INFORMATION SHEET 33

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FORESTS DEPARTMENT WESTERN AUSTRALIA — PRODUCTION, PROTECTION, RECREATION, CONSERVATION

PROTECTING TREES DURING HOME CONSTRUCTION

Should trees be removed from residential property before home construction, or should they be saved?

Shade trees can add to the value of residential property—yet home-building contractors often remove them before starting construction.

Some trees can be saved with little effort or expense; others are valuable enough to justify considerable expense to retain.

However, some trees are worth less than their owners realise. These owners spend more to protect the trees than is warranted, or they suffer unnecessary anguish when the trees are destroyed.

How can you tell if a tree on your block should be saved? You will have to evaluate the tree—is it really worth saving and what type of protection will be necessary to save it?

How much will it cost? That depends on the amount and type of protection. There are no short-cuts to good preparation.

Is the tree worth saving?

You can decide which of your trees to save by evaluating each one of them carefully. First consider the location, the species, and the size, age and vigour, then consider the cost and work involved in protection.

Location

Consider the location of each tree with respect to where it will fit in the landscape when the house is built. Ask yourself these questions about the location of each tree:

- Will a tree in this location provide shade where I want it, or will it shut off the sunlight I need for my lawn and garden?
- Will it protect my home by breaking the force of winter winds? Will it prevent the circulation of cooling summer breezes?
- Will it hide an unpleasant view? Will it block out a desirable view?
- If no tree were growing in this spot, would I plant one here?
- Is the tree a danger to the house, garage, fence, etc.?

Species

Consider the species of each tree. Is it a desirable species? Is it the kind of tree you would buy?

Do the roots of the tree grow close to the surface? Lawns and some kinds of ornamental shrubs may have a hard time surviving under these conditions.

Some trees—willows, for instance—are notorious for blocking sewers with their roots.

Some are attacked by insects. Tuarts near the coast can be badly disfigured by the tuart borer, jarrahs and flooded gums may be severely attacked by the leaf miner.

Others are susceptible to disease (such as jarrah dieback), and if the disease occurs nearby, the tree is a poor risk unless you are willing to give it continuous protection against that disease.

Some species, even with careful and expensive protection, may not survive environmental changes for long. Banksias are an example.

Size, age, and vigour

Keep these points in mind when you evaluate the size, age, and vigour of your trees:

- Old trees do not adapt as well to changes in environment as young trees of the same species. Neither, generally, do large trees.
- A small tree is easily replaced; replacing it is often cheaper than preserving it.
- A young tree may be the right size for your landscape now but it may become too large for its location by the time it matures. Often, a young tree located near a building, walk, or driveway will need extensive pruning to keep it in bounds. It may even need to be removed at great cost, at a later date.
- The length of annual twig growth, the number of dead branches and the size and colour of the leaves are indications of health and vigour. Compare your tree with other trees of the same species.

What protection is necessary?

When you have evaluated the trees on your property, you may decide to keep only a few of them—those that are ideally located, are vigorous, have desirable characteristics, and require a minimum of protection to save them. You will want to remove those that fall short of these requirements.

Remove the trees you don't want, and those that are not worth saving, before the construction work begins. Experienced tree fellers can remove these so that the remaining trees will not be damaged.

The trees that you want to save will have to be protected from damage resulting from one or more of the following:

- Construction equipment and supplies.
- Grade changes—either raising or lowering.
- Excavations for sewer and water pipes.

They will also have to be protected during clean-up after the construction of your house is finished.

Protection from mechanical injury

If the soil around the tree will not be disturbed during construction, protection from mechanical injury may be all that is required.

Construct a simple fence, or barrier, around the tree to prevent equipment and vehicle injury to the trunk, roots, and low branches.

Enclose an area at least 4 metres square with the tree in the middle. All exposed roots should be inside the fence. This will prevent vehicles from compacting the soil above the roots.

Groups of trees don't have to be fenced individually, fence the entire area.

Protection from grade changes

There are two types of grade changes, and trees have to be protected from both. One is raising the grade; the other is lowering it.

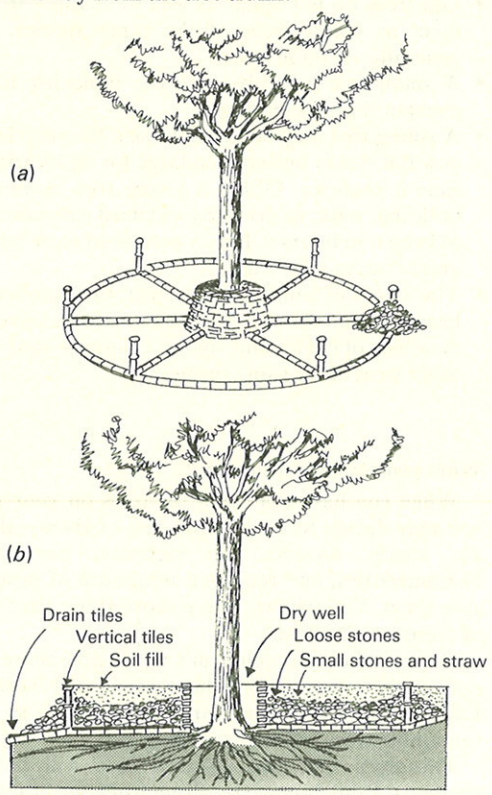
Tree roots need air, water and minerals to survive. When the grade level is changed by removing soil from the top of the roots or by adding soil over the top of the roots, the tree has difficulty obtaining its normal amount of air, water or minerals.

Raising the grade

Fill added around the base of a tree smothers the roots and prevents normal air and moisture circulation in the original soil.

Minor fills—15 cm or less in depth—will not harm most species if the fill is made with good topsoil that is high in organic matter and loamy in texture.

Major changes in grade will require you to supply air to the roots of the tree. This is usually done by installing a layer of gravel and a system of drain tiles over the roots of the tree. The tiles are laid on the original grade; they form a wagon-wheel shape with the spokes of the wheel opening into a dry well that is built around the tree trunk. The dry well acts as the hub of the tile system and holds fill away from the tree trunk.



A tile system protects a tree from a raised grade. (*a*) The tile is laid out on the original grade, leading from a dry well around the tree trunk. (*b*) The tile system is covered with small stones to allow air to circulate over the root area.

Also, it may be necessary to place a series of bell tiles vertically over the roots and connected to the wagon-wheel system to allow for additional air and water circulation.

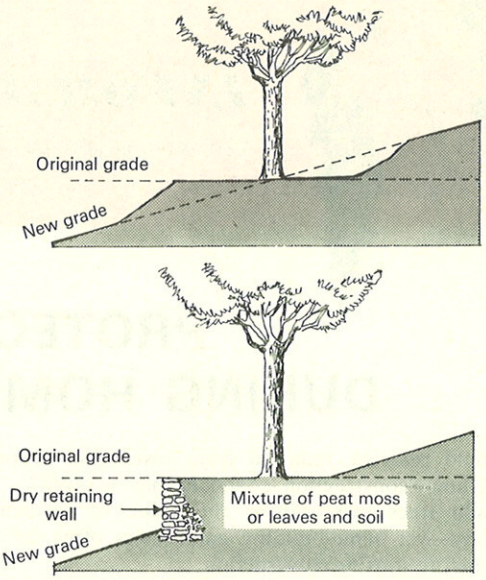
The air system will have to be designed for each tree individually, and it will have to fit the contour of the land so that it drains water away from the tree trunk.

Lowering the grade

Protecting a tree from a lowered grade is usually less complicated than protecting it from a raised grade. It can be equally harmful to the tree unless proper attention is given to cutting roots, pruning branches, stimulating root growth, and watering.

Generally, protection is achieved by terracing the grade. If space is available, the tree may be unharmed if you let it remain on a gently sloping mound.

Another way to protect it from a lowered grade is to build a retaining wall between it and the lower grade. This is an effective way to save a tree if the grade

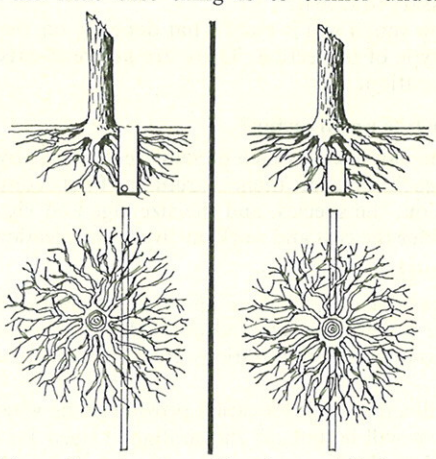


Terracing with a retaining wall protects a tree from a lowered grade.

difference is less than one metre, but don't forget to leave drainage holes in the wall.

Protection from excavations

Trees can be protected when you excavate for water and sewer pipes. Start by considering the location of the trenches. If you cannot route the trenches around the trees, the next best thing is to tunnel under them.



Tunnel beneath root systems. Drawings at left show trenching that would probably kill the tree. Drawings at right show how tunnelling under the tree will preserve many of the important, feeder roots.

Power-driven soil augers are often used for this purpose. If you must pass by the side of a tree, however, follow these rules:

- Cut as few roots as possible.
- When you have to cut them, cut them cleanly.
- Paint cut root ends with a wound dressing, like asphalt-base paint.
- Back fill the trench as soon as possible—don't leave the roots exposed to air.

Protection during clean-up

Clean-up after construction can be a critical time for damage. Generally everyone involved is in a hurry. Here are some hints for protecting the trees you have saved so far.

- Insist that the fences and barriers around the trees be removed last—after everything else is cleaned up and carried away.
- Have all debris hauled away rather than buried or burned on the site. If you cannot have the rubbish hauled away, burn it in an area where the flames and heat cannot damage the tree's branches, bark or roots.

Adapted from U.S.D.A. Home and Garden Bulletin No. 104.