Vitality Class 1: Weakened trees show treetop shoots in the degeneration phase. Thus, spears/"fox tails" are formed, rising above the canopy. The leaves on these spears are dense and grow all around them (at the top of the lateral short-shoots or shortshoot chains). The crowns make a frazzled impression on the outside, and have a fastigiated appearance, because the airspace between the spears is not completely filled by leaves and twigs, and the crown has a spiky outline. Inside the crown, the branching pattern, and hence the foliage, is quite dense. In this vitality class, straight percurrent main axes of the treetop branches are still dominant, but the crowns no longer look as intact as in class 0 because of the spears shooting out of the canopy.
- Vitality Class 2: In obviously less vigorous trees, the treetop shoots begin to build short-shoots in the stagnation phase. The leafless state could be designated as the claw stage, because the short-shoot chains in the outside of the crowns grow longer, are predominant, and stretch claw-like to the light. These short-shoot chains, growing too long, break off in summer in thunderstorms and heavy rains, and strew the forest floor in

declining stands. Under normal circumstances, trees get rid of parts of their unimportant twigs in the inner and lower crown parts in this way. However, if the treetop shoots themselves are declining, the self-pruning of twigs progresses into the outskirts of the crown, and the crowns become thin from the inside outwards. The cause for this occurrence is not premature leaf fall, but broken short-shoot chains, a lack of shoots, and dead buds and twigs. The branching pattern shows a bushy and lumpy accumulation in the periphery of the crown. This accumulation causes summer and winter bushy crown structures and greater gaps. The crown periphery still has hardly any straight percurrent branches.

- Vitality class 3:, In considerably damaged or declining trees of the crowns finally fall apart by the breaking off of larger branches and the dieback of whole crown parts. The tree seems to consist only of more or less surplus sub-crowns, dispersed randomly in the airspace and forming whip-like structures. The treetop is often dying back or is already dead, because the treetop shoots grew in the retraction phase.

These 4 vitality classes are shown below for Ash.





The work in Germany and Suffolk complements each other and establishes the ability to be able to assisgn an ash tree to 1 of 4 categories, which describe the trees current health or vitality. This is a simple and useful method for describing the current state of an Ash's heatlh.

The Outcome

Using this 4 category framework, allows a tree to be assigned to a category, showing its current state of health, enabling data on the tree to be collected. The suggestion going forward is that these 4 classes are used as described as:

Ash Health Class 1 – 100 – 75% Canopy (Vitality Class 0)

Ash Health Class 2 – 75% -50% Canopy (Vitality Class 1)

Ash Health Class 3 – 50% - 25% Canopy (Vitality Class 2)

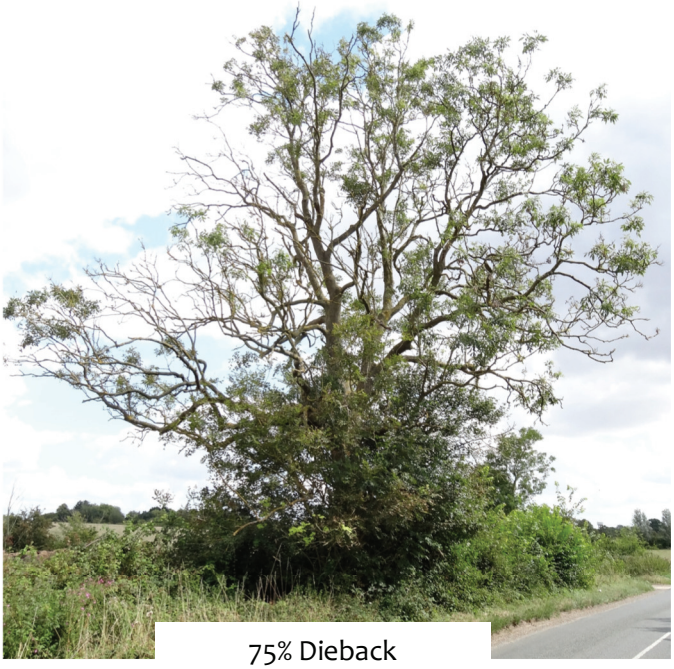
Ash Health Class 4 – 25% - 0% Canopy (Vitality Class 3)

Figure 1: Photos of Dieback of ash trees

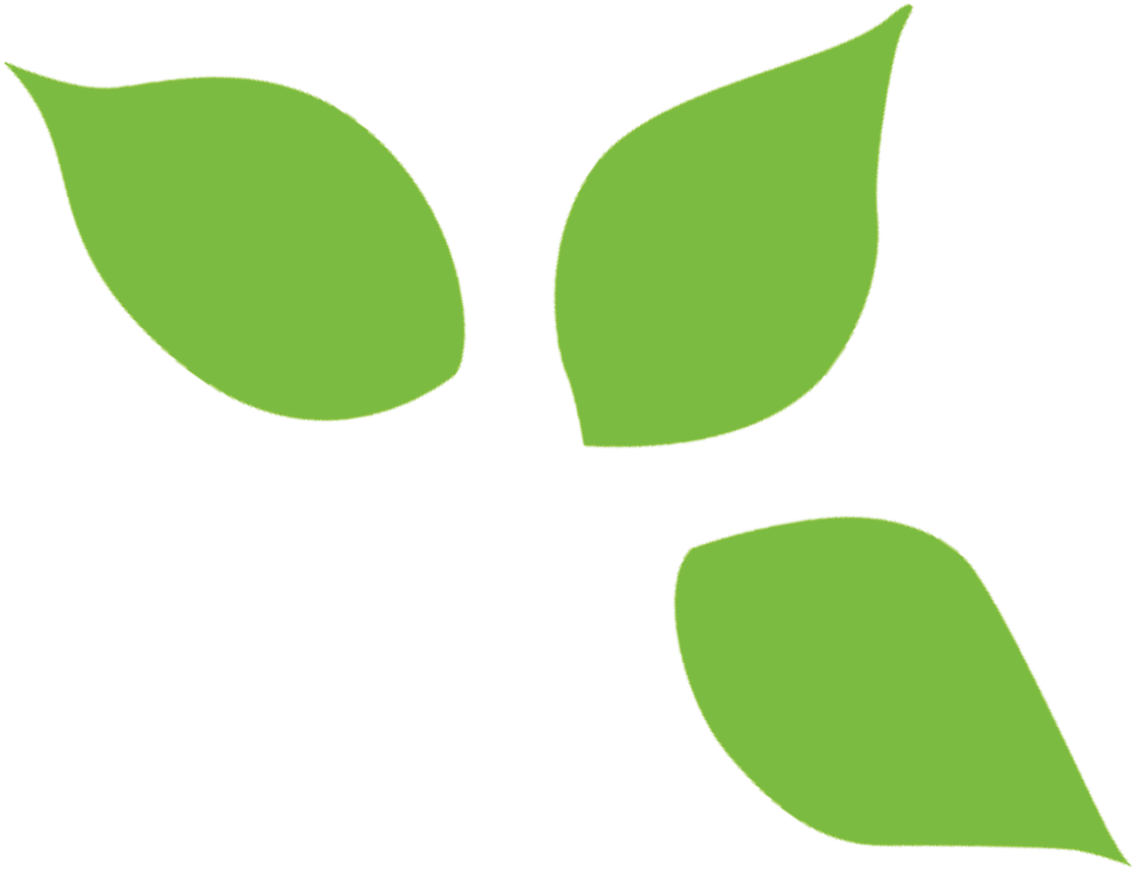
0% Dieback - Healthy Crown

25% Dieback

50% Dieback



75% Dieback



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