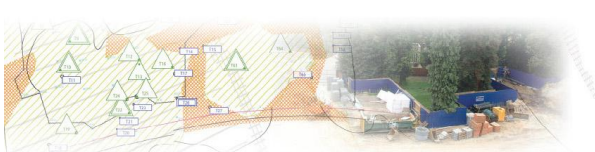




TreeAZ: Detailed guidance on its use

Australia and New Zealand (Version 10.10-ANZ)





TreeAZ: Detailed guidance on its use Australia and New Zealand (Version 10.10-ANZ)

Preface



During the Barrell Tree Consultancy workshop series in New Zealand (2005) in association with the NZAA, and in Australia (2006) in association with ISAAC, QAA, NAAA, Treenet and ENSPEC Pty Ltd, we listened to comments from delegates and collected photographs of Southern-hemisphere trees. Based on this information, we have prepared the latest version (10.10-ANZ) of TreeAZ for Australia and New Zealand.

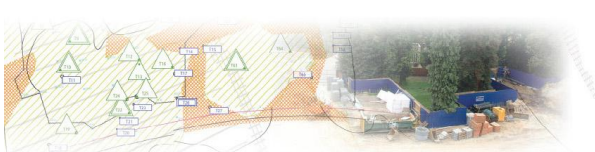
One of the most fundamental decisions affecting tree management concerns whether trees are suitable for retention or not. Traditionally, these decisions have been based on assessing characteristics that add obvious value, such as good form, long life expectancy and size. The dilemma with this approach is that it seems right, but determining value is notoriously unreliable because there are so many extremely complicated elements to consider.

The TreeAZ method of tree assessment approaches this problem from another angle, effectively side-stepping many of these difficulties and providing a means for tree managers to make consistently reliable and defensible decisions. Instead of assessing all the good things about trees, which would be a particularly tricky task, it focuses on the bad things that would justify felling. If there are no valid reasons to fell a tree, then it is considered good by default and quantifying the amount of 'goodness' it has is frequently unnecessary.

Instinctively, we all know that trees are good, but their many benefits are offset as individuals become more of a risk, more of a nuisance and more of a management problem. TreeAZ adopts this starting point that all trees are good; it then systematically reviews the factors that could reasonably result in them being felled and, if they pass all those tests, then they are worth retaining. Its systematic structure allows tree managers to reveal their decision-making process in a transparent way, significantly reducing the risk of any criticism, should any harm arise from their decision.

Although counterintuitive at first glance, TreeAZ works so well on a practical and technical level that tree managers around the world are selecting it as their preferred tree assessment methodology. Find out more information about the worldwide development of TreeAZ at www.TreeAZ.com.

Barrell Tree Consultancy, www.barrelltreecare.co.uk, October 2010



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- Z4 Dead, dying, diseased or declining 33
- Z5 Severe damage and/or structural defects where a high risk of failure cannot be satisfactorily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, overgrown and vulnerable to adverse weather conditions, etc 35
- Z6 Instability, i.e. poor anchorage, increased exposure, etc 39
- Z7 Excessive, severe and intolerable inconvenience to the extent that a locally recognized court or tribunal would be likely to authorize removal, i.e. dominance, debris, interference, etc 41
- Z8 Excessive, severe and intolerable damage to property to the extent that a locally recognized court or tribunal would be likely to authorize removal, i.e. severe structural damage to surfacing and buildings, etc 44
- Z9 Severe damage and/or structural defects where a high risk of failure can be temporarily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, vulnerable to adverse weather conditions, etc 46
- Z10 Poor condition or location with a low potential for recovery or improvement, i.e. dominated by adjacent trees or buildings, poor architectural framework, etc 49
- Z11 Removal would benefit better adjacent trees, i.e. relieve physical interference, suppression, etc 52
- Z12 Unacceptably expensive to retain, i.e. severe defects requiring excessive levels of maintenance, etc 54
- A1 No significant defects and could be retained with minimal remedial care 55
- A2 Minor defects that could be addressed by remedial care and/or work to adjacent trees 57
- A3 Special significance for historical, cultural, commemorative or rarity reasons that would warrant extraordinary efforts to retain for more than 10 years 60
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Figure 1: TreeAZ Categories (Version 10.10-ANZ)

CAUTION: TreeAZ assessments must be carried out by a competent person qualified and experienced in arboriculture. The following category descriptions are designed to be a brief field reference and are not intended to be self-explanatory. They must be read in conjunction with the most current explanations published at www.TreeAZ.com.

Category Z: Unimportant trees not worthy of being a material constraint

Local policy exemptions: Trees that are unsuitable for legal protection for local policy reasons including size, proximity and species

Z1	Young or insignificant small trees, i.e. below the local size threshold for legal protection, etc
Z2	Too close to a building, i.e. exempt from legal protection because of proximity, etc
Z3	Species that cannot be protected for other reasons, i.e. scheduled noxious weeds, out of character in a setting of acknowledged importance, etc
High risk of death or failure: Trees that are likely to be removed within 10 years because of acute health issues or severe structural failure	
Z4	Dead, dying, diseased or declining
Z5	Severe damage and/or structural defects where a high risk of failure <u>cannot</u> be satisfactorily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, overgrown and vulnerable to adverse weather conditions, etc
Z6	Instability, i.e. poor anchorage, increased exposure, etc
Excessive nuisance: Trees that are likely to be removed within 10 years because of unacceptable impact on people	
Z7	Excessive, severe and intolerable inconvenience to the extent that a locally recognized court or tribunal would be likely to authorize removal, i.e. dominance, debris, interference, etc
Z8	Excessive, severe and intolerable damage to property to the extent that a locally recognized court or tribunal would be likely to authorize removal, i.e. severe structural damage to surfacing and buildings, etc
Good management: Trees that are likely to be removed within 10 years through responsible management of the tree population	
Z9	Severe damage and/or structural defects where a high risk of failure can be <u>temporarily</u> reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, vulnerable to adverse weather conditions, etc
Z10	Poor condition or location with a low potential for recovery or improvement, i.e. dominated by adjacent trees or buildings, poor architectural framework, etc
Z11	Removal would benefit better adjacent trees, i.e. relieve physical interference, suppression, etc
Z12	Unacceptably expensive to retain, i.e. severe defects requiring excessive levels of maintenance, etc

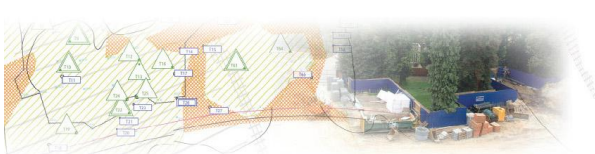
NOTE: Z trees with a high risk of death/failure (Z4, Z5 & Z6) or causing severe inconvenience (Z7 & Z8) at the time of assessment and need an urgent risk assessment can be designated as ZZ. ZZ trees are likely to be unsuitable for retention and at the bottom of the categorization hierarchy. In contrast, although Z trees are not worthy of influencing new designs, urgent removal is not essential and they could be retained in the short term, if appropriate.

Category A: Important trees suitable for retention for more than 10 years and worthy of being a material constraint

A1	No significant defects and could be retained with minimal remedial care
A2	Minor defects that could be addressed by remedial care and/or work to adjacent trees
A3	Special significance for historical, cultural, commemorative or rarity reasons that would warrant extraordinary efforts to retain for more than 10 years
A4	Trees that may be worthy of legal protection for ecological reasons (Advisory requiring specialist assessment)

NOTE: Category A1 trees that are already large and exceptional, or have the potential to become so with minimal maintenance, can be designated as AA at the discretion of the assessor. Although all A and AA trees are sufficiently important to be material constraints, AA trees are at the top of the categorization hierarchy and should be given the most weight in any selection process.

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1 INTRODUCTION

1.1 How to use this guidance

The categories summary in [Figure 1](#) is all experienced TreeAZ users need to apply the method. Prospective or inexperienced users should carefully read the guidance in the following sections 1–3 and the further background material at www.TreeAZ.com. It is then essential to try the method out on a range of sample trees to get a feel for the way it works. The method is designed to be applied to any type of tree in any location so just go outside and use it on the first trees you see. All users should review the photo examples at the end of this guidance, especially when they encounter marginal cases or have difficulty in deciding on the most appropriate categorization. All users should be mindful that, although superficially appearing simple, TreeAZ is a sophisticated methodology; it will take time to fully understand all of its detail to produce consistent and reliable tree assessments.

1.2 Navigating through this document

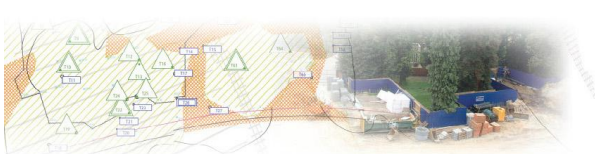
This document is designed as a downloadable pdf that can be printed and used as a paper copy, but retaining the option of navigating on-screen in the electronic version. The primary navigation elements are a contents page at the front and bracketed cross-references in the text. Both of these features link directly to the relevant locations within the document. These links can be seen and activated by hovering the cursor over them with CTRL pressed on the keyboard. This will activate the hyperlink, allowing you to click and go straight to the subsection. Websites can also be directly accessed in this way. You can return to the starting point each time by using the bookmarks navigation pane on the left of the pdf screen.

1.3 Benefits of using TreeAZ

TreeAZ is a method of tree assessment that has been specifically designed for modern planning scenarios, delivering the following benefits:

1.3.1 The importance of trees in climate change adaptation

It is now widely accepted that trees are an important aspect of climate change adaption because of the benefits they deliver, most notably in improving human health, buffering temperature extremes and reducing the severity of flooding events. Identifying and retaining good quality existing trees in the planning process is an effective strategy for delivering those benefits much faster than planting new trees. Existing trees are being increasingly recognized as a precious resource and assessing their potential for retention with TreeAZ is the starting point for making urban life more comfortable.



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1.3.2 The TreeAZ pedigree

TreeAZ evolved from the safe useful life expectancy (SULE) method of assessing trees developed in the 1980s. It was first published in 2002 and since then has been under regular review through feedback from extensive worldwide field use. In the UK, Barrell Tree Consultancy uses it to assess thousands of trees every year in their consultancy work. This massive testing and development programme in the sophisticated and demanding UK planning environment makes TreeAZ the most thoroughly field-tested tree assessment method in the world.

1.3.3 Speed of use

Although on paper TreeAZ may seem a lengthy process, in practice it is very fast once users become familiar with the assessment framework. Experienced assessors can usually tell very quickly whether a tree is likely to be a Z or an A category, and it is simply a matter of formalizing and recording that subconscious process. Remember, this is a preliminary assessment and if there are any doubts about individual trees, they can be identified for more detailed (and time consuming) investigation later in the planning process.

1.3.4 Improves the assessor's reliability and consistency

In the absence of a formal framework for tree assessment, it is easy to forget a specific issue because there are so many complicated aspects to consider. The TreeAZ categories summary ([Figure 1](#)) is an effective quick reference to remind assessors of all the factors they should be considering. This guidance framework is directly referenced in each assessment, which makes TreeAZ easy to use and helps to produce reliable, consistent and defensible results.

1.3.5 Reduces the assessor's exposure to risk

Every assessment has the potential to be challenged through the courts if trees subsequently cause harm or there is a dispute about their importance. Formally stepping through the systematic TreeAZ assessment framework and recording the process provides a robust basis for refuting liability in the event of any legal actions or disputes.

1.3.6 Easier for other professionals to understand

The detail of tree assessment is exceptionally complicated and is often more confusing than helpful to laymen. TreeAZ provides a simplified veneer to the process by only recognising two main categories. As one would intuitively expect, category A trees are the most important and category Z trees are the least important. This simplification is easy to understand for the other professionals who have to interpret the tree assessment information.



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1.3.7 Access to international feedback

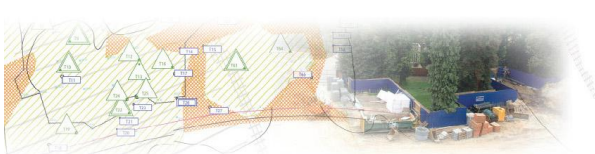
TreeAZ is based on principles of tree assessment that are recognized and understood around the world. Adopting TreeAZ opens up access to a method that is regularly updated with an international perspective.

1.4 Background information

As most arborists are quite enthusiastic about trees, it is common to become absorbed in the detail, to the extent that the overall purpose of the exercise can fade into the background and becomes almost secondary! Furthermore, the individual factors to be weighed up are often so difficult and numerous that, again, it is easy to lose direction and begin to flounder under the sheer complexity of it all. Before carrying out any assessment, it is very useful to remind yourself of what you are doing and why, to focus your analysis. The most important considerations that must be subconsciously referenced in the assessment of each tree are set out in the detailed TreeAZ supporting information at www.TreeAZ.com and summarized in [section 3](#) of this guidance. Competent TreeAZ assessment is dependent on regular review and familiarisation of this background reference material.

1.5 Essential academic and practical arboricultural experience

Although the summary categories table in [Figure 1](#) and the flow chart in [Figure 2](#) are relatively simple to understand, they represent an extreme distillation of a vast amount of background technical content, practical field-testing and academic reasoning. The detail of TreeAZ is extremely complicated and sophisticated, to the extent that high levels of arboricultural training and experience are an essential prerequisite for proper use of the method. Our experience is that the capacity of assessors to deliver competent, consistent and reliable tree assessments, is closely related to their academic qualifications and practical experience in arboriculture. In the event of disputes between different assessors, these credentials must be an important consideration in deciding how much weight to allocate to each opinion.



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2 OVERVIEW OF TreeAZ ASSESSMENT

2.1 Setting TreeAZ into the wider planning framework

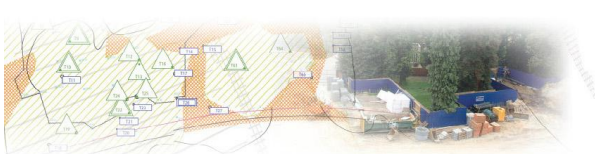
Planning is concerned with controlling changes in land use in a way that allows potentially important matters (called material considerations) to be assessed and given appropriate weight to arrive at a balanced decision. For all material considerations, there is a threshold beyond which they become a material constraint, i.e. they are given significant weight in the decision-making process. If they are assessed as being below this threshold, they have been considered but are not of sufficient importance to become a material constraint, and so are given a lower priority in the decision-making process. For trees, they all have to be considered but only the ones above the threshold become a material constraint on development. TreeAZ is a systematic method of assessing whether or not trees are above or below this threshold, which is the focus of these explanations. How these assessments are presented and processed in the planning system is also essential to understand, but is well beyond the scope of this document. TreeAZ is one small part of a much bigger planning process and should always be set in that wider context.

2.2 Summary of the TreeAZ framework

Although at first sight it may seem logical to structure the TreeAZ categories table with the A's first followed by the Z's, our experience is that it works better the other way round. A fundamental theme of TreeAZ is that all trees are A unless there are sustainable reasons to make them Z ([3.3.9](#)), so consider the Z subcategories first in the order they are listed in [Figure 1](#). The Z subcategories are grouped as not worthy of being a material constraint under four main headings; policy exemptions, high risk of death or failure, excessive nuisance and good management. The starting presumption is that all trees are A and, if they pass all the Z tests, then they remain A. Trees can only become category Z if they fail one of the 12 Z tests. It takes experience and training to properly consider all these complicated issues, which is why the assessment must be carried out by an experienced and qualified arborist ([1.5](#)). The broad framework of TreeAZ can be followed in the flow chart at [Figure 2](#), and is summarized as follows:

2.2.1 Z1–Z3 (policy exemptions)

The first group of subcategories covers trees that are unsuitable for protection because of external local policy reasons. Typical examples include trees that fall below a legally identified size threshold, trees that fall within a legally identified proximity (to buildings) threshold and trees that are designated as noxious weeds or out of character with the setting. If trees cannot be legally protected, then they should not be considered as a material constraint in a planning context ([3.2](#)).



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2.2.2 Z4–Z6 (high risk of death or failure)

The second group of subcategories deals with risk of death or failure and not risk of harm, so targets are not considered ([3.3.4](#)). In contrast to hazard assessment procedures, subcategories Z4–Z6 focus on trees that are unsuitable for protection because of tree-specific condition reasons. They consider the likelihood of acute health problems or severe structural failure and how those conditions can affect the length of time a tree can be retained. These factors are assessed taking no account of the surroundings of the tree. If there is a high risk of either death or failure within 10 years, then the tree is category Z. Trees can already be in this condition or assessed as likely to become so within 10 years ([3.3.6](#) for more explanation of the 10-year threshold).

2.2.3 Z7 & Z8 (excessive inconvenience)

The third group of subcategories is for trees that are unsuitable for protection because of an unacceptable impact they have on adjacent people. Unlike subcategories Z4–Z6, these matters are related to the tree surroundings and the impact the tree has on them, so they are location-sensitive ([3.3.7](#)). This includes trees that are causing damage to structures or unreasonably interfering with normal property use. Trees can already be causing the nuisance or assessed as likely to do so within 10 years.

2.2.4 Z9–Z12 (good management)

The final group of subcategories is for trees that are unsuitable for protection because of an undesirable impact on the sustainability of the wider tree population. Unlike subcategories Z4–Z6, these matters are assessed in the context of the tree surroundings and how those have an impact on the tree, so they are location-sensitive ([3.3.7](#)). This includes trees that have severe defects, where a high risk of failure can be temporarily reduced by remedial work; trees in a poor condition or location, with low potential to improve; trees that are adversely interfering with better trees; or trees that are excessively expensive to retain. Trees can already be in this condition or assessed as likely to become so within 10 years.

2.2.5 A1-4

All trees that pass the 12 Z subcategory tests remain category A and are allocated to one of the four self-explanatory A subcategories.

2.2.6 Categorization reminders

Remember, the ZZ and AA subcategories ([2.4](#)) provide a second level of division to be helpful and are nothing like as significant as the separation between the main Z and A categories. The above groupings are illustrative to make the overview of the process more obvious. In practice, local TreeAZ adaptations can have as many or as few subcategories in whatever order that makes it easiest to use and understand.

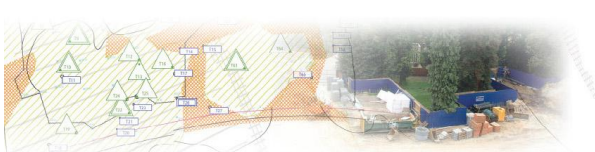


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2.3 Steps in carrying out the TreeAZ assessment

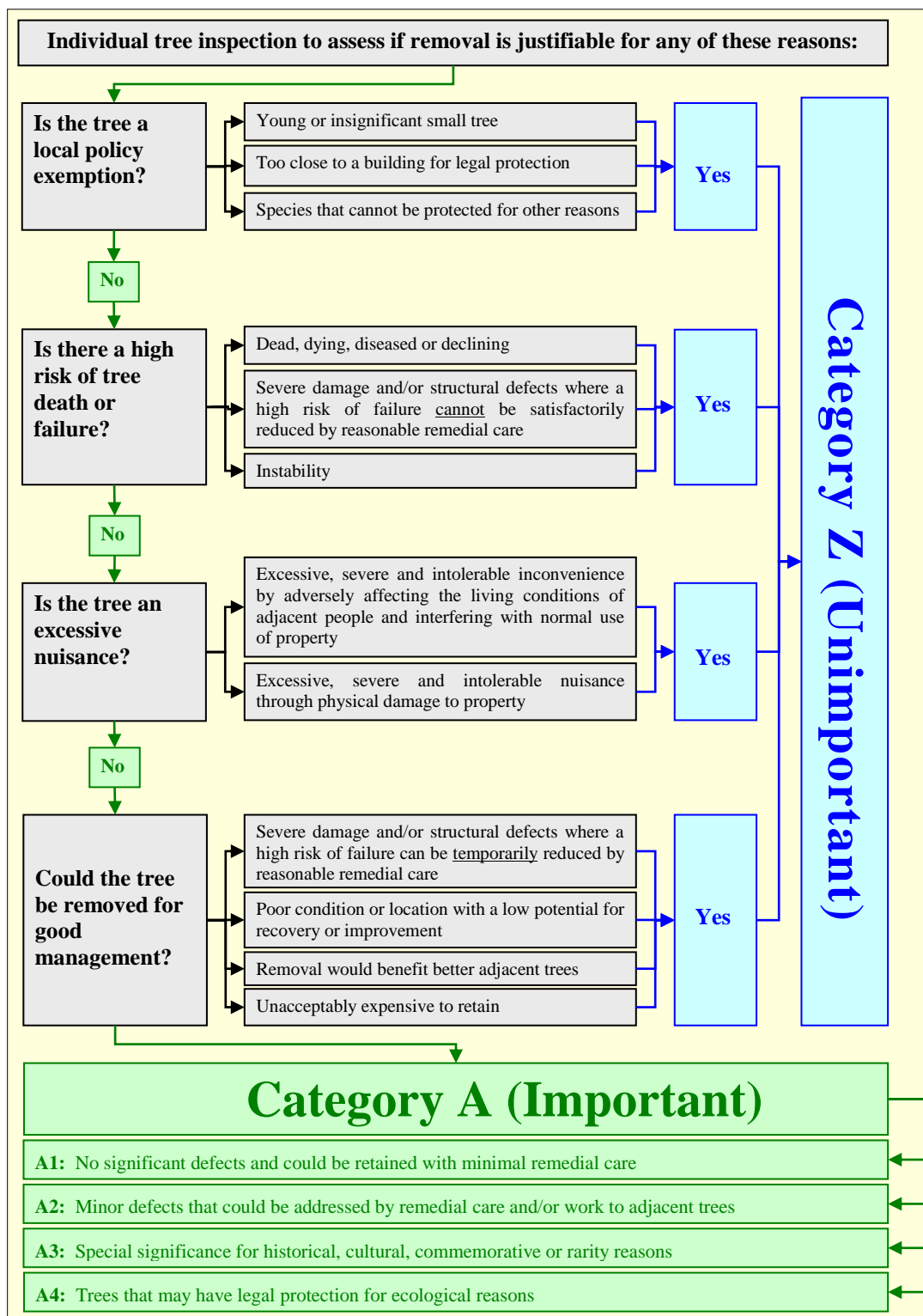
More specifically, for each tree the following steps are necessary to assess the TreeAZ category:

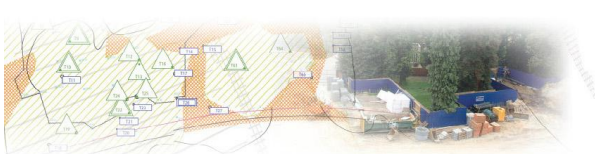
- The starting presumption is that all trees are A unless they fail one of the 12 Z tests.
- Systematically consider Z1 first through to Z12 last in the categories table ([Figure 1](#)).
- If a tree fits into any of these Z subcategories, then the assessment stops at that point and the subcategory is recorded.
- If it passes all the 12 tests, it remains an A category and it is then a case of identifying which subcategory it fits into by reviewing A1 to A4 in order.
- If it has no significant defects and requires no work, the tree would be A1. If it has defects that could be addressed by reasonable remedial work to it or adjacent trees, then it would be A2. What is 'reasonable' is down to your judgment; the more extensive and the more excessive the work, the less 'reasonable' it becomes. Our experience is that the vast majority of A trees will fall into the A1 and A2 subcategories.
- In exceptional situations, a tree in poor condition may warrant extraordinary measures to allow its retention because it has some special value despite it having severe defects. Trees of historical significance would fall into A3, but 'special' means exactly that, and it should not be used unless clearly justified.
- If a tree is assessed as likely to fall within any statutory ecological or habitat protection, then it would be A4. This is an advisory note and highlights that further expert assessment is required before it can be discounted as a material constraint.
- Extreme examples of certain Z subcategories can be highlighted by the ZZ designation and very good A1 trees by the AA designation ([2.4](#)).
- Once you have allocated the tree to the appropriate category and subcategory, your data collection for that tree is finished. Back in the office, you then identify each tree on a plan and proceed to analyse the constraints that apply to the most important A trees and discount the less important Z trees. How this is presented in terms of the tree schedule, the report format and the plan is beyond the scope of this guidance.



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Figure 2: TreeAZ (Version 10.04-ANZ) flow chart





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2.4 ZZ and AA designation

2.4.1 ZZ

If a tree is in acutely poor health or there is a high risk of structural failure, i.e. one of the worst trees, this can be acknowledged by using the ZZ designation. Only Z trees in the subcategories Z4, Z5, Z6, Z7 and Z8 at the time of assessment can be designated as ZZ. The ZZ designation highlights extreme poor condition and the need for an urgent risk assessment. ZZ trees are unlikely to be suitable for retention and fit at the bottom of the categorization hierarchy.



The ZZ designation highlights extreme poor condition and the need for an urgent risk assessment

2.4.2 AA

As set out in the size discussion below, trees with the potential to grow to a significant size are likely to have a much greater capacity to contribute to amenity than potentially small trees and so they are likely to be more important. Furthermore, trees that will require very low maintenance, i.e. A1 trees, are more useful than trees that will require higher levels of attention to secure their retention (A2 trees). TreeAZ incorporates these two concepts into the assessment process by offering the option of AA designation for individual A1 trees that already meet, or have the potential to meet, the following criteria:

- **Size:** In broad terms, the larger a tree can become, the more important it is likely to be because there are more of all the associated benefits it can deliver. Potential size is obviously an important assessment criterion, but not the only one, as the level of maintenance required to achieve that size potential is also a relevant management issue. There is no precise size threshold where a tree automatically has the size potential to be considered suitable for AA designation. The extremes will be easy to identify, with small and large potential trees being obvious. Potential height is

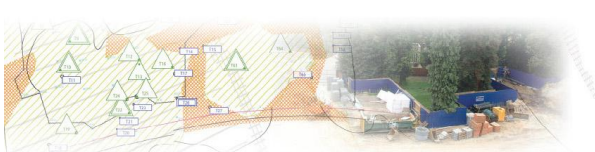


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naturally an important consideration, although crown volume would also need to be factored into the judgment. As a starting point, a reasonable threshold for height potential might lie between 15–20m, but this is at the discretion of the assessor and for them to justify in the local context.

- **Low maintenance:** Trees that have a very high potential for retention with a minimum of problems are generally the exception and usually turn out to be outstanding individuals. Such trees are clearly more useful than those with a similar potential for retention, but with a much higher anticipated level of maintenance. Low maintenance trees will generally be those with very few defects because that characteristic is a reliable indicator, i.e. few defects means low maintenance. In practice, a lack of defects is generally closely related to good structure or form, although it has to be stressed that the assessment criterion is strictly low maintenance; it is not good form ([3.3.13](#)). Whilst form and low maintenance are very closely aligned, they are fundamentally different criteria for assessment and must not be confused. As with size, there is no precise maintenance threshold where a tree suddenly moves from low to high, so this has to be a matter of informed judgment by the assessor.

How these two concepts practically interact can be illustrated by the following example. Take two similar sized A1 category trees of different species, where one is fully mature and the other has the potential to achieve twice its current size. It is accepted that both should be a material constraint, but one has much greater potential to contribute to amenity than the other, so for them both to be at the same level in the hierarchy could be seen as inconsistent. If the tree with the greater size potential required a high level of maintenance to achieve its full size, then the same categorization might be justified, i.e. the disbenefit of the maintenance burden was cancelled out by the benefit of the increased size potential. However, if it was a low maintenance tree, then it would be intuitively correct to recognize its ability to deliver significantly greater benefits with fewer problems by the enhanced AA designation.



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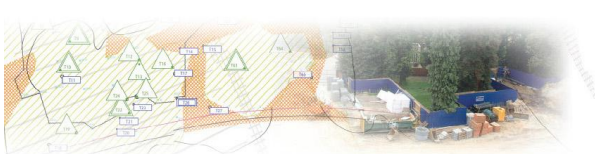
This desert species is mature and has little potential to significantly exceed its present size. It is A1 because it has a low maintenance requirement but it cannot be AA1 because it has no potential to significantly increase its contribution to amenity.



Although of similar size to the other tree, this species has the potential to dramatically increase in size and make a significant contribution to local amenity. This potential, combined with the likely low maintenance, would justify the AA1 designation.

2.4.3 Setting the ZZ and AA designation into the wider planning perspective

The ZZ and AA designations are very much matters of judgment and are applied entirely at the discretion of the assessor. Whilst this enhancement can be helpful, it does not have an overriding significance in the wider assessment context. The most important decision is whether the tree is a Z or an A, and further separation is just a matter of refinement rather than any fundamental change. AA is certainly helpful if there is intense competition for space and trees are a marginal issue in the wider planning context. In such a scenario, then there may only be enough space to keep the very best and so a more detailed hierarchy helps the decision-making. Similarly, ZZ is helpful for identifying trees that require an urgent risk assessment, irrespective of other planning matters. However, in both instances, the result in terms of identifying constraints, which is what the assessment process is designed to assist, is the same, i.e. that A trees are a material constraint and Z trees are not.



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3 DISCUSSION OF BACKGROUND TO TreeAZ ASSESSMENT

3.1 General

Each of the Z and A subcategories is listed at the end of this section with detailed explanations and photographic examples. These are intended for guidance only and should not be considered as a definitive or complete list. Assessors should build up their own library of examples and make their own decisions about how to categorize marginal or difficult trees. The detail of how they are dealt with will vary between regions and between assessors. This is not a flaw in the method because TreeAZ is only a broad framework for individuals to develop the detail, depending on their specific requirements and circumstances. It is far more important for each assessor to be consistent in their own assessments and be able to demonstrate that they have followed a systematic approach to considering all the issues, if challenged.

3.2 Z and A categorization in the context of legal protection

A fundamental assumption in TreeAZ is that society generally recognizes trees are sufficiently important to warrant a legal framework to protect them. If there is no means of legal protection, then tree retention cannot be reliably enforced and there is no ultimate reference for retention thresholds. However, it is common for protected trees that were in good condition when originally protected, to subsequently deteriorate to the extent that they are no longer suitable for protection. Although protected on paper, the reality is that this could not be sustained if challenged. If a tree could be justifiably removed within the next 10 years despite statutory protection, then it cannot reliably remain protected and so there is no effective legal mechanism for retaining it. If there is no reliable mechanism for enforcing tree retention, then it cannot be given any significant weight in a planning context because it could be removed by the owner, which means it cannot be a material constraint of any weight. One way to subjectively test if a tree is correctly categorized is to imagine it was the subject of legal protection, but that was being challenged, to be heard by an independent and impartial adjudicator. If the challenge fails then the tree is worth keeping, i.e. it is category A, and if it is successful then the tree is not worth keeping, i.e. it is category Z. In practice, if a tree can be protected by local legislation then it will be category A; if it cannot be protected, then it will be category Z.

3.3 Summary of important background issues

In order to carry out a competent TreeAZ assessment, it is essential for assessors to understand the complicated background issues summarized in the following subsections and discussed in more detail in the reference material at www.TreeAZ.com.



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3.3.1 Purpose of TreeAZ assessment

TreeAZ is a simplistic measure of the potential trees have to contribute to amenity, which provides an indication of the benefits they could impart to the future land use. In a planning context, the detail of the future land use is undecided in the early stages and so that potential has to be assessed in a way that is independent of the multitude of future land use options. Trees with a high potential to contribute to amenity are likely to be a very important planning consideration and trees with a low potential are likely to be much less important. Assessment of the multiple characteristics that affect the potential of a tree to contribute to amenity is an extremely complex and sophisticated process, which is difficult to explain in lay terms. TreeAZ refines those considerations down to a simplistic categorization that non-tree experts, mainly architects and planners, can understand and use to guide them in designing new developments. The most important information they need to know is which trees they should try to retain and which ones can go. They do not want to know, or indeed need to know, the detailed background considerations that resulted in the categorizations. The TreeAZ categorization that the planners see is a surface veneer of simplicity, disguising the vast complexity of tree assessment that arborists perform in the background.

3.3.2 Trees in the context of the whole planning system

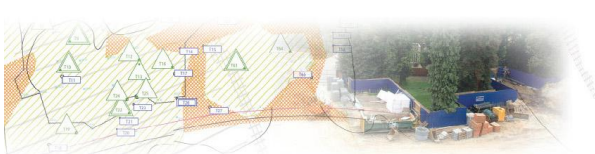
Do not forget that trees are just one of many competing considerations that have to be weighed up in the decision making process. It is very unusual that the ideal of keeping all trees is a realistic possibility and compromises involving tree losses are inevitable. No tree is above losing if there is a planning gain that is greater than the benefit of retaining it.

3.3.3 Role of the arborist

TreeAZ assessment provides preliminary guidance, usually in the absence of any other information, at the beginning of the planning process. It is an opinion and, as such, is unlikely to be right or wrong. It is your opinion based on what you have seen, assessed in the context of your experience. Another assessor with different experience may not come to the same conclusion. It is the starting point for a lengthy process of analysis, negotiation and appraisal that is intended to result in a balanced and effective planning decision. There will be plenty of other opportunity within the planning process to test, challenge and adjust your preliminary assessment if necessary. Your preliminary assessment is not the final decision on whether a tree stays or goes, it is guidance for other people who have to make those decisions in the wider planning context. It is not normally the arborist's role to make final decisions on tree retention.

3.3.4 TreeAZ is not a full risk assessment

TreeAZ is not a method of assessing the risk of harm posed from tree hazards. However, the likelihood of a tree suffering acute health problems or severe structural failure is assessed because those conditions affect the potential that the tree has to contribute to amenity. Trees that are dying or falling to bits have a much lower potential



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than healthy, sound trees and are less important in a planning context. This relatively limited analysis is not extended to a full risk assessment because that would have to consider the number of targets to provide an assessment of the risk of significant harm. At the beginning of the planning process, there could be many possible outcomes for the future land use and a target-based approach would fail through over-complication. For the purposes of TreeAZ assessment, the potential of a tree to contribute to amenity is not related to targets because potential is a measure of its capacity to deliver irrespective of changes in the surrounding land use (3.3.1). In this context, TreeAZ is not target-sensitive, it is failure-sensitive. For example, a large tree with a high potential for failure in a small garden would be categorized as Z5; it is common sense that such a tree with a high risk of failure so close to people should have a low category. However, the same tree in a remote area with little access would be categorized exactly the same because it has the same limited potential to deliver amenity irrespective of the fact that there are far fewer targets and a lower risk of harm. TreeAZ takes no account of targets and is not a full risk assessment. However, the ZZ designation can highlight where urgent detailed risk assessments may be required because of an elevated risk of failure (2.4.1).



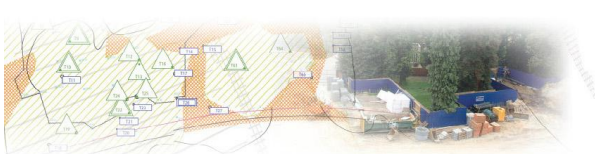
This severely leaning pine located close to a busy footpath could be Z5 or Z9, depending on the severity of the problem. It has an elevated risk of harm and an elevated risk of failure. Its excessive imbalance means it has an elevated risk of failure, which equates to a reduced potential to contribute to amenity. The elevated risk of failure is the reason for its Z designation, not the elevated risk of harm.



An identical tree in a park with very low levels of public access could also be Z5 or Z9. Although there is a much-reduced risk of harm because there are fewer people, the risk of failure, through its imbalance, is very similar to the previous scenario. Despite the much lower risk of harm, the elevated risk of failure justifies the Z designation.

3.3.5 Risk of failure is just one part of the TreeAZ assessment

Understandably, hazard and risk of harm have received the majority of attention in tree management research because the consequences can be so spectacular and so severe. However, lack of legal protection, inconvenience and good management are equally important issues that must be factored into any comprehensive tree management decision-making process. Hazard and risk are not looked at in isolation or



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detail in the much broader tree management framework that TreeAZ seeks to formalize. They are obviously matters that cannot be ignored, but the time and place for their more detailed analysis is when the development has been consented and is being constructed, not at the pre-design tree assessment stage in the planning process.

3.3.6 10-year retention threshold

There is an emerging and compelling body of international opinion that if a tree cannot be sustainably retained for more than 10 years, it is not worthy of legal protection (except possibly for ecological reasons). Each step in TreeAZ is set in this context. You have to imagine how you expect the tree to develop in the next 10 years, which is why experience in arboriculture is an essential requirement to carry out a competent TreeAZ assessment ([1.5](#)). If your projected visualization of tree growth and ageing reveals a likelihood of it developing a high risk of death or structural failure, becoming an excessive inconvenience or an impediment to good management within 10 years, then it is not worthy of legal protection and should be categorized as Z.

3.3.7 Assessing trees in their existing surroundings

TreeAZ is an assessment of trees in their existing context and takes no account whatsoever about how those surroundings may change in the future. Indeed, the possible combinations of future changes are so numerous it would be impractical to base tree assessment on such an approach. For this reason, there is a presumption in TreeAZ that the judgment is based on the conditions surrounding the tree at the time of assessment. Although TreeAZ requires you to imagine the development of the tree over 10 years ([3.3.6](#)), this should be set in the context its present surroundings and those remaining the same.

3.3.8 Categories and subcategories

TreeAZ is a two category method; trees are either Z or A, with ZZ and AA being designations within each category representing the extremes. In comparison, the specific subcategories (Z1–Z12 and A1–4) are relatively unimportant; their main role is to systematically guide the assessor through the process and to be a helpful reminder of the reason for the categorization. The most important point is that the main category is reliable; the subcategories are just a useful expansion of that fundamental assessment.

3.3.9 Categorization by negative selection

Negative selection is the categorization of trees because of their negative characteristics rather than their positive attributes. The starting point for all trees in TreeAZ is that they are worth retaining unless there are justifiable reasons to remove them. Defensible reasons to remove trees are; they are a local policy exemption; there is a high risk of death or structural failure; they are an excessive nuisance; or they impede good management. Trees that cannot be removed for any of these reasons are valid candidates for retention by default. The benefit of this approach is



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that positive tree characteristics, many of which are intangible and tricky, if not impossible to reliably quantify, do not have to be assessed.

3.3.10 Sustaining the whole tree population has a priority over individuals

In the wider context, individual trees are of very little importance compared to the overall objective of sustaining a whole population. Securing sustainable space for a succession of age classes is an essential management objective because it provides younger trees to replace older ones when they are lost. Poor trees are not worth keeping if they interfere with this by taking up space that emerging trees could be using or by damaging existing better trees. Although often forgotten, good management is equally as valid a reason for removal as risk or inconvenience.



Sustaining overall canopy cover is a valid management objective and a justifiable reason to remove poor performing trees

3.3.11 Amenity

As set out in [3.3.1](#), TreeAZ considers the potential a tree has to contribute to amenity and not its actual contribution to amenity (with the exception of small trees as set out in [3.3.12](#) below). ‘Amenity’ is taken to encompass all tree benefits, both tangible and intangible, obvious and obscure. TreeAZ does not attempt to place a definitive value on amenity because its multiple components make it difficult, if not impossible, to reliably assess. However, TreeAZ does draw on the notion that the contribution of a tree to amenity is closely and reliably related to size, i.e. the bigger a tree is, the greater its



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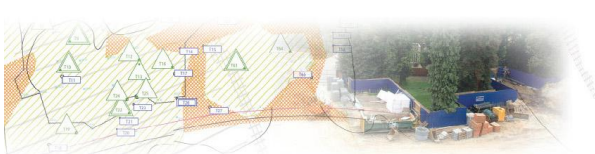
potential for contribution to amenity. Whilst it is difficult to apply precise figures to this relationship, nonetheless, TreeAZ broadly embraces this notion as being a relevant assessment consideration. (It is accepted that, in some instances, larger trees are likely to provide an increase in nuisance disbenefits, but this is considered more of an exception than the rule and so does not invalidate the broad notion.)

3.3.12 Small trees

Small trees complicate tree assessment, but cannot be ignored. Intuitively, it is obviously inappropriate that saplings dictate the evolution of a layout because they are so small but, at the same time, they can have great potential to contribute to future amenity. In an ideal world, any tree with high potential to contribute to amenity should be a material consideration, but this approach fails in the face of the practical reality of modern planning. In a planning context, if the benefits provided by a tree could be easily and instantly replaced in another location by planting an identical tree, then the future benefits are not compromised. The reality seems to be this is an acceptable planning approach; the difficulty for arborists is defining the size thresholds where 'small' stops. This is explained in more detail in the category Z1 explanations ([see Z1](#)).

3.3.13 Form

Do not be misled into thinking that poorly formed trees are not important because they are unbalanced or unusual shapes. This is a subjective judgment that can vary considerably from person to person and is unsuitable as a reliable basis for assessing trees in a development context. A quick scan of the urban tree population surrounding you will confirm that 60–70% of individuals are likely to be classed as poorly formed using traditional assessment criteria and yet they provide the majority of the amenity we enjoy! In many cases, the traditional professional judgment of arborists on tree form is out of alignment with the public perception of tree quality, which needs careful consideration because arborists manage the urban tree resource on behalf of the public. Poor form is not a valid or sustainable reason for removal in its own right. TreeAZ takes no account of form unless it has safety, nuisance or management implications.



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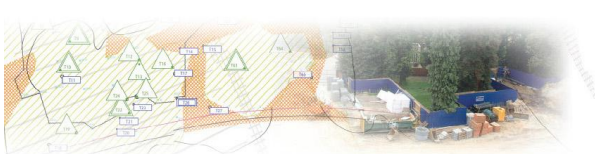
By many of the traditional measures of good form, this pine would be classed as a poor tree, but it is typical of a significant proportion of trees in the urban realm; poor form, but important all the same

3.3.14 Marginal cases

Where you are finding it difficult to decide if a tree is worth keeping or not, remember that your primary task is to assist a decision-maker who has to apply appropriate weight to multiple competing issues. Judgments have to be made on the relative merits of each issue and, in such a competitive environment, it is not helpful to favour marginal trees. If there are genuine doubts about their potential for retention, then there should be a presumption to downgrade them rather than upgrade them. Only the best should have a significant influence and the responsibility of the assessor is to be decisive, to helpfully inform this process. Indecisive tree advice is not helpful; arborists are the tree experts and it is their responsibility to make those judgments. However, this must be applied with caution and integrity; it would be inappropriate to use minor defects or spurious nuisance concerns as mechanisms for downgrading trees to provide more developable space. All TreeAZ judgments must be set in the context of emerging case law, decisions by responsible authorities and, of course, the integrity of the assessor.

3.3.15 Exceptions to the rule

In any system, there are always elements that cannot be neatly 'pigeon-holed' and are exceptions to the rule. Tree assessment is not an exact science, so do not expect it to be all neat and tidy. Where there is some doubt about how a tree should be



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categorized, the assessor has to make a decision one way or the other, but further explanation can be added in the explanatory notes. This will alert the other professionals in the planning system that there could be a range of opinions on this and it may be necessary to further review the assessment later in the planning process.

3.3.16 Retention of Z trees

Although there is a presumption to keep all A trees, there is not a similar presumption to remove all Z trees. Z categorization means the tree is not worthy of being given significant weight in any planning decisions; it does not automatically mean the tree has to be removed. If there is space to keep a Z tree and it does not compromise the proposed layout, then it may be quite appropriate to keep it in the short term with remedial works. In contrast, the ZZ designation highlights that the tree needs an urgent risk assessment and is likely to need removing for safety reasons.

3.3.17 Don't forget ecology

Trees are so variable and complex that there will always be exceptions to the general rules set out in this guidance. Trees that have statutory protection for ecological reasons are one awkward exception. They can be structurally disintegrating and superficially qualify as a Z tree, but their ecological importance overrides this and can make them an A tree temporarily until the issue has been resolved. Although a tree may fail to meet one of the Z tests and seem to be unworthy of being a material constraint, ecology issues should still be reviewed to make sure it is not of ecological importance. If it is, then it has to be recorded as A4. In principle, this is an untidy exception in what is quite a neat systematic approach; in practice, as long as it is considered, it is not a big problem and very rarely occurs.



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Wildlife and habitat value is an increasingly important aspect of tree management and a valid reason for allocating trees to a high category

3.3.18 Dealing with groups

Managing groups of trees where individuals are closely spaced and contribute to amenity as a distinct unit is more demanding, but it is still possible to make systematic and reasoned assessments. Each tree within the group must be considered individually and subjected to the same systematic process outlined above. The same exclusion criteria apply, so trees are not worthy of being a material constraint if they are a policy exemption, there is a high risk of death or structural failure, they are an excessive nuisance or they would be removed during the course of good management. Taking the issue of risk of structural failure, a significant consideration with groups is that the assessments are made in the context of the other adjacent trees. Common features of



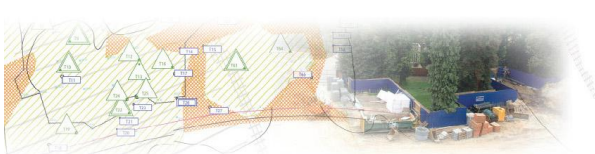
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trees within groups are that they are individually tall and thin or unbalanced, although the group as a whole may be well proportioned and stable. These characteristics are often so extreme that if a tree were isolated, removal would be the most appropriate management option. However, in a group situation, the shelter of the adjacent trees often reduces the level of risk of structural failure to the extent that the poorly proportioned trees can be retained.



Although some of these individuals could be assessed as low quality, as a group they are an important landscape feature with the potential for long term retention

In terms of good management, trees destructively interfering with a better tree or poor trees occupying space a new tree could use to better advantage are candidates for removal. However, in the context of groups, the long-term benefit of removal and replacement must be balanced against the disadvantages removal might have on the group. For example, in a simple scenario of two trees in a group, if the removal of one compromises the retention of the other, then the implications are far reaching and need to be carefully weighed up. Conversely, if the removal of one tree will not adversely impact on the other, then removal could be justified if it resulted in significant management benefits for the whole tree population. A common characteristic of groups is that most of the individuals have developed with mutual shelter and rely on each other for stability. There is often little scope for the removal of trees from intact groups because of the adverse impact on those retained, especially if the group is mature. However, as groups begin to lose individuals and become more fragmented, the opportunities for management to move towards establishing an uneven age class structure through phased removals and new planting are greatly increased.



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4 DETAILED EXPLANATION OF SUBCATEGORY ALLOCATION

Photographic examples and further explanations for each of the following subcategories are set out below (click on the underlined hyperlink to go directly to each sub category).

[Z1 Young or insignificant small trees, i.e. below the local size threshold for legal protection, etc](#)

[Z2 Too close to a building, i.e. exempt from legal protection because of proximity, etc](#)

[Z3 Species that cannot be protected for other reasons, i.e. scheduled noxious weeds, out of character in a setting of acknowledged importance, etc](#)

[Z4 Dead, dying, diseased or declining](#)

[Z5 Severe damage and/or structural defects where a high risk of failure cannot be satisfactorily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, overgrown and vulnerable to adverse weather conditions, etc](#)

[Z6 Instability, i.e. poor anchorage, increased exposure, etc](#)

[Z7 Excessive, severe and intolerable inconvenience to the extent that a locally recognized court or tribunal would be likely to authorize removal, i.e. dominance, debris, interference, etc](#)

[Z8 Excessive, severe and intolerable damage to property to the extent that a locally recognized court or tribunal would be likely to authorize removal, i.e. severe structural damage to surfacing and buildings, etc](#)

[Z9 Severe damage and/or structural defects where a high risk of failure can be temporarily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, vulnerable to adverse weather conditions, etc](#)

[Z10 Poor condition or location with a low potential for recovery or improvement, i.e. dominated by adjacent trees or buildings, poor architectural framework, etc](#)

[Z11 Removal would benefit better adjacent trees, i.e. relieve physical interference, suppression, etc](#)

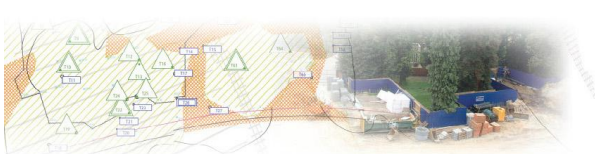
[Z12 Unacceptably expensive to retain, i.e. severe defects requiring excessive levels of maintenance, etc](#)

[A1 No significant defects and could be retained with minimal remedial care](#)

[A2 Minor defects that could be addressed by remedial care and/or work to adjacent trees](#)

[A3 Special significance for historical, cultural, commemorative or rarity reasons that would warrant extraordinary efforts to retain for more than 10 years](#)

[A4 Trees that may be worthy of legal protection for ecological reasons \(Advisory requiring specialist assessment\)](#)



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Z1: Young or insignificant small trees

Guiding principle for subcategories Z1, Z2 and Z3: These are a broad group of reasons that prevent trees being suitable for legal protection for local policy reasons. They are less to do with tree condition and more about the political/social climate that prevails at the assessment location. These subcategories will vary considerably depending on local city and state ordinances, and so they would need to be specifically described on a local level.

Adopting an existing legally defined size threshold: Z1 is intended to directly reflect legal definitions of size exemptions as set out in local ordinances, if they exist. Size is usually defined by measurements of height and trunk dimensions in the context of species. Any tree that falls below these thresholds cannot be legally protected and so cannot be a material constraint in any planning considerations. Where they are defined, existing size thresholds for legal protection should be the starting point for allocation to this subcategory.

Size considerations in a planning context where there are no legally defined size thresholds: Where there are no legally defined size thresholds and there is some doubt about what constitutes 'small', it may be helpful to consider the issue of size in the wider planning context. In most planning scenarios, an important consideration is the contribution of the whole site to amenity rather than the contribution of individual trees. Of course, individual trees collectively make up this contribution, but their location within the site is not usually critical as long as this does not significantly adversely affect the contribution of the whole site. Often, the potential amenity provided by trees to the wider setting is not significantly adversely influenced by relatively minor changes in location. In fact, centrally located trees usually provide little visual amenity benefit and replacing them with new trees in a more prominent boundary location often results in a dramatic increase in the amenity contribution of the whole site. In principle, this allows the potential for most awkwardly placed small trees to be moved or replaced if it can be done reliably and it does not result in a decrease in the contribution of the whole site to amenity in the wider setting. However, in the context that the TreeAZ assessment is at the pre-design stage, it is inappropriate to extend this reasoning beyond small trees because good quality medium and large trees are intuitively worth retaining and obvious material constraints. It is often the case that medium or large category A trees that are restricting a layout in the design stage need to be considered for replacement or moving. However, they would still remain category A trees and it would be inappropriate to record them as Z1.

The meaning of 'insignificant small tree': It is quite possible to have small trees that are mature and possibly hundreds of years old. Although they would not be considered significant in terms of size, they are quite likely to be significant in terms of other attributes such as historical association, attractive visual proportions and contribution to ecological diversity. Intuitively, small but mature trees will have a greater overall value than much younger trees of the same size. For this reason, TreeAZ makes a distinction between mature small trees and young small trees by not allowing Z1 to apply to mature small trees. 'Insignificant small tree' means that only young small trees can be subcategorized as Z1.

Defining a threshold based on replacement: Although there is a presumption that Z1 should apply



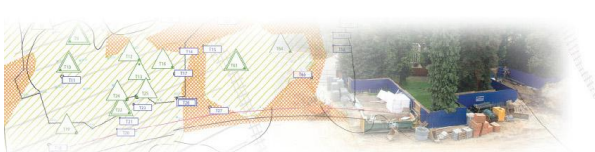
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to small trees and not extend to medium or large tree, there is no precise size threshold if there is no legal definition. A reasonable rule of thumb is that the visual amenity these trees offer should be able to be replaced like-for-like by new trees that can be bought off the shelf. Replacement trees should be easily available through a normal supplier and should not require exceptional cost or specialist input to establish. As a rule, trees less than 5m in height can often be replaced in this way, but it is unusual for this to extend beyond 10m in height. The 5–10m height range is where there will be most scope for disagreement and where the judgment of an experienced and qualified arborist is most needed. Although the use of height as the sole test for replaceability is tempting because it is simple, it can often be misleading. Short trees with disproportionately wide crowns and thick trunks frequently occur and need special consideration. In such instances, the replacement tree has to have similar proportions as the original tree in terms of height, crown volume and trunk diameter. Although it would be inappropriate to apply this rule rigidly, some steer on how much variation is acceptable is helpful. As a starting point, a reasonable threshold is that no key proportion of height, crown volume or trunk diameter of the replacement tree should be more than 20% smaller than the original tree. However, in most cases, it is likely that mature trees of less than 10m in height would be classed as significant small trees and it would be inappropriate to categorize them as Z1. Again, there are always exceptions to the rule, but it would be up to the assessor to justify any variation from this general guidance.

Defining a threshold based on moving: An alternative to the replacement approach is to consider a threshold based on moving the tree. However, there is no clearly defined size that pinpoints if a tree can or cannot be reliably moved. In practice, this varies greatly according to factors that include species, condition of the individual, maturity, local climate and soil conditions, amongst many others. A useful rule of thumb is that if a tree can be reliably moved with a locally available machine at a reasonable cost, then it can be reasonably recorded as Z1. As a rule, certainly most young trees less than 5m in height fall into this subcategory. As with the replacement option, it is likely that the height threshold will fall between 5m and 10m in the majority of situations, although this guidance should be used with caution as there are always exceptions to the rule. In most situations, as a tree increases in height from 5m towards 10m, it is likely to become less appropriate to categorize it at Z1.

Young trees where there are no legally defined size thresholds: It seems intuitively right that, in a planning context where a host of material considerations have to be weighted, young trees should not dictate the design of future land use. For the purposes of a TreeAZ assessment, young trees are loosely defined as being established less than five years and could be easily replaced with a similar sized tree without excessive cost. Such trees would generally be 5–10m in height although it is recognized that in some tropical situations, they could easily exceed this height. However, for the majority of scenarios, it would be reasonable for Z1 to be applied to trees that fall within the above broad definitions.

Palms: Superficially, palms may seem tricky because they can be reliably transplantable at almost any size and, based on the previous reasoning, it could be argued that they should rarely be a material constraint. However, in the context that most trees are potentially moveable, following that line of argument to its extreme leads to the conclusion that very few trees should be material constraints, which is contrary to intuitive expectations of reasonableness. It seems intuitively wrong that significant established trees should be discounted from being a material constraint because they can be moved in theory. For this reason, TreeAZ adopts the assumption that the concept of tree moving should only be applied to small trees. Consequently, for the purposes of a TreeAZ



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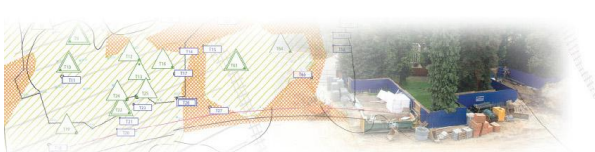
assessment, only palms of 5–10m in height would normally be recorded as Z1. As with other trees, as a palm increases in height from 5m towards 10m, it is likely to become less appropriate to categorize it at Z1. Although larger palms can be reliably moved, for consistency within the TreeAZ process, if there are no sustainable reasons to discount them, they should be considered a material constraint and categorized as A. If they are in the way of a proposed layout, then they could be considered for moving as part of a mitigation package in the design and post-design stages of the planning process.



Z1-1: Small established trees up to about 5m in height are clearly Z1 as long as they are not old and significant for any obvious reason.



Z1-2: Young trees that have been planted for less than 5 years irrespective of height are clearly Z1.



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Z1-3: Small trees that are obviously well established and significant are not appropriate for Z1, irrespective of their height.



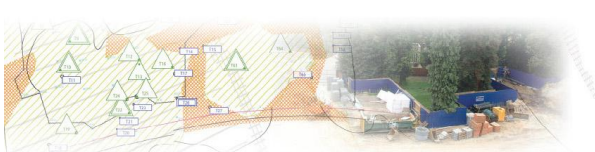
Z1-4: Although this palm could be reliably transplanted, it is an A tree and it would be inappropriate to categorize it as Z1.



Z1-5: Although these palms could be reliably transplanted, it would be inappropriate to categorize them as Z1. They are clearly material constraints.



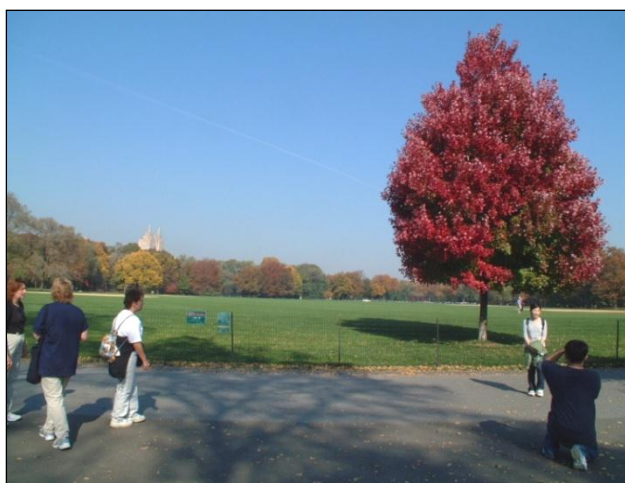
Z1-6: Although only about 5m in height, this mature tree is significant and it would be inappropriate to categorize it as Z1.



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Z1-7: Although less than 5m in height, this mature tree is significant and it would be inappropriate to categorize it as Z1.



Z1-8: Although it is probably possible to successfully transplant or replace this tree, it is well established and above the threshold where it could be reasonably categorized as Z1.



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Z2: Too close to a building

Guiding principle for subcategories Z1, Z2 and Z3: These are a broad group of reasons that prevent trees being suitable for legal protection for local policy reasons. They are less to do with tree condition and more about the political/social climate that prevails at the assessment location. These subcategories will vary considerably depending on local city and state ordinances, and so they would need to be specifically described on a local level.

Adopting an existing legally defined proximity threshold: Z2 is intended to directly reflect existing legal definitions of proximity exemptions as set out in local ordinances. Proximity exemptions are usually defined as a distance from a building in the context of species. Any tree growing within a defined distance cannot be legally protected and so cannot be a material constraint in any planning considerations.

Procedure for when there is no legally defined proximity threshold: Generally, large or potentially large trees growing close to buildings are likely to cause conflicts and, in extreme cases, common sense would preclude them from legal protection even if there were no statutory provisions setting out the detail. Where there is no legally defined proximity threshold, the issue should be reviewed under the nuisance considerations in Z7 and Z8, and it would be inappropriate to record them as Z2.



Z2-1: If a local ordinance set out that trees this close to houses are exempt from legal protection, then it would be appropriate to categorize them as Z2 because the owner could not be prevented from removing them.



Z2-2: This tree is likely to cause conflicts because of proximity and could reasonably be categorized as Z. If there is no legal exemption for protection based on proximity, it would be inappropriate to categorize it as Z2. Categorizing it as Z7 or Z8 should be considered.



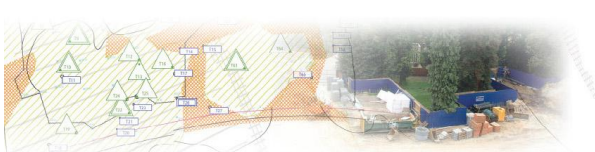
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Z3: Species that cannot be protected for reasons other than Z1 or Z2

Guiding principle for subcategories Z1, Z2 and Z3: These are a broad group of reasons that prevent trees being suitable for legal protection for local policy reasons. They are less to do with tree condition and more about the political/social climate that prevails at the assessment location. These subcategories will vary considerably depending on local city and state ordinances, and so they would need to be specifically described on a local level.

Adopting an existing schedule of unsuitable species: Z3 is intended to directly reflect existing schedules of unsuitable species as set out in local ordinances, plan policies or other documents of similar status. Typical examples might include designated weed species that have an adverse impact on native ecology and poisonous trees that present a high risk to people and animals. These would usually be described by species and are likely to only apply to specific locations. Species on such a list would be considered unsuitable for legal protection and so cannot be a material constraint in any planning considerations. For example, in Sydney, willows would be Z3 because of their classification under the Noxious Weeds Act, 1993. Similarly, in New Zealand, the Biosecurity Act 1993 lists many unwanted species including some willows, which would be Z3.

Trees that are out of character in a setting of acknowledged importance: Where trees form an important part of a local character that has been recognized by an official designation, it is unlikely that individuals detracting from that character would be worthy of being a material constraint. However, for Z3 to be appropriate, prevailing landscape character would normally have to be officially recognized and it should be obvious that the tree does not visually fit in with that theme. There would have to be a widespread consensus that the tree does detract from a designated landscape character, which should normally include the agreement of the local planning authority. In exceptional cases, it may be appropriate to use Z3 in the absence of any officially designated landscape character where a particular tree is obviously at odds with the predominant surrounding tree cover, i.e. a palm in a broadleaved-dominated neighbourhood. There is obviously an element of subjective judgment in assessing this subcategory, so common sense and reasonableness must be applied in the decision making process. It would be inappropriate to use Z3 as a means of downgrading trees to secure more development space.



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Z3-1: A solitary palm in a predominantly broadleaved neighbourhood could be Z3, provided there was an obvious case that the tree detracted from local character.



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Z4: Dead, dying, diseased or declining

Guiding principle for subcategories Z4, Z5 and Z6: Trees that could be removed despite statutory protection because they are in poor health, poor structural condition or unstable fall into these subcategories. The time limit for these definitions to apply is within 10 years of assessment. The assessor must imagine the development of the tree over the next 10 years, with its existing surroundings remaining unchanged. If that visualization reveals a high risk of death, decline or failure that is unlikely to be satisfactorily addressed by remedial action, then this group of subcategories is appropriate. Trees identified as having a high risk of failure at the time of assessment, and that are likely to need urgent attention following a detailed risk assessment, would be designated ZZ.

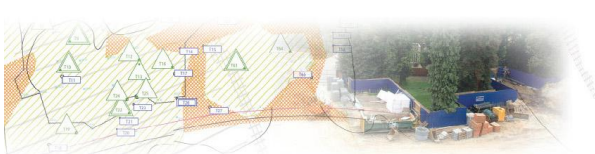
Diseased and declining: Z4 is for trees that are unlikely to recover from a serious health problem. The condition must be terminal with no obvious potential to recover, e.g. severe crown dieback to the extent that the structural branch framework and overall integrity of the crown is compromised. This would also apply to diseases with no practical cure. Trees that are likely to recover or improve should not be placed in Z4, e.g. trees suffering from a foliar problem that has little impact on the branch framework and infection varies from year to year.



Z4-1: Declining trees with little hope of improvement, where remedial works would be likely to leave a severely depleted crown framework, are typical Z4 candidates. If the assessor decides there is a high risk of structural failure, then the ZZ designation can be used to highlight that an urgent risk assessment is required.



Z4-2: This tree has advanced and terminal decline, and would be suitable for categorization as Z4. If the assessor decides that the health condition is acute, then the ZZ designation can be used to highlight that an urgent risk assessment is required.



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Z4-3: If the die-back in this hedge is the early signs of a progressive problem that is likely to deteriorate rather than improve, Z4 would be an appropriate categorization. If its condition was expected to improve, then Z9 or Z12 would be likely categorizations, depending on its management regime. It would be difficult to justify an A categorization.



Z4-4: Intuitively, this dead tree should be categorized as Z4. However, assessors should always be mindful of ecological issues, which could require this tree to be categorized as A4.



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Z5: Severe damage and/or structural defects where a high risk of failure cannot be satisfactorily reduced by reasonable remedial care

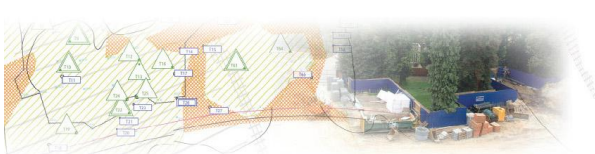
Guiding principle for subcategories Z4, Z5 and Z6: Trees that could be removed despite statutory protection because they are in poor health, poor structural condition or unstable fall into these subcategories. The time limit for these definitions to apply is within 10 years of assessment. The assessor must imagine the development of the tree over the next 10 years, with its existing surroundings remaining unchanged. If that visualization reveals a high risk of death, decline or failure that is unlikely to be satisfactorily addressed by remedial action, then this group of subcategories is appropriate. Trees identified as having a high risk of failure at the time of assessment, and that may need urgent attention following a detailed risk assessment, would be designated ZZ.

Severity of damage and defects: ‘Severe’ means so bad that there is no realistic chance of the tree recovering, even with extensive remedial work. In many cases, the risk of failure can be reduced by dramatic reduction in tree size, but this has severe health, maintenance cost and amenity implications, so it would not normally be considered a sustainable management option.

Unbalanced trees: A common example of Z5 is a severely unbalanced tree within a group that will be particularly vulnerable in adverse weather conditions and competition from adjacent trees mean there is no hope of remedial works resulting in an improvement. Of course, it could be cut to a tall stump and the risk would be reduced, but that option is often aesthetically unacceptable, costly to maintain and may take up space that a new tree with better potential could be using.

Topped trees: Topped trees, i.e. trees that have been significantly reduced in size leaving large pruning wounds, are not automatically Z5, although there is an obvious temptation. Species prone to decay, such as willow and poplar, often have severe decay at the origin of vigorous re-growth, creating a high risk of sprout failure in adverse weather conditions. Z5 is clearly appropriate for them. However, this needs to be a careful judgment because topping in itself does not necessarily condemn a tree to this subcategory. Some species such as plane, oak and lime may be better at coping with this treatment and often are able to mature with little adverse impact on risk. Assessors should use local knowledge of failure patterns to decide if a particular species is prone to these sorts of problems. If remedial works will allow a tree to be retained with no significant adverse impact on amenity, health or maintenance costs, then it does not fit in Z5.

Pollarded trees: Where a tree is regularly pruned on a short cycle and the pruning wounds are relatively small, i.e. pollarded, it is unlikely that it could be reasonably placed in this subcategory. An exception would be structural defects that affect the integrity of the pollard framework, i.e. there was a high risk of supporting scaffold branches or trunk failure rather than the loss of sprouts. Generally, traditionally pollarded trees have the potential for long-term retention and it is more appropriate to categorize them as A rather than Z5. This scenario is explored further in the explanations for Z12, where maintenance costs become an issue.



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Z5-1: The tree to the left with the red box showing the close up of photo Z5-2 is not Z5 because the defects are not severe and there is unlikely to be a high risk of structural failure. In contrast, the right tree with the yellow box showing the close up of photo Z5-3 is Z5 because the defects are so severe that there is likely to be a high risk of structural failure.



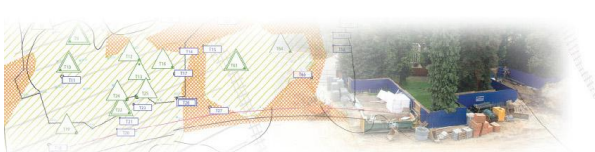
Z5-2: The base of the tree with the red box in photo Z5-1. Although the multiple stems could be considered defects, there are no obvious indications that there is a high risk of failure, which would make this tree an A2 and not Z5.



Z5-3: The base of the tree with the yellow box in photo Z5-1. In contrast to the adjacent tree, the old failure wounds indicate that there is a high risk of failure, which would make this tree Z5.



Z5-4: This mature pine tree is severely unbalanced with no realistic prospect of the situation ever improving. If the assessor's judgment is that there is a high risk of failure, it would be appropriate to record this tree as Z5. Note, this assessment would be the same irrespective of location, i.e. if it were in this park or in a woodland with no public access. This is because the Z5 subcategory focuses on the potential of the tree to fail and not the risk of harm, which is a risk assessment issue.



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Z5-5: Fungal brackets of this size usually mean there is no realistic hope of short-term retention, which makes it Z5.



Z5-6: Some species like this poplar decay very quickly after harsh pruning, which leaves large side stems weakly attached and no realistic option but to categorize them as Z5.



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Z5-7: It would be inappropriate to categorize genera such as *Platanus* that are known to recover well from hard pruning as Z5 on the basis that the pruning may adversely affect their structural condition. Such trees can often be retained well into the long term and could reasonably be categorized as A.



Z5-8: However, where such hard pruning is known to cause severe decay problems in genera such as *Populus*, Z5 may be appropriate if the assessor judges that the pruning may result in a high risk of failure.



Z5-9: This tree is so severely unbalance, with no prospect of improving, that it would warrant Z5 and possibly ZZ designation if the assessor decided and urgent risk assessment was needed.



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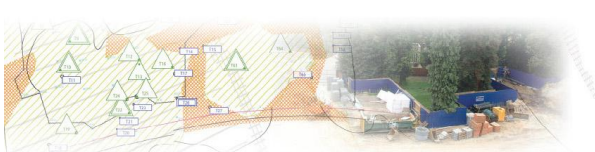
Z6: Instability

Guiding principle for subcategories Z4, Z5 and Z6: Trees that could be removed despite statutory protection because they are in poor health, poor structural condition or unstable fall into these subcategories. The time limit for these definitions to apply is within 10 years of assessment. The assessor must imagine the development of the tree over the next 10 years, with its existing surroundings remaining unchanged. If that visualization reveals a high risk of death, decline or failure that is unlikely to be satisfactorily addressed by remedial action, then this group of subcategories is appropriate. Trees identified as having a high risk of failure at the time of assessment, and that may need urgent attention following a detailed risk assessment, would be designated ZZ.

Poor anchorage: Trees can become poorly anchored because of soil erosion through climatic factors (water or wind), wear from traffic (pedestrian or vehicular), changing soil conditions (increasing wetness), sudden/severe physical stress from storms and root damage (decay or severance reducing root strength). In some cases, i.e. storm induced instability, there may be a realistic chance of recovery, and Z6 may be premature. However, if excessive remedial work is required, i.e. a severe size reduction that may lead to structural problems, it is likely that Z6 would be appropriate.

Unavoidable disturbance: The authorized removal or alteration to structures near trees can disturb roots and result in increased vulnerability in storm conditions. Even if the tree may be stable with the structure in place, if there is a realistic chance that the structure would need to be removed and this will disturb roots, then Z6 may be appropriate. A typical example would be a tree right next to an old building base with a deep foundation in a garden area where the structure poses a high risk during the normal garden use and its removal is justified. However, the tree will have developed its anchorage with the structure in place and removing the structure may destabilize it, in addition to damaging roots. Z6 would be correct for such a tree irrespective of how good it was in all other respects.

Increased exposure: Alterations in exposure to the wind occurs because of changes in the shelter provided by adjacent objects such as buildings or other trees. This primarily applies to maturing and mature trees that have greater sail areas to catch the wind and established root systems that are less able to adapt to changes than younger trees. This often applies to groups of trees where one large dominant individual will be lost because of poor health or a structural problem, dramatically exposing the remaining trees in the group.



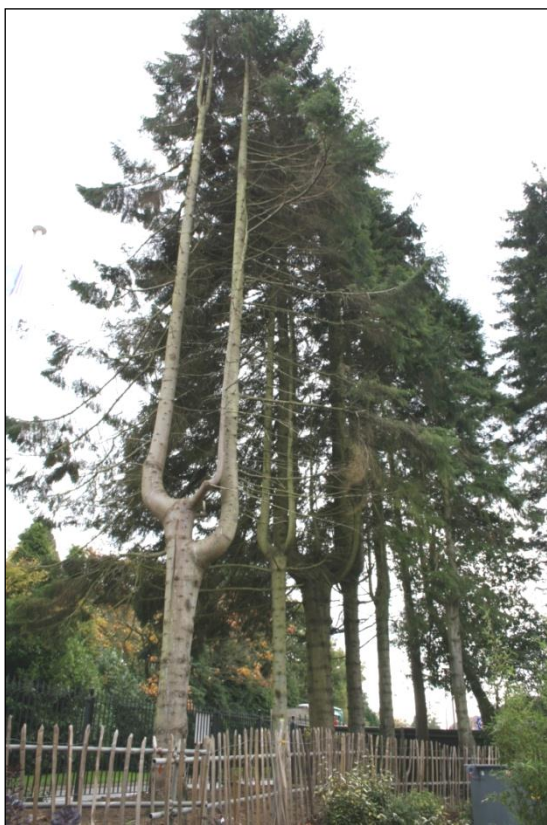
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Z6-1: Edge trees of a group that suddenly become exposed due to the loss of shelter would be likely candidates for Z6. This may mean that all the trees further into the remaining group have to also be Z6 if they are going to be vulnerable and it is assessed that there is a high risk of failure.



Z6-2: Where trees have grown close to structures and then that structure needs to be removed, the resulting and unavoidable root damage may be so severe that the tree cannot be retained. Although it would be an A tree under any other circumstance, the authorized disturbance means that it is Z6.



Z6-3: Rows of trees that suddenly lose shelter from removed trees will be vulnerable in storm conditions and Z6 is likely to be appropriate.



Z6-4: This tree has multiple problems, but suspect stability because of soil erosion from around structural roots may justify Z6.



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Z7: Excessive, severe and intolerable inconvenience to the extent that a locally recognized court or tribunal would be likely to authorize tree removal

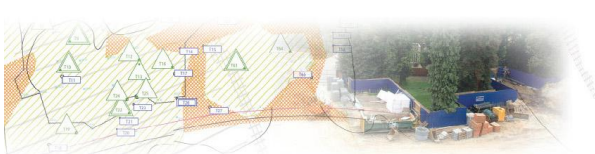
Guiding principle for subcategories Z7 & Z8: Trees that could be removed with consent, despite statutory protection, because they are having an unacceptable impact on the people living near them, fall into these subcategories. The time limit for these definitions to apply is within 10 years of assessment. The assessor must imagine the conditions around the tree remain as they are at the time of inspection and then visualize the development of the tree over the next 10 years. If that visualization reveals intolerable levels of inconvenience or damage are likely, which cannot be rectified by minimal remedial works, then this group of subcategories is appropriate. Trees causing severe inconvenience or damage and needing urgent attention at the time of assessment would be designated ZZ.

Establishing thresholds of acceptable levels of inconvenience: In its broadest sense, inconvenience is the interference with the authorized use of land. In relation to trees, it can be in the form of roots disrupting landscaping and hard surfacing, parts of trees physically preventing access, tree debris such as leaves and fruit falling and tree crowns causing excessive shade or dominance. The principles for establishing what are acceptable levels of inconvenience are the same irrespective of the cause. In a community context, it is generally accepted that trees provide a significant benefit to society and it is reasonable for individuals to tolerate some level of inconvenience from their presence. However, the precise location or value of these thresholds is not always obvious and is often a subjective interpretation rather than a definitive point. There will always have to be a balancing of the benefit to the community, weighed against the inconvenience suffered by the individual. What is an acceptable, tolerable or reasonable level of inconvenience is often a matter of judgment for each specific situation, tempered by experience and common sense. This, in turn, should be guided by court, tribunal and planning decisions, that have made informed judgments on these issues.

Dominance: Very large trees close to residential buildings can dominate to the extent that the disbenefit from the anxiety of the occupants outweighs the benefits from visual amenity, etc. However, this would need to be excessive and extreme to warrant Z7.

Staining from corrosive leachate and honeydew: Regular and severe staining caused by the corrosive leachate from fallen debris or honeydew to a swimming pool surround may warrant Z7 because the stark contrast in colours creates a dirty impression. However, similar staining on a path or drive surface may be less intrusive on daily life and Z7 is unlikely to be appropriate. Cars are an expensive commodity and it is unreasonable to expect owners with limited parking to tolerate excessive adverse effects on the paint finish. In a situation where there is no other parking option, then Z7 may be a valid reason for removing the tree if the inconvenience is excessive. However, if there is sufficient space to park elsewhere, then Z7 may be inappropriate. Circumstances where Z7 can be justified are unusual and all other management options must be explored before Z7 becomes appropriate.

Falling debris: Falling leaves blocking gutters causing them to be cleaned once a year is not that much of an inconvenience in the context of the wider benefits that trees impart, and Z7 would not be



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warranted for that reason alone. However, fruit dropping on a drive and making a mess or falling on a bedroom roof and interrupting the occupants' sleep may be such an intrusion on the normal use of the property that Z7 is warranted.

Making the decision: Assessing inconvenience is almost entirely a subjective judgment, based on experience and understanding of what is perceived as being reasonable and unreasonable in a normal situation. As with all these judgments, a simple test is to imagine an independent inspector/judge/adjudicator has to decide if the levels of inconvenience are intolerable, i.e. significantly beyond what a normal person would be expected to tolerate. If they are, then the tree is Z7; if they are not that bad, then the tree belongs in another subcategory.



Z7-1: This tree is causing such excessive shading to the adjacent building that it would be very difficult to resist its removal because of the high level of inconvenience. This tree is unlikely to be assessed as worthy of retention because of the adverse impact it is having on the living/working conditions of adjacent occupiers, and Z7 may be appropriate.



Z7-2: Severe staining from honeydew caused by insects or a corrosive leachate from fruit and leaves may be a sufficient inconvenience to warrant tree removal and a Z7 categorization if the area affected had an important social function such as a swimming pool. However, the staining to the path above, although severe, is unlikely to warrant Z7.



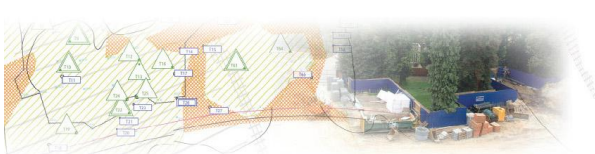
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Z7-3: Although this is a big tree, the inconvenience it is causing to the residential occupants right next to it may be deemed so acute that Z7 could be justified in any redevelopment proposals. If it was proposed to remove the existing building completely, it is unlikely that it could be done without significant damage to the adjacent tree and so Z6 may be an equally appropriate categorization.



Z7-4: The direct contact with the building, the excessive debris drop onto the roof and the severe pruning that would be required to alleviate these problems means that Z7 could be justified.

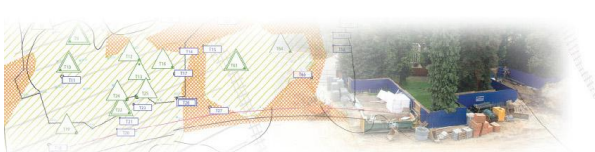


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Z8: Excessive, severe and intolerable damage to property to the extent that a locally recognized court or tribunal would be likely to authorize tree removal

Guiding principle for subcategories Z7 & Z8: Trees that could be removed with consent, despite statutory protection, because they are having an unacceptable impact on the people living near them, fall into these subcategories. The time limit for these definitions to apply is within 10 years of assessment. The assessor must imagine the conditions around the tree remain as they are at the time of inspection and then visualize the development of the tree over the next 10 years. If that visualization reveals intolerable levels of inconvenience or damage are likely, which cannot be rectified by minimal remedial works, then this group of subcategories is appropriate. Trees causing severe inconvenience or damage and needing urgent attention at the time of assessment would be designated ZZ.

Damage as opposed to inconvenience: Where more serious damage occurs to property from root action, then court or tribunal judgments on liability may help to focus on what level of damage is deemed tolerable by society. The most common example is direct damage from roots, trunks and branches to structures and surfacing. Repairs to walls may require such extensive excavation and cutting of roots that the tree cannot be retained. However, the use of innovative techniques may reduce root damage, but still produce a viable boundary, allowing the tree to be retained. Root damage to surfacing is often a sustainable reason for removal if rectifying the damage will significantly adversely affect the tree. In contrast, the potential for roots to deform surfacing would be a less reliable basis for allocation to Z8 because it is so unpredictable. As a general rule, there would need to be good evidence of potential for ongoing damage with little scope for remedial works before a tree could be reliably recorded as Z8.



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Z8-1: Although this tree is only causing limited damage to the drainage infrastructure now, this is a vigorous species with the potential to significantly increase in size and so the potential for severe future damage is high. If this is likely to happen within 10 years and there was no viable alternative to cutting roots or moving the drain, then it is likely to be a valid candidate for Z8.



Z8-2: This tree is touching the fuel tank and displacing it from its supports. If the fuel tank cannot be reasonably moved, then this tree could justifiably be Z8.



Z8-3: This paving disruption is severe. If it could not be easily repaired without excessive damage to tree roots, then Z8 is likely to be justified.



Z8-4: Although this surfacing disruption is severe, it would be relatively easy to remove pavours and extend the soft landscaped area around the trunk. It would be inappropriate to categorize this tree as Z8.



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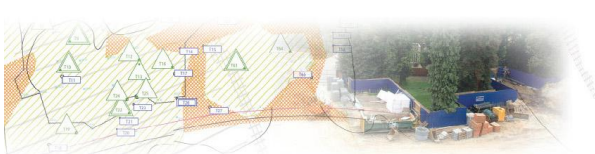
Z9: Severe damage and/or structural defects where a high risk of failure can be temporarily reduced by reasonable remedial care

Guiding principle for subcategories Z9–Z12: Trees that could be removed with consent, despite statutory protection, for responsible management reasons focused around improving the conditions for individual trees and the structure of the wider tree population. The time limit for these definitions to apply is within 10 years of assessment. The assessor must imagine the conditions around the tree remain as they are at the time of inspection and then visualize the development of the tree over the next 10 years. If that visualization reveals the risk of failure can be temporarily reduced to acceptable levels by remedial works or that removal would deliver significant management benefits to the wider tree population, then this group of categories is appropriate. The ZZ designation cannot be applied to these trees because the need for removal is not urgently required for safety or inconvenience reasons.

Severity of damage/defect: Z9 is similar to Z5, but the defect is not so severe that remedial works have to be extensive and urgently applied. Quite often, there are less severe defects that are so bad there is no realistic potential for the tree to improve, but it could be retained in the short term with some significant remedial works. This would only be seen as a temporary measure because to continue applying the same principle would not be cost effective compared to replacement. A typical example would be a tree with a deteriorating cavity that will clearly prevent it ever improving its condition or contribution to amenity. However, substantial thinning and reduction would allow it to be retained in the short term. This could allow other replacement trees to establish or better adjacent trees to develop to buffer its eventual loss. The benefit of retaining a tree in the short term might outweigh the cost of doing the works as a one-off, but not on a regular basis. Another example could be a tree that has recently suffered severe trunk damage with no hope of long-term retention because of the inevitable decay that will develop over time. However, it could be retained in the short-term until the decay becomes so advanced that it has to be removed.

Overgrown hedges and rows of trees: Z9 can be applied to rows of trees that may have been a hedge but, through neglect, their close spacing and the inevitable tall, thin form has made them vulnerable to adverse weather events. Rows of trees fall into Z9 if they are clearly unsuitable for long-term retention, but could be retained in the short-term through remedial works. It would not be appropriate to apply this to a row of trees that could mature with stability as a group even though, individually, they may be poorly formed, i.e. tall, thin or unbalanced.

Unbalanced crowns: Unbalanced or asymmetrical crowns are common and do not represent a valid reason for recording Z9 unless there is a high risk of failure. The imbalance has to be so severe that the tree is vulnerable to storm damage and failure because of excessive loading. If there are no reasonable remedial works that can temporarily allow its retention, then the tree belongs in Z5. However, if an acceptable level of risk can be established by limited remedial works that would allow the tree to be retained in the short term, then Z9 is likely to be more appropriate.



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Z9-1: Although these trees have unbalanced crowns, it is obvious that they have been like this for a long time and it would be inappropriate to class them as Z9. These trees would be A1 or A2, depending on whether any remedial works are appropriate.



Z9-2: In contrast to photo Z9-1, this tree is severely unbalanced and, in the context of the likely root restrictions caused by the wall, it may be a candidate for Z9.



Z9-3: In the context of the known problems with abrupt bends in trunks in conjunction with pruning wounds, this tree would be a likely candidate for Z9.



Z9-4: Although part of a group, this edge tree is so severely unbalanced, with very little realistic opportunity to redress the imbalance beyond the short-term, that it is a likely candidate for Z9.



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Z9-5: Although individually severely unbalanced, collectively these trees form a stable group with a very good potential for long-term retention. It would be inappropriate to classify these trees as Z9; A2 is likely to be more appropriate.



Z9-6: This is a marginal tree. Although it is severely unbalanced, it is likely that it could be retained with some remedial works and A2 might be most appropriate. However, this is a matter of judgment and an assessor with local knowledge may decide this tree cannot be reliably retained, so Z9 may be defensible.



Z9-7: This is another marginal tree. However, unlike the tree in photo Z9-6, it is mature and has little space to develop a more balanced crown. Furthermore, severe remedial pruning is likely to be necessary to reduce the risk of failure in storm conditions. Although it could be categorized as A2, it is likely that the necessary remedial works will compromise its health and that might be a sufficiently good reason to justify Z9.



Z9-8: Although this tree has severe structural defects and has been heavily pruned with the prospect of similar repeated maintenance requirements, it is clearly very old and likely to have some historic importance. It would be inappropriate to classify this tree as Z9. It could be reasonably categorized as A2 or A3.



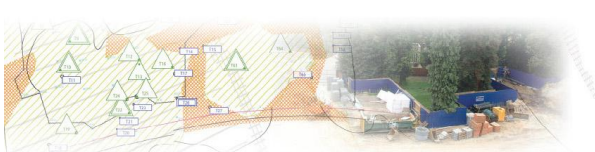
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Z10: Poor condition or location with a low potential for recovery or improvement

Guiding principle for subcategories Z9–Z12: Trees that could be removed with consent, despite statutory protection, for responsible management reasons focused around improving the conditions for individual trees and the structure of the wider tree population. The time limit for these definitions to apply is within 10 years of assessment. The assessor must imagine the conditions around the tree remain as they are at the time of inspection and then visualize the development of the tree over the next 10 years. If that visualization reveals the risk of failure can be temporarily reduced to acceptable levels by remedial works or that removal would deliver significant management benefits to the wider tree population, then this group of categories is appropriate. The ZZ designation cannot be applied to these trees because the need for removal is not urgently required for safety or inconvenience reasons.

Improving age class structure: An essential element of effectively managing tree populations is to ensure that individuals with little potential to improve are replaced to foster a wide range of age classes. The ultimate objective is to ensure that there are always young and maturing trees developing to replace mature trees as they decline and have to be removed. Z10 allows trees to be removed that have little potential to improve and their replacement would diversify the age class structure. Typical reasons that make trees unsuitable for long-term retention include poor health, severe imbalance and tall, thin form. However, the problems are not so severe that there is a high risk of failure and they cannot be categorized as Z for those grounds. Z10 is for these trees and relies on the principle of sustained amenity to justify the allocation. By taking up space where new trees could be growing, individuals with a low potential to improve are impeding the desirable objective of an uneven age class structure in the wider population. It follows that replacement trees would normally be small, which would then fall into Z1. As set out in those explanations, the precise location on the site is not often that critical so these replacements would not generally be considered worthy of being a material constraint.

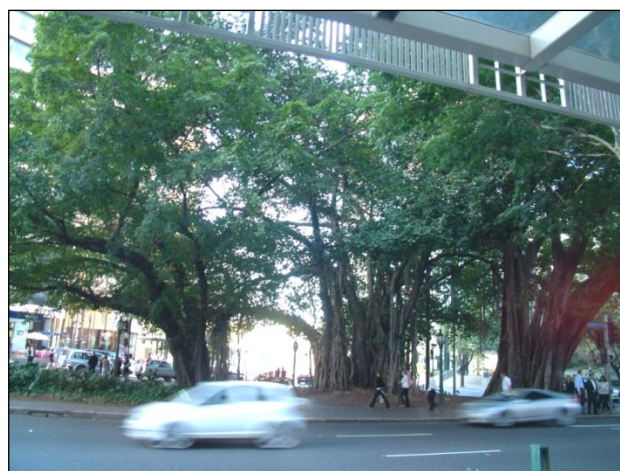
Trees located close to other trees or buildings: Where potentially large trees grow very close to buildings, their crowns often become extremely asymmetrical to the extent that they eventually have to be removed or severely pruned to reduce the risk of failure. Similar severe crown asymmetry can develop in trees on the edge of groups or dominated by larger trees. Z10 is for these situations where remedial works will only prolong the retention of a tree that is unsuitable for its location.



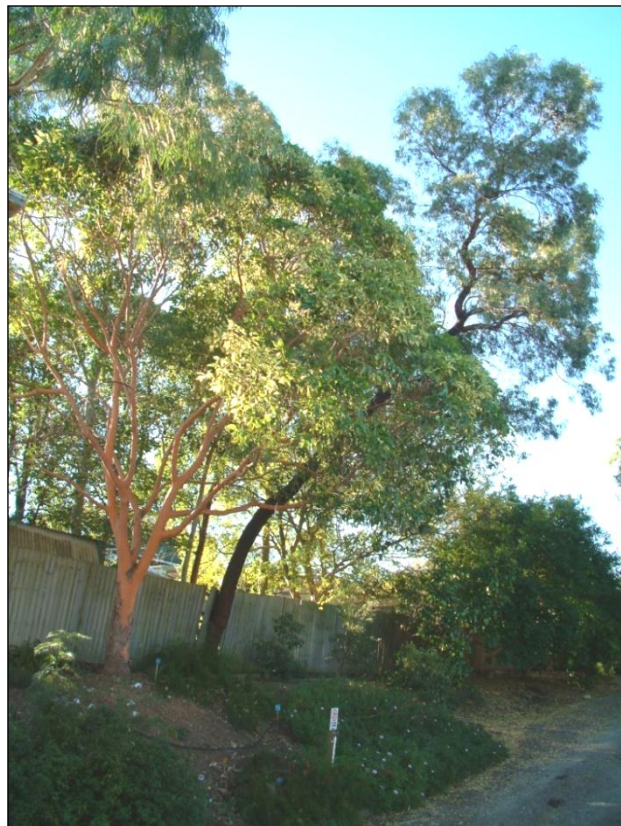
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Z10-1: Although this tree is dominated by the adjacent trees seen in photo Z10-2, it is clearly an integral part of a group and it would be inappropriate to classify it as Z10.



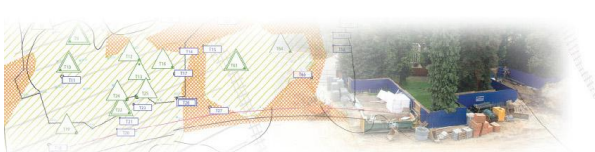
Z10-2: The tree in photo Z10-1 is on the left side of the group. As it is likely to require some remedial works, A2 is probably an appropriate classification.



Z10-3: The tree on the right is so severely unbalanced with no potential to improve that Z10 would be easily defensible. However, the tree on the left would be A1, and possibly AA1 if it had the potential to grown much larger, without significant maintenance.



Z10-4: These trees have nowhere to grow except more in the same direction. They have no potential for retention and Z10 would be justified.



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Z10-5: Trees dominated by existing buildings with little potential for improvement would be Z10. This does not automatically mean they have to be removed, but they would not warrant special consideration in any redevelopment proposals.

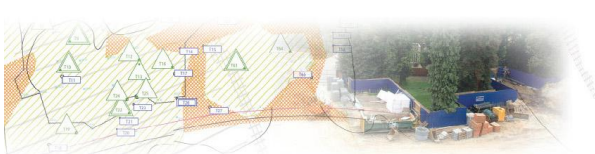


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Z11: Removal would benefit better adjacent trees

Guiding principle for subcategories Z9–Z12: Trees that could be removed with consent, despite statutory protection, for responsible management reasons focused around improving the conditions for individual trees and the structure of the wider tree population. The time limit for these definitions to apply is within 10 years of assessment. The assessor must imagine the conditions around the tree remain as they are at the time of inspection and then visualize the development of the tree over the next 10 years. If that visualization reveals the risk of failure can be temporarily reduced to acceptable levels by remedial works or that removal would deliver significant management benefits to the wider tree population, then this group of categories is appropriate. The ZZ designation cannot be applied to these trees because the need for removal is not urgently required for safety or inconvenience reasons.

Extent of interference: Z11 applies to trees in groups where one individual is destructively interfering with another. The judgment of which is the better tree is subjective and would be informed by which tree had the best potential for sustainable retention. An obvious example is one tree growing up through another and directly rubbing, causing damage. Retaining both would probably result in the loss of each, whereas removing one may allow the other to achieve its full potential. Another example would be one tree shading and preventing the sustainable development of a neighbour, to the extent that both trees would be prematurely removed if left unmanaged. The removal of one tree may be justified if it allowed the remaining tree to reach its full potential. If both trees could be retained as a group and achieve their full potential, then it is not appropriate to categorize them as Z11.



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Z11-1: Although the tree on the left is unbalanced and generally suppressed by the tree on the right, its removal would be likely to compromise the better tree and so Z11 would be inappropriate. Both trees should be A2. Note they would not classify as AA because of the high maintenance requirement.



Z11-2: This palm is destructively interfering with the adjacent trees and it would be reasonable to make it a Z11, with the other trees probably A1 or A2.



Z11-3: This palm is destructively interfering with the taller tree and will continue to do so. It would be reasonable to make it a Z11, with the adjacent trees A1 or A2.



Z11-4: The tree on the right is in severe decline and severely unbalanced. Its removal would benefit the tree on the left without significantly compromising its stability. The left tree would be A1 or A2 and the right tree could reasonably be Z11.



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Z12: Unacceptably expensive to retain

Guiding principle for subcategories Z9–Z12: Trees that could be removed with consent, despite statutory protection, for responsible management reasons focused around improving the conditions for individual trees and the structure of the wider tree population. The time limit for these definitions to apply is within 10 years of assessment. The assessor must imagine the conditions around the tree remain as they are at the time of inspection and then visualize the development of the tree over the next 10 years. If that visualization reveals the risk of failure can be temporarily reduced to acceptable levels by remedial works or that removal would deliver significant management benefits to the wider tree population, then this group of categories is appropriate. The ZZ designation cannot be applied to these trees because the need for removal is not urgently required for safety or inconvenience reasons.

Degree of cost: Z12 primarily applies to existing trees that are not suited to their location and require regular maintenance to maintain acceptable levels of management. As a general principle, all trees will incur some management costs and these would normally not be a valid reason for removal. However, as those costs increase, their acceptability decreases to a point where it will be more cost effective to plant a new tree more suited to the location, rather than incur the burden of repeated and excessive costs indefinitely. Typical examples include topped trees with excessive decay, pollarded trees to reduce subsidence risk, trees beneath power lines and trees close to buildings, roads and paths. All these examples will require high levels of maintenance that may not be financially acceptable unless the benefits that arise from retaining the trees are particularly high. This is a matter of judgment and may vary widely. For a tree to be appropriately allocated to Z12, there would have to be a demonstrable disproportionate cost compared to the benefits it delivers.



Z12-1: Power lines directly above potentially large trees leaves no scope for them to achieve their full potential and results in a commitment to regular and intensive management, so Z12 would be defensible.



Z12-2: Similarly, this tree will be expensive to maintain with very little benefit to the community, so Z12 may be justified.



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A1: No significant defects and could be retained with minimal remedial care

Guiding principle for all category A trees: Trees that survive the 12 tests for category Z remain category A. There is no direct link between category A trees and good form. Category A trees can be poorly formed providing that the principles of minimizing risk of structural failure, minimizing inconvenience and complying with good management objectives are not compromised.

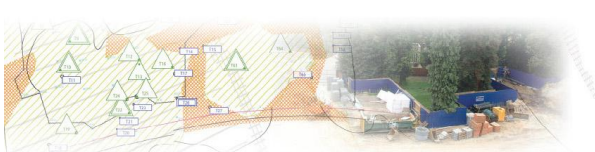
A1 trees do not require any specific remedial works above those that would be required for normal maintenance. They would generally be isolated individuals although this should not preclude trees in groups where minimal works are required. Large or potentially large A1 trees with minimal maintenance requirements can be identified by the AA designation at the discretion of the assessor.



A1-1: Although this tree passes all the Z tests and so is A1, it does not have the potential to significantly exceed its present size and so it could not be designated AA.



A1-2: Maturing individuals with few defects and the potential to develop into large trees with minimal maintenance requirements can be AA, at the discretion of the assessor.



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A1-3: Prominent mature individuals with very few defects would warrant the AA designation, at the discretion of the assessor.



A1-4: Although obviously A trees, the relatively high maintenance requirement makes A1 an unlikely categorization and AA inappropriate. A2 is likely to be appropriate for most.

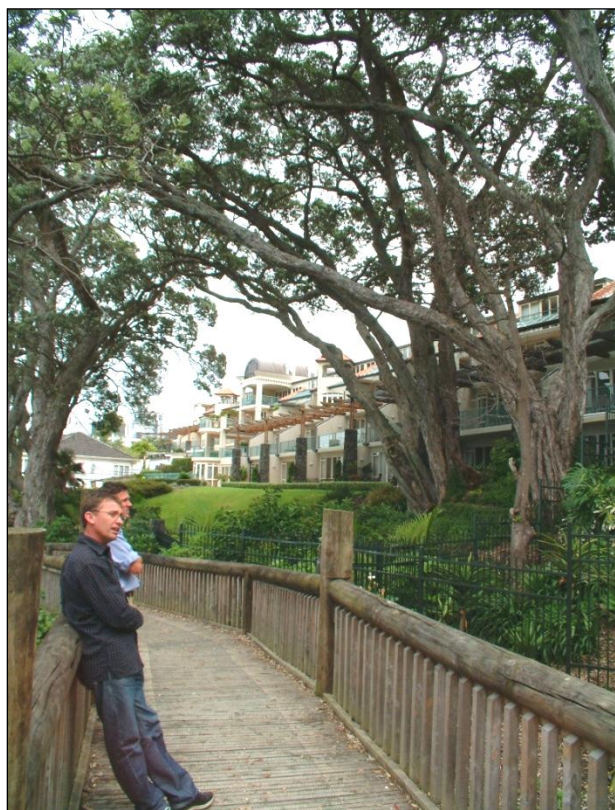


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A2: Minor defects that could be addressed by remedial care and/or work to adjacent trees

Guiding principle for all category A trees: Trees that survive the 12 tests for category Z remain category A. There is no direct link between category A trees and good form. Category A trees can be poorly formed providing that the principles of minimizing risk of structural failure, minimizing inconvenience and complying with good management objectives are not compromised.

A2 trees are individuals with minor defects that could recover from remedial works without an ongoing commitment to excessive and repeated intervention, and be retainable into the long-term, i.e. pollards with little decay. Poorly formed individuals that make up stable groups would be suitable for A2 if they pass all the Z tests. Due to the increased maintenance requirement, A2 trees cannot be given the AA designation that can be applied to A1 trees.



A2-1: Groups of individually poorly formed trees where the risk of structural failure can be reduced to acceptable levels with minor remedial works, are A2. However, the requirement for ongoing maintenance to minimize the risk of structural failure precludes them from being A1, and the AA designation.



A2-2: Individually, these trees would be struggling to make A trees, but together, they form a stable group and are clearly A2. Despite their visual prominence, the requirement for ongoing maintenance to minimize the risk of structural failure precludes them from being A1, and the AA designation.



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A2-3: Although this tree has an asymmetrical crown, if this does not result in unacceptable risk of structural failure, then A2 would be defensible. It would not be A1 because it is likely that there would be an ongoing maintenance commitment to minimize the risk of structural failure.



A2-4: Although individually flawed, as a group, all these trees have the potential for long-term retention, and A2 would be justified.



A2-5: If the risk of structural failure can be reduced to acceptable levels through minor remedial works, then A2 would be defensible.



A2-6: Although some of these stems are severely unbalanced, if the risk of structural failure can be reduced to acceptable levels through minor remedial works, then A2 would be defensible.



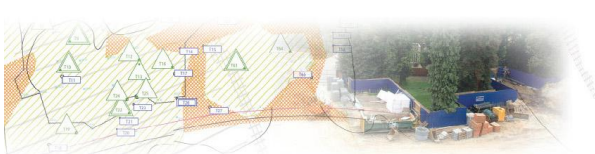
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A2-7: Structural defects such as included bark do not automatically prevent a tree from being A2. This mature tree in an exposed location has survived many years without structural failure. If it is assessed that there is a low risk of structural failure within the next 10 years, then A2 would be appropriate.



A2-8: Although this is an important group of trees, they all have defects, which precludes them from being A1. However, if the assessor believes they are all playing a role in the stability of the group and removal of any would predispose the remaining trees to structural failure, then A2 for all the trees would be defensible.



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A3: Special significance for historical, cultural, commemorative or rarity reasons that would warrant extraordinary efforts to retain for more than 10 years

Guiding principle for all category A trees: Trees that survive the 12 tests for category Z remain category A. There is no direct link between category A trees and good form. Category A trees can be poorly formed providing that the principles of minimizing the risk of structural failure, minimizing inconvenience and complying with good management objectives are not compromised.

This subcategory is intended for trees that would normally be categorized as Z because they are in such poor health and/or structural condition, but they have some special characteristic that justifies extraordinary efforts to retain them. 'Special' should be taken in its everyday use context of meaning unusual, exceptional, distinctive or extraordinary. In most instances, this special status would override the decision to remove and allow a high priority to be placed on finding extraordinary, i.e. unconventional, innovative or unusual, means of establishing acceptable levels of risk. Generally, this is likely to involve reducing the potential for harm by restricting access or by moving or protecting valuable targets.



A3-1: Although in poor health, this tree has local historical significance, which would justify A3.



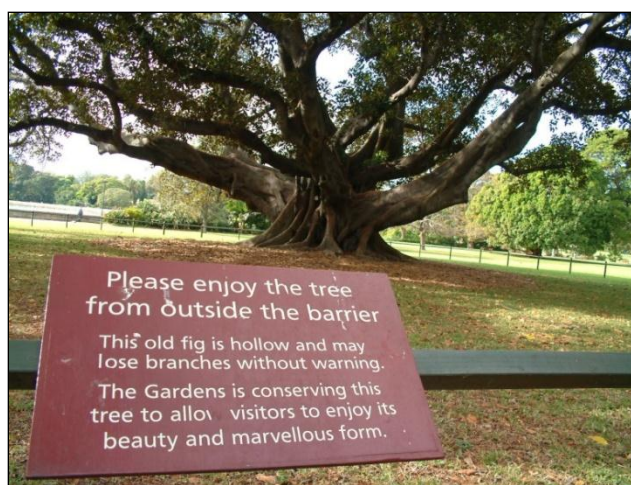
A3-2: Until they become more commonly planted, Wollemi pine could be A3, although this one is so small it could be moved and Z1 may be more appropriate.



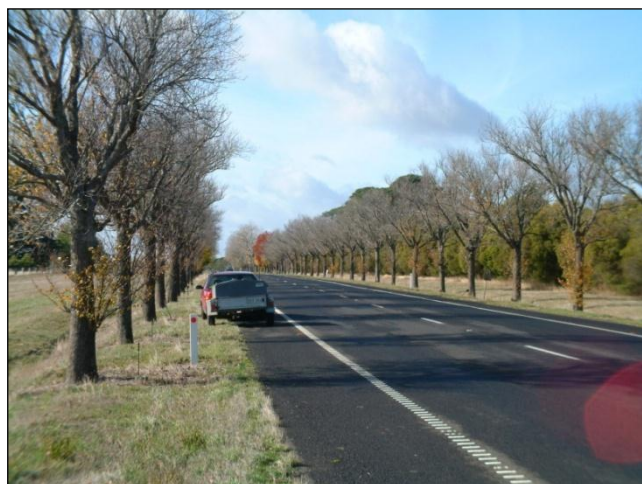
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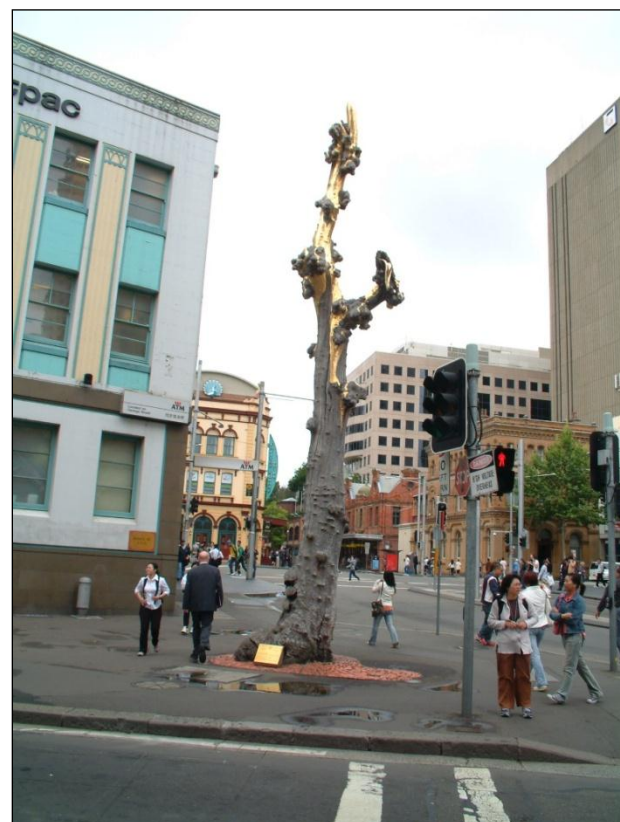
A3-3: Some trees are so big, old and magnificent that AA would be the obvious choice. However, this tree has serious structural defects, which makes A3 the most appropriate categorization.



A3-4: In this case, the tree was fenced off with explanatory notices and the levels of risk were significantly reduced by restricting access.



A3-5: This avenue, with each tree commemorating an individual soldier, would justify an A3 categorization.



A3-6: Even in the most urbanized areas, trees can have sufficient cultural importance to warrant an A3 categorization. It is likely to be inappropriate to discount the importance of this tree in any redevelopment proposals.



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A4: Trees that may have legal protection for ecological reasons

Guiding principle for all category A trees: Trees that survive the 12 tests for category Z remain category A. There is no direct link between category A trees and good form. Category A trees can be poorly formed providing that the principles of minimizing risk of structural failure, minimizing inconvenience and complying with good management objectives are not compromised.

Valuable habitat and endangered species are likely to be protected by legislation and could be a material constraint on the type and timing of changes that can occur on a site. Trees are an integral part of many ecosystems and should be recognized in a full constraints assessment. This assessment should be carried out by an ecologist with expertise in this field. If an ecological assessment has not been carried out by the time of the arboricultural survey, the TreeAZ assessor should identify potential habitat trees as A4. This highlights that the tree may be a potential ecological constraint and further, specialist assessment should be sought. TreeAZ assessors should be aware of local ecology issues, although they would not be expected to be expert in them.



A4-1: In an overall planning context, this tree could be as important dead as it was alive and its retention should be given appropriate weight in redevelopment proposals. A4 is the way to make sure it is properly considered.



A4-2: Big, old trees in the process of structural disintegration are the most likely candidates for A4.



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A4-3: Ancient native trees provide a huge ecological resource that is only just beginning to be fully appreciated. Although severe structural defects and a high risk of failure prevent such trees being A1 or A2, an A4 categorization allows them to be identified as potentially important and is the trigger for specialist evaluation.



A4-4: Historically, the value and importance of dead trees has not been fully recognized. However, increasing public awareness of the benefits of an ecologically responsive approach to management means that an A4 categorization can have widespread support.



A4-5: Severe structural defects do not automatically condemn a tree to Z categorization. The A4 categorization is an alert that such trees may be important and should be assessed by an ecologist before any final planning decisions are made.



A4-6: The ecological niches found in the trunks of very old trees are a rare habitat and may warrant an A4 categorization as the trigger for further, specialist investigation.