Managing trees in the planning process

TreeAZ Information Note 1 *(Australia and New Zealand)*

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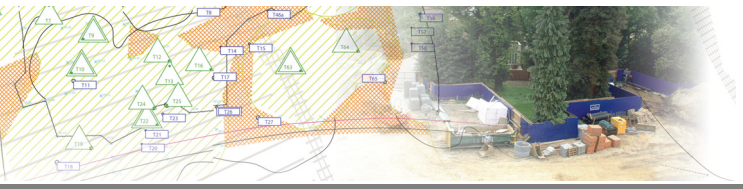
Preface

This Information Note describes emerging best practice in the UK that may be appropriate for use in Australia and New Zealand. It is published as a download that municipal authorities can use to insert directly into their local sustainability strategies. Its content is not subject to copyright and can be copied freely for use, with or without modification, but its source should be acknowledged. It should be read in conjunction with the TreeAZ Information Note 2, *Presenting tree information on plans,* that can also be downloaded on the same terms.

It has been produced by Barrell Tree Consultancy (BTC) (www.barrelltreecare.co.uk) and is distributed through their tree assessment website (www.TreeAZ.com). The BTC business is based in the UK, although it does have a background of training and development in other countries. BTC has no direct income through the publication of its planning guidance and finances the development of its tree assessment methods through its UK business. The objective of these endeavors is to enhance the international dissemination of best practice guidance through the BTC websites.



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TreeAZ Information Note 1: Managing trees in the planning process

1 INTRODUCTION

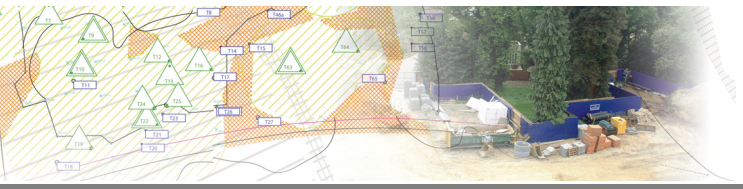
1.1 **Purpose of this document and relevant references:** This document describes emerging UK best practice that maybe appropriate for incorporating tree issues into the planning process in Australia and New Zealand. In addition to the many published papers and articles dealing with trees in a planning context, two of the most relevant references currently available are:

- Australian Standard AS 4970 (2009): *Protection of trees on development sites* (www.saiglobal.com)
- BS 5837 (2005): *Trees in relation to construction – Recommendations* (www.bsi.gov.co.uk)

1.2 **Definitions and explanation of terms:** As planning policy and tree management systems have evolved in the context of global warming, an array of new terms and phrases have emerged that require clear definition to avoid confusion and misunderstanding. Explaining and describing this, often unfamiliar, language is useful because it helps establish consistency, which is an essential element of effective communication between the many parties who have to deal with tree information in the planning process. Important terms include:

- **Arboricultural constraints:** The restrictions that trees of identified importance place on the use of an area of land.
- **Arboricultural impact appraisal:** An appraisal or assessment of the impact that a development proposal will have on trees, and the knock-on effect that will have on local landscape character.
- **Arboricultural method statement:** A formal document, comprising of explanations and specifications that cross-reference a plan, to explain the detail and timing of all protective measures and special precautions relating to a development proposal that may adversely affect trees identified for retention.
- **Climate change adaptation:** Taking action to minimize the effects of global warming. Increasing urban tree canopy cover is a form of adaptation because it is likely to make living conditions more comfortable for urban people.
- **Climate change mitigation:** Taking actions to reduce greenhouse gas emissions and to enhance sinks aimed at reducing the extent of global warming.
- **Material consideration:** A matter of importance that has been identified in a planning process as warranting careful assessment when deciding the outcome of a planning application. All trees are material considerations, even dead and dying ones, but only those of importance become material constraints.
- **Material constraint:** A material consideration that has been assessed as sufficiently important to be given significant weight when deciding the outcome of a planning application. Poor quality trees are a consideration but do not become a constraint, i.e. they are discounted, unless they exceed agreed quality criteria.
- **Pre-design, design and post-design:** The tree information required throughout the planning process is variable and can be conveniently grouped as the pre-design phase (the collection and presentation of basic tree data), the design phase (the use of that data to inform the design process and optimize the retention of the best trees) and the post-design phase (the practicalities of tree protection during the construction process).
- **Root protection zone (RPZ):** The area around a tree where any disturbance may adversely affect its health. Activity is not forbidden in RPZs, but a high level of care is an automatic prerequisite.

1.3 **Credentials necessary for providing competent tree advice:** Tree assessment is inherently difficult because of the biological and structural tree complexities that require subjective interpretation. The capacity of assessors to deliver competent, consistent and reliable tree assessments is closely related to their academic qualifications and practical



experience in arboriculture. Indeed, a common theme running through both the Australian and UK national standards is that tree assessors must be suitably experienced and competent in arboriculture. In practice, assessments carried out by members of other professions are often unreliable because of the complexity and sophisticated nature of the process. 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.

1.4 **The importance of a design team:** Historically, urban planning has functioned through a planning officer assessing the merits of relatively isolated streams of expert opinions on a range of issues, to arrive at a balanced decision. However, in the emerging planning landscape, characterized by an ever-increasing range and complexity of issues, this traditional approach is becoming less effective. Experience is revealing that groups of specialists in different disciplines working closely together, within a coordinated framework, is a better way of delivering balanced and effective solutions. A design team of all the relevant professionals, including an arborist if there are tree issues, headed up by a project management specialist, is an essential part of the modern planning process. Involving arborists at the start of the planning process, and ensuring they effectively communicate with all the other professionals in the team throughout the project, is a fundamental requirement if trees are to be properly factored into urban development.

2 PROPERLY ACCOUNTING FOR TREES IN THE PLANNING PROCESS

2.1 **Climate adaptation benefits of trees:** Adaptation to climate change is the process of reducing the impacts of any changes on people and making their living environment more comfortable. Planting more trees and retaining existing trees is an effective adaptation strategy because of the benefits they deliver, most notably in improving human health, buffering urban temperature rises, absorbing pollution, reducing the severity of flooding events, making urban areas look better and making people feel better. Identifying and retaining good quality existing trees in the planning process is important because trees already in place can deliver those benefits much sooner than planting new trees. Existing trees are a precious resource and optimizing their retention in the context of other competing priorities is an essential aspect of planning sustainable urban communities. Canopy cover is being increasingly recognized as an essential component of urban infrastructure and an asset to be enhanced rather than a liability.

2.2 **Trees as a material consideration in the planning process:** Planning is concerned with controlling changes in land use in a way that allows identified material considerations to be assessed and given appropriate weight to arrive at a balanced decision. For most 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. Trees are a material planning consideration and they all have to be considered. However, only the ones above a specific quality threshold become a material constraint on development. Tree assessment is the mechanism for identifying which trees are sufficiently important to be treated as a material constraint, and those that are not, which can be ignored. Whichever tree assessment method is used, a fundamental requirement is that it clearly separates the important trees from the unimportant trees, making it easy for the non-tree experts in the planning process to correctly apply weight to the tree issues when making decisions.

2.3 **Trees and the design process:** Individual trees and groups of trees are an obvious and important component of urban design because of the size and scale of the visual contribution they make to the urban landscape. For the purposes of accounting for trees, the design process can be divided up into three phases;

pre-design, design and post-design. If trees are to be properly factored into new developments, it is essential that they are considered early on in the planning process, i.e. at the pre-design stage. Tree assessments carried out before the production of any detailed proposals inform the design phase by identifying which trees need to be kept and the constraints they impose on the layout. Once the design has been finalized and formally submitted to the planning authority, the tree assessment information allows the planners to understand the scale of tree losses and the caliber of mitigation proposals before consenting or refusing the submission. Once consent has been issued, the tree decisions have been made and the emphasis shifts towards the post-design phase, where protecting the trees identified for retention is the priority.

2.4 **Role of the arborist:** Tree assessment provides preliminary guidance on tree quality at the beginning of the planning process. It is purposely quick to provide a preliminary opinion as the starting point for a planning process that is intended to result in a balanced decision. This preliminary assessment, made by the arborist, is not the final decision on whether a tree stays or goes; it is guidance for other professionals who have to make those decisions in the wider planning context. Arborists assist planners by advising on tree quality, but it is not normally their role to make the final decision on tree retention. Planners make that decision based on the balance of all the competing interests.

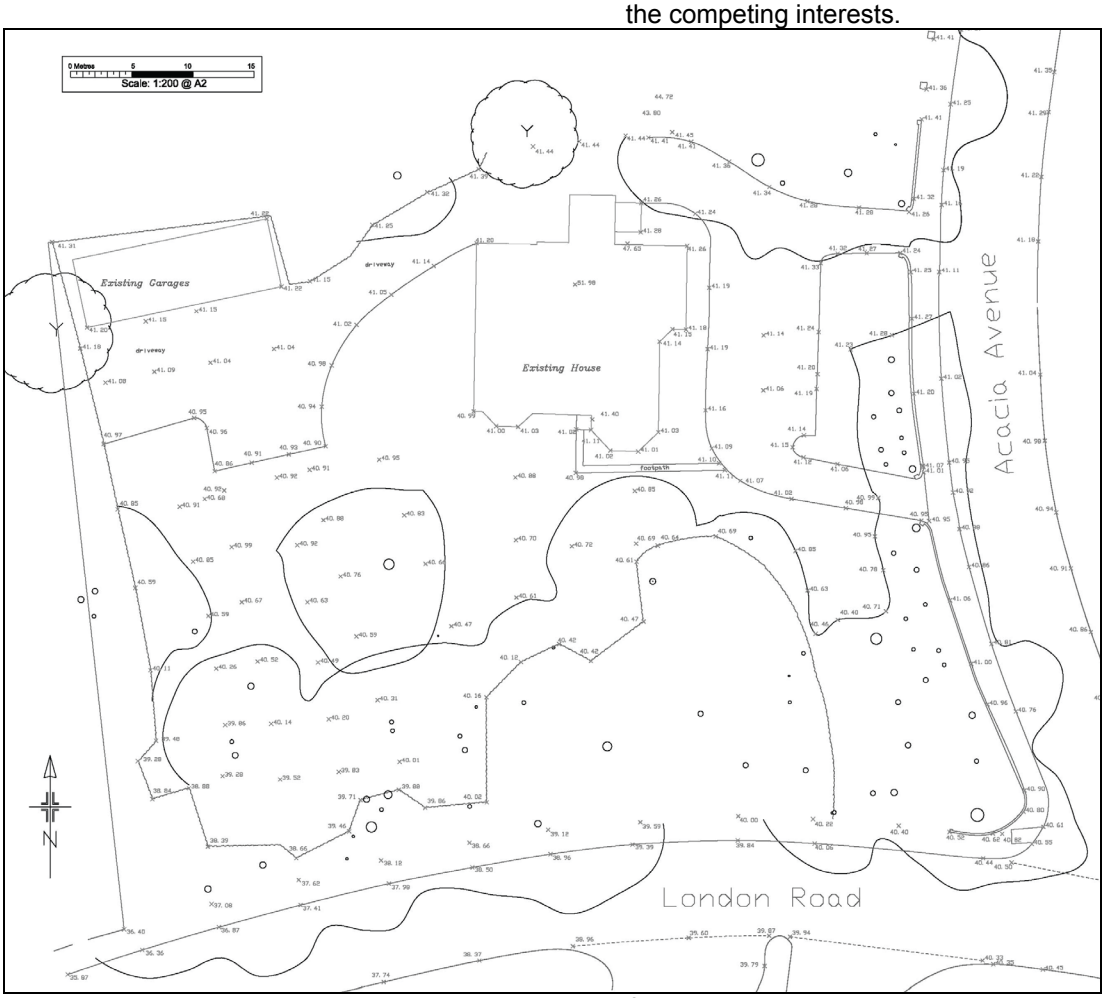
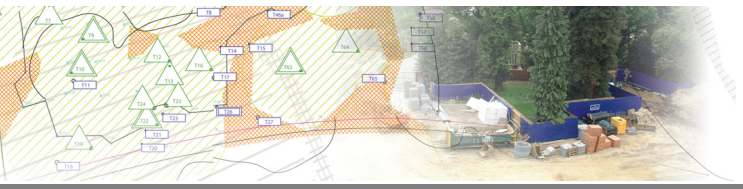


Figure 1 – land survey: The land survey should show all the existing site features, including levels, tree locations and crown spread



3 PRESENTING TREE INFORMATION ON PLANS

3.1 **Topographical (land) survey:** All planning submissions must be based on an accurate and up-to-date land survey (Figure 1). It should be available at a scale that is fit for purpose, which would normally be between 1:200 and 1:500, i.e. sufficient to read tree information and assess the impact of proposed changes on trees. In addition to recording all landscape features and spot heights, this survey should show all the significant trees as detailed in 3.2 below.

3.2 **Trees to include in the survey:** Both the Australian and UK national standards provide useful guidance on which trees to include in the land survey. Ideally, an arborist should identify the trees within the site to be included, before the site is surveyed. Any tree or group that makes a significant contribution to local character should be identified. Numbered tree tags are useful to mark closely spaced trees where there may be difficulty in identifying individuals. Significant trees close to the boundaries, but outside the site, should also be included, although direct access to them for specific numbering may not be possible because of ownership issues. A reliable rule of thumb is that any tree outside the site that is closer to the boundary than 10 times its trunk diameter should be recorded. The survey should show the trunk position for individual trees and the actual crown spread. For groups, marking individual trunk positions may not be practical, but the furthest extent of the crown spread should be shown.

3.3 **Proposed layouts:** The most important tree plan in the whole planning process is the composite of the proposed layout superimposed on the land survey (Figure 2). It is of fundamental importance because it allows the precise relationship of the proposed to the existing to be assessed at a glance, making it immediately obvious where any new development encroaches close to important trees.

3.4 **Plan annotation:** Annotation on plans is very important because they are the most common and effective medium for presenting tree information in the planning process. More detailed guidance on presenting information on plans is provided in the TreeAZ Information Note 2 *Presenting tree information on plans*, which is a sister document to this guidance that can be downloaded at www.TreeAZ.com.

4 COLLECTING AND PRESENTING TREE INFORMATION (PRE-DESIGN PHASE)

4.1 Tree assessment

4.1.1 **Methods of tree assessment:** Tree assessment is a complex and evolving discipline, with a selection of methods available. Each method has advantages and disadvantages, and it would be inappropriate to presume that any one is better than the others. It is up to the individual practitioners to decide which method they prefer and feel is most appropriate for a specific set of circumstances. Commonly used methods include:

- **BS 5837 (2005):** This is a relatively new method of tree assessment proposed for the first time in *BS 5837 (2005); Trees in relation to construction – Recommendations*. It is published by BSI (www.bsi.gov.co.uk) in the UK and the method is copyrighted, which means it cannot be copied or distributed without the appropriate permission. It advocates four categories (A, B, C and R), which are assessed according to arboricultural, landscape and cultural attributes.
- **SRIV:** This is an Australian method published by the Institute of Australian Consulting Arboriculturists (IACA) (www.iaca.org.au) in 2005. It advocates six vigor and condition classes (NVG, NVF, NVP, LVG, LVF and LVP) set against three age classes and 10 Index Values (0, 1, 2, 3, 4, 5, 6, 8, 9 and 10), which are assessed objectively according to defined variables for age, vigor and condition.

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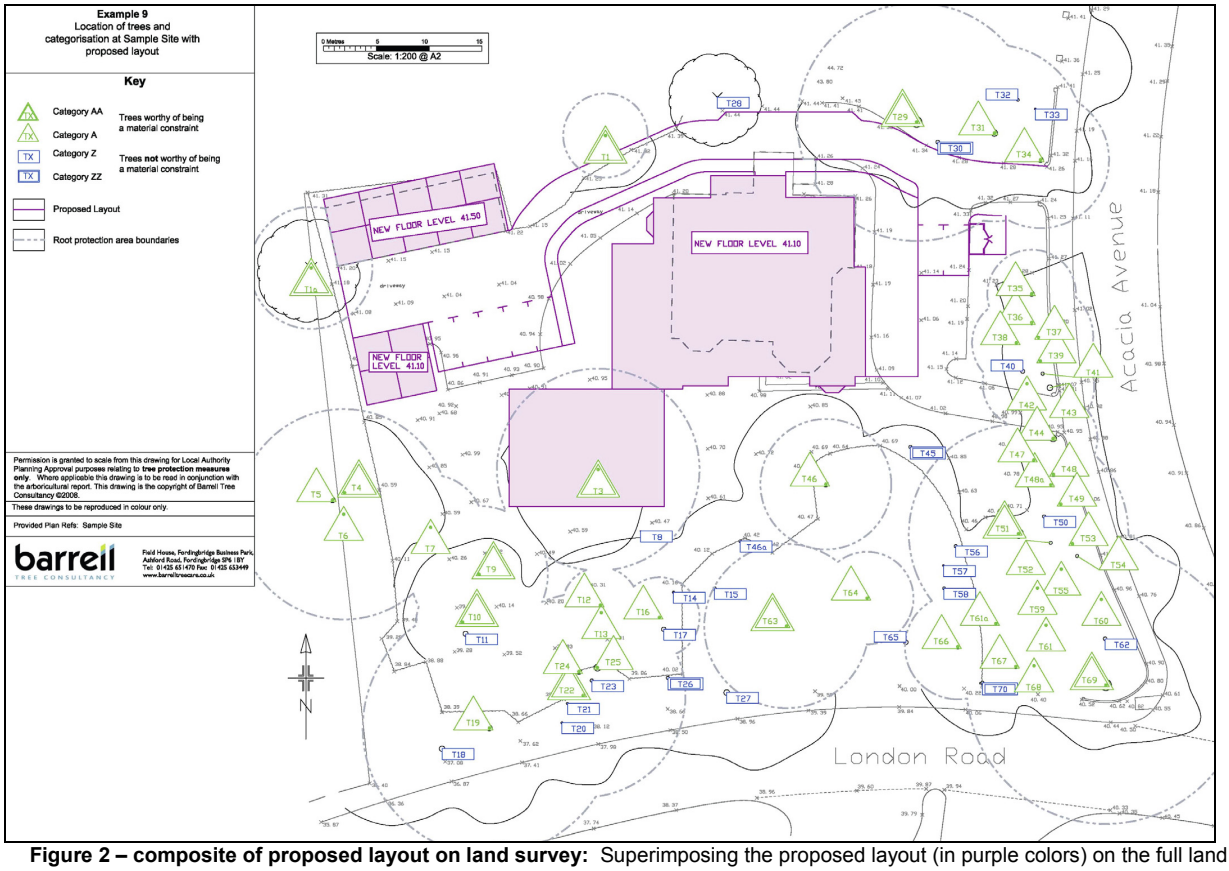
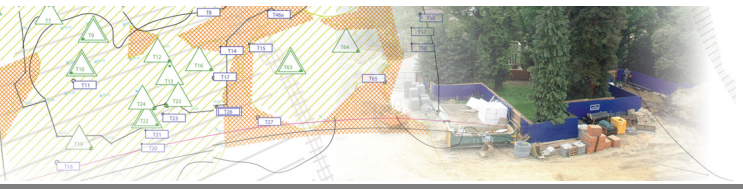


Figure 2 – composite of proposed layout on land survey: Superimposing the proposed layout (in purple colors) on the full land survey allows any encroachment near important trees to be easily reviewed

- **SULE:** Safe Useful Life Expectancy (SULE) is a method developed by Jeremy Barrell during the 1980s and 1990s (www.barrelltreecare.co.uk). It advocates five categories (1–5), which are based on the length of time a tree can be safely and usefully retained.
- **TreeAZ:** TreeAZ was released in the UK in 2002 by Barrell Tree Consultancy (www.barrelltreecare.co.uk), and is an evolution of the SULE and BS methods. There is an Australia and New Zealand TreeAZ version that has emerged from an analysis of its use within those planning systems. There is also a North American version under development. It can be downloaded freely from www.TreeAZ.com and used without copyright restrictions. It advocates two main categories (A and Z), which are based on the potential of a tree to provide benefits to its surroundings.

For the purposes of this guidance, TreeAZ is used to illustrate the plan examples, but that does not preclude the use of other methods. Throughout the planning process, the same principles of presenting tree information on plans and in reports apply, irrespective of which tree assessment method is used.

4.1.2 **The purpose of tree assessment:** As soon as trees become important to the community, then assessing how each individual ranks on a scale of importance becomes a necessity. With all the other competing interests to be considered in the planning process, it is unusual for the ideal of retaining all the trees to be feasible and compromises involving tree losses are often a reality. No tree is above losing if there is a planning gain that is greater than the benefit of retaining it, so a reliable means of deciding which ones should be given the most weight is essential. 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. Whatever tree assessment method used, it must clearly identify and separate the best from the worst, the most useful from the least useful, and the most important from the unimportant.

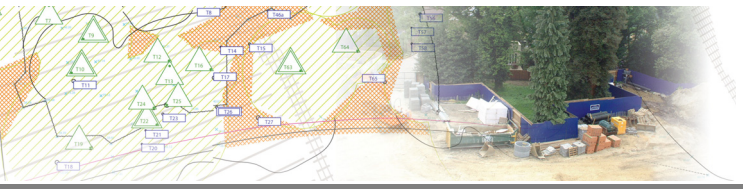
4.1.3 **Making tree assessment helpful for non-tree experts:** The assessment of the multiple tree characteristics that separate the best from the worst is an extremely complex and sophisticated process, which is difficult to explain in lay terms. An effective method will refine those considerations down to a simplistic categorization that non-tree experts, mainly architects and planners, can understand and use to guide them in designing new developments. In practice, effective communication between the tree specialists and these other professions is a balance between keeping the assessment as simple as possible, but not so simple that key information is not transferred. The simplest method is to have two categories of tree; important and unimportant. This is easy for designers to understand and still allows the tree specialists to incorporate the complexities of tree assessment. The most useful method of tree assessment will be one that allows the planners see a surface veneer of simplicity, disguising the vast complexity of tree assessment that arborists perform in the background.

4.2 Collecting and recording data

4.2.1 **Tree data collection:** All the significant trees should be inspected and relevant information recorded on a tree schedule. The precise range and extent of information can vary depending on the specific project, but it would normally cover the following areas:

- **Objective data:** Basic information such as reference number, species, height, diameter, crown spread, maturity and vigor is an important starting point. It is often useful to include longhand notes on specific tree characteristics to help those who have not visited the site to interpret the information.
- **Subjective data:** Allocating a tree to an importance category is a subjective process that requires detailed tree knowledge, which is why it should only be undertaken by a suitably experienced and qualified arborist. Although it is only the opinion of the assessor, it is still very important because it will strongly influence how much of the site is available for development.
- **Tree work recommendations:** The extent of any tree work is dictated by the surrounding land use; specifically the proximity of trees to people that may be harmed and property that may be damaged. At this early stage in the development process, it is not known what those final relationships will be and so it is inappropriate to specify detailed tree works at this time. This detail will only become known when the final layout has been agreed. It is at that later stage that the tree work requirements should be finalized based on data recorded during the initial inspection.
- **Ecological issues:** As trees are closely tied into site ecology, it is difficult to treat them as entirely separate entities, although the two disciplines do require separate sets of specialist skills. In addition to the land survey and collection of tree data, a survey of the ecological constraints on the site should be considered at the pre-design stage, although not necessarily by the same experts.

4.2.2 **Tree schedule and explanatory notes:** All the data required to follow and understand the tree categorization process is best presented in a tabular form as a tree schedule. Each item of information should have full explanatory notes accompanying the schedule to explain how it was collected. These explanatory notes should be sufficient to allow non-arborists to understand the background to the information they are using. Illustrative examples can be reviewed in the sample reports at www.TreeAZ.com.



4.3 Arboricultural constraints report

4.3.1 **Using tree categories to establish tree constraints:** The purpose of categorizing trees is to focus attention on the ones worth retaining. Whichever method is used (see 4.1.1 above), only the best trees should be regarded as material constraints on site use. The worst trees should be discounted and have no influence on layout design. The best trees should be treated as material constraints and should become the focus of attention in the layout design.

4.3.2 **Assessing the constraints imposed by the best trees:** Complicated constraints make it difficult for designers to interpret, whereas too much simplification can limit design flexibility through lack of information. An approach that achieves an effective balance is to identify two zones for each of the best trees as follows:

- **Zone 1 (where ground disturbance must be carefully controlled):** Using the diameter information for each tree, the root protection zone (RPZ) can be calculated as a radial distance from each trunk. No significant disturbance should occur within the RPZ and a high level of care is needed with any activities that are authorized if the trees are to be successfully retained. The precise shape and location of the RPZ is a matter of judgment that should take full account of the site-specific circumstances. Any encroachment into the RPZ may have an impact on trees.

- **Zone 2 (where working space, shading, dominance and future growth may be an issue):** The second and more subtle constraint is how much space is needed for construction and how much space trees need to be successfully retained beyond the development activity when the pressures of residential occupation come to bear. Excessive dominance, i.e. large trees towering over occupied buildings, can create pressure to remove or severely prune trees after development. Factors such as construction space, crown density, future growth potential, orientation in relation to the sun and the number of trees in groups should be considered to arrive at this second, less restrictive, constraints zone. It is more subjective than the zone 1 constraint and relies on the subjective judgments of the arborist. Zone 2 would not normally be suitable for occupied buildings, but uninhabited structures and hard surfacing may be acceptable within it.

4.3.3 **The arboricultural constraints report and plan:** Constraints advice has a complicated origin and requires detailed explanations to minimize the chances of misinterpretation by the designers. The most effective way of presenting this information is through a formal arboricultural constraints report with an accompanying plan. An illustrative example of a constraints report can be reviewed at www.TreeAZ.com. The text of the report describes the constraints imposed by the best trees on the site and clearly defines the developable area available for the new proposals. The plan illustrates graphically where these restrictions apply (Figure 3). This report with its plan is a design tool for use by the architect and is separate from the subsequent arboricultural impact appraisal report that would normally be the formal submission to the council. The provision of this report to the designers signals the data collection and presentation (pre-design) phase is over.

5 USING TREE INFORMATION IN THE DESIGN PROCESS (DESIGN PHASE)

5.1 Using the constraints information to assist the layout design: The design phase is a fluid process that relies on close co-ordination between the architect and arborist, working within the design team. It begins when the architect receives the constraints report, with the plan showing both the constraints zones. This plan graphically identifies the developable area to help the architect effectively incorporate trees into a provisional layout. Once a provisional layout has been developed in the context of the tree constraints, it is essential for it to be reviewed by the arborist and the rest of the design team before it is finalized. This

feedback opportunity allows the tree relationships to be checked and any last minute fine-tuning to be incorporated into the final proposal.

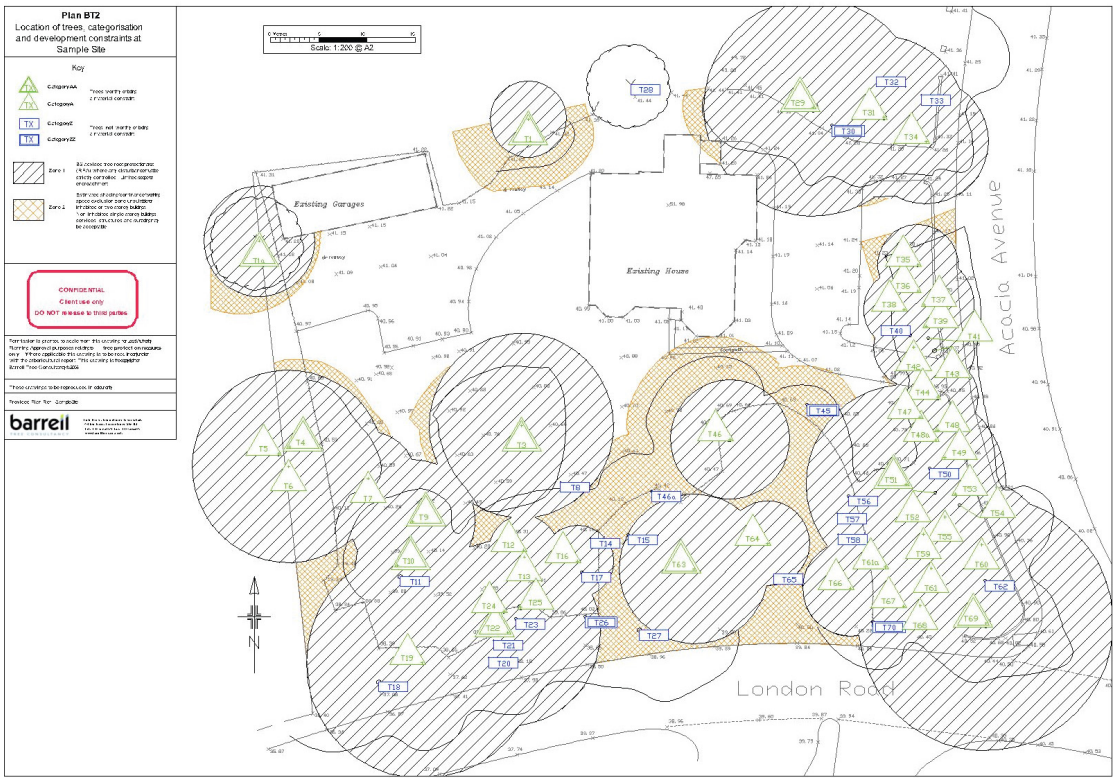


Figure 3 – arboricultural constraints plan: This plan is prepared by the arborist in the pre-design phase as a design tool for use by the architect in the design phase

5.2 **Common causes of tree damage and loss requiring detailed consideration at the design phase:** Trees are particularly sensitive to development-induced changes in their rooting environment through excavation and raising soil levels. Failing to properly understand and account for the impact of such changes in the design phase is the main reason why trees, initially identified for retention, often do not survive the construction process. Where development activity is proposed in RPZs, issues that must be considered in detail at the design phase include:

- **Level changes:** On sites with undulating terrain, it is essential to provide detailed cross-sections of the proposed changes to see how they impact on existing soil levels. These cross-sections must be provided wherever development activity comes close to, or within, RPZs. They must be at a scale that allows a proper assessment of precisely what level changes are proposed, so that any impact on trees can be reliably assessed.
- **Installation of new structures and surfacing:** New structures and surfacing can be installed within RPZs without adversely affecting trees, provided any detrimental impact on the rooting environment is minimized. Again, detailed cross-sections showing the relative levels of the proposed against the existing are essential to assess the impact on trees. This detailed information should be a standard submission requirement wherever any encroachment into RPZs is proposed.
- **Installation of new services:** Historically, the precise location of services has been a matter of detail left until the construction begins and then sorted out on site. However,

where tree RPZs may be affected, it is essential that the detail of service locations is provided with the planning submission to reliably demonstrate that the engineering requirements can be satisfied without adverse impact on trees. Although detailing these matters would have been traditionally left until after consent has been issued, there is a growing body of experience confirming that to do so often results in substantial tree losses. Trees are so sensitive to level changes that proving the viability of proposals, through detailed analysis before the consent is issued, is a cornerstone of successful tree retention.

5.3 **The arboricultural impact appraisal report:** The arboricultural impact appraisal report is a formal document comprised of detailed explanatory text and a plan (Figure 4). It is produced at the end of the design process and its function is to support a planning application. An illustrative example of an arboricultural impact appraisal report can be reviewed at www.TreeAZ.com. This report would normally be submitted as supplementary information in support of full architectural drawings and the other documents required within the local planning system. An effective report will identify:

1. All the trees on the site and list their relevant details
2. The trees that will be lost so that the impact of the proposal can be clearly seen
3. The trees that are proposed for retention
4. The proposed protective measures in the form of an arboricultural method statement that must include a plan (see Figure 4) and illustrative specifications for all operations that may affect trees

In conjunction with the other submission documents, this report should provide sufficient information for the council to fully understand the impact on trees and decide whether it complies with the prevailing policy guidance. If it does comply, then this document would be the basis for consent and the implementation of the proposal. If the council do not agree with its content, then it would form the basis for further negotiation towards resolving any concerns.

6 PROTECTING TREES DURING CONSTRUCTION (POST-DESIGN PHASE)

6.1 **The arboricultural method statement:** An arboricultural method statement is a formal document that details appropriate protective measures to ensure the successful survival of trees identified for retention. It is also an enforcement document that can be used as a legal reference if agreed works are not carried out. In the design phase, it can be prepared in an illustrative form and included with the arboricultural impact appraisal report, as described in section 5 above. Alternatively, it can be prepared in the post-design phase as a separate document if the principle of development is accepted, but the detail of protection has not been agreed in advance of a consent being given. Either way, it must include sufficient detail on the plan and in the text for all the tree protection measures to be successfully carried out and for enforcement action to be taken if they are not. A formal arboricultural method statement would normally include:

1. A plan showing the location of all the trees, specific protective measures and areas where special precautions will be necessary

2. Contact details for the individual members of the design team

3. Detailed specifications, including timing, for all the protective measures and work operations that may affect trees (see 6.2 below)

4. A description of the arboricultural supervision for all operations near trees and how those operations will be formally discharged once completed

5. Working drawings, if appropriate

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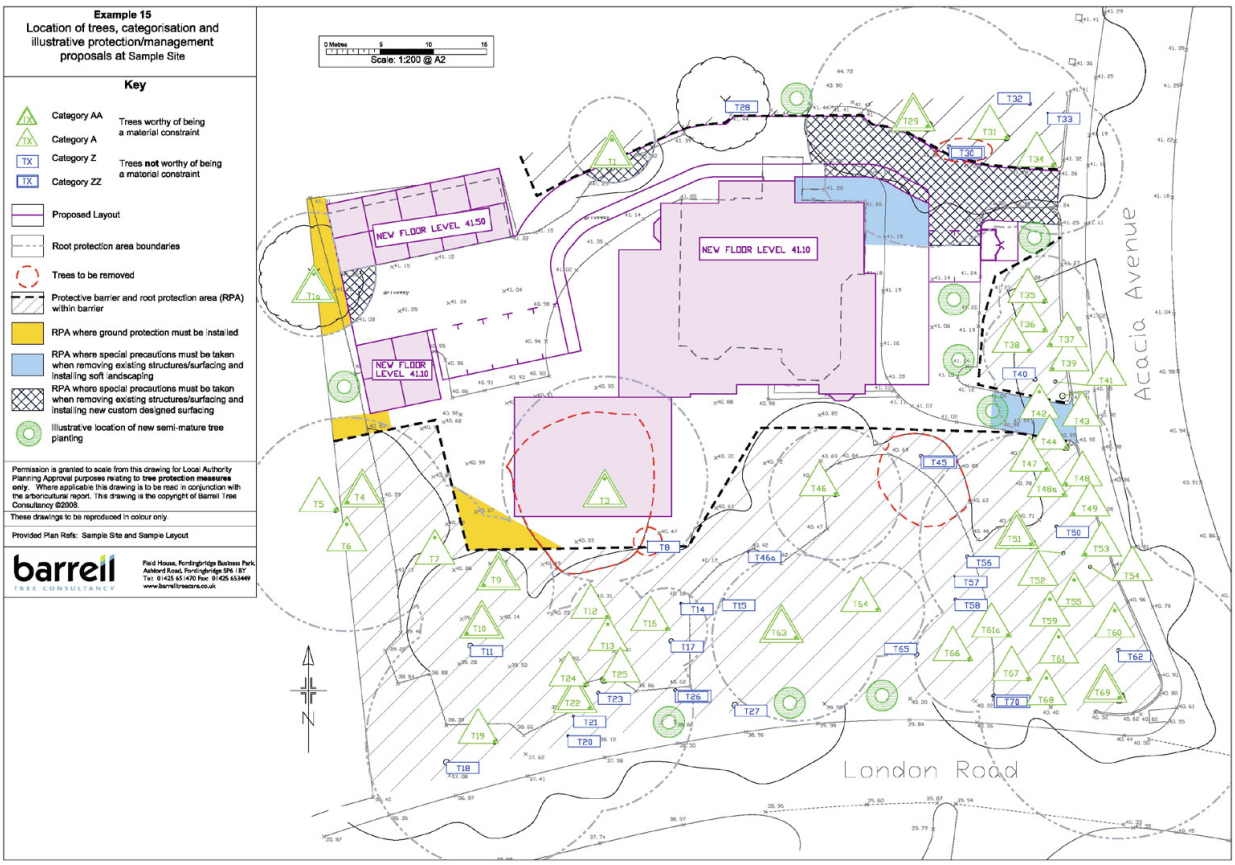
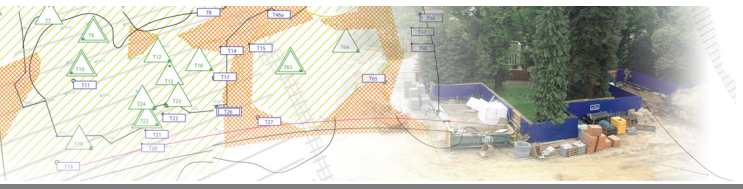


Figure 4 – arboricultural impact appraisal plan: The arboricultural impact appraisal plan must provide sufficient information for the planning authority to understand the impact of the proposal and to assess the feasibility of the tree protection measures

6.2 **Matters that should be considered for inclusion in an arboricultural method statement:** An arboricultural method statement should identify, list, locate (on a plan) and specify all works that could have an adverse impact on trees agreed for retention. The final list will vary from site to site, but all the following matters should be considered for inclusion:

1. **Pre-commencement meeting:** A meeting between the site developer (site manager and tree consultant) and the council (urban forester) before any development commences is an essential starting point where trees are an issue. It allows the two parties to satisfy themselves on the protection arrangements and establish the communication channels for the duration of the contract.
2. **Barriers:** The physical barriers between protected trees and the construction activity are the primary means of preventing tree damage. Barriers must be fit for purpose, i.e. robust, difficult to move and in place before any potentially damaging activity starts.
3. **Ground protection:** Ground protection is a means of increasing working space without compromising tree retention. Ground protection must be fit for purpose, i.e. protect the soil structure from degradation and contamination.
4. **Removal of surfacing and/or structures:** Tree roots often grow around and beneath existing structures and surfacing, and can be damaged during alterations. Existing surfacing and structures can usually be successfully removed without significant damage to tree roots if the method of

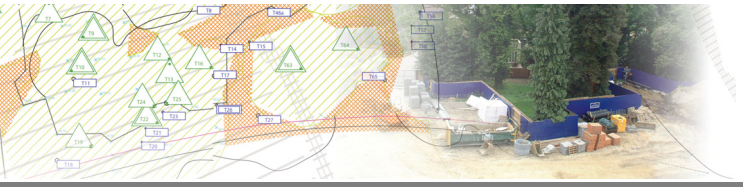


working is detailed and the operations are carried out with care.

5. **Installation of new surfacing:** It is possible to install new surfacing within RPZs, but the more there is, the more potentially harmful it will be to sensitive trees. The normal requirement is no significant excavation into existing levels, and the new surfacing must be load-spreading and permeable.
6. **Installation of new structures:** It is possible to install new structures within RPZs without significant adverse impact on trees, but any proposals must be accompanied by detailed design drawings that allow the impact on trees to be properly assessed. This would normally include cross-sections showing no significant excavation into existing levels, and a detailed construction method statement explaining the installation process.
7. **Services:** It is possible to install new services within RPZs without significant adverse impact on trees, but any proposals must be proven low impact through an accompanying detailed specification explaining the installation process.
8. **Tree planting:** Tree planting is often perceived as an area where money can be saved through reducing the agreed numbers and sizes of trees, and cutting back essential establishment maintenance. Specifications detailing species, sizes, planting methods and maintenance until successful establishment must be included to make sure essential urban canopy cover is not eroded.
9. **Installation of new landscaping:** Landscaping activity in RPZs is a common cause of tree damage because it generally happens at the end of construction when there is a perception that the main risk to trees has passed. All landscaping activities close to retained trees must be strictly controlled through detailed specifications, plans and supervision, right up until the completion of the project.
10. **Programming of tree protection:** The timing of the installation of tree protection measures is very important because they will not work if they are installed too late. A detailed schedule of the timing of all operations that could adversely affect trees is an essential element of all method statements.
11. **Arboricultural supervision:** All operations that could adversely affect trees must be supervised by a sufficiently competent arborist. The detail of this supervision would normally be finalized at the pre-commencement meeting, but the principle must be included in all method statements as a standard requirement.

6.3 **Working drawings:** Working drawings are produced after the planning consent is given and would not normally be part of the formal planning submission. They are not enforcement documents and there is no formal requirement for the developer to produce them. Their purpose is to enhance site efficiency by clarifying the tree management requirements and improving the interpretation of those requirements by the site operatives. Graphic based information in the form of plans and diagrammatic specifications is easier to manage on construction sites than long and complicated text-based reports. Construction site operatives are familiar with plans and drawings, which makes including relevant specifications on the plan a very effective means of improving the comprehension of important tree protection information. Furthermore, working drawings specifically relating to tree issues make it easier for tendering for the various specialist work operations. Keeping it simple and easy to understand minimizes the opportunities for mistakes, which is an essential aspect of effective site management. It is often helpful to create a number of working drawings to separate out the various tree management activities that are planned at different stages in the construction process and carried out by different people. Some useful examples include:

- **Tree works drawing:** Tree removal and pruning is usually carried out by arborists before any other workers arrive on site.



TreeAZ Information Note 1: Managing trees in the planning process

Putting the schedule of works on the drawing, with clear tree identification helps tendering and minimizes the risk of mistakes.

- **Tree protection drawing:** The installation of fencing and ground protection is usually carried out by fencing contractors after the tree works have been completed. This drawing shows the location of both types of protection and has the specifications for each, making it one working document for the contractor.
- **Special tree protection drawing:** Not all sites have special tree protection requirement, but where they do, then a separate drawing for each operation is often helpful. Typical special precautions include removal/replacement of existing structures/surfacing, installation of new structures/surfacing and installation of services.
- **Structural landscaping drawing:** New tree planting to mitigate the loss of existing trees is an essential element of sustainable urban design. Showing the location, species, size and establishment requirements on a drawing is an effective way of ensuring that the promised landscaping is installed as anticipated. This drawing should also show RPZs where landscaping activities are controlled to reduce the risk of damage to existing trees.

Although the production of working drawings is voluntary, they can dramatically improve site operation efficiency and often prove to be a wise project management investment. More information on working drawings can be reviewed from the Information Note 2 *Presenting tree information on plans* that can be downloaded at www.TreeAZ.com.