

You have finally found the perfect piece of property on which to build your dream home. It is a great location, close to the city but still in the country, and it has lots of trees.

In fact, the development is named after trees; even the streets have tree names.

Property with trees usually sells first and for more money. However, many new homeowners are disappointed when, in the months to 10 years following construction, all of the trees start dying on their property. That's usually when help is called in to determine what "disease" is attacking the trees. It's a sad event when the homeowner learns that the cause is construction damage, and that it could have been lessened or avoided by following some important rules for building around trees.

Before you purchase

When considering purchasing property with trees, look for locations that have had no disturbance to the site. In other words, no one has used mechanized tree removal, often referred to as "grubbing."

When a property is grubbed, younger trees and



Tree roots are easily damaged by any nearby digging or filling. Soil compaction limits root regrowth. It may be best to remove weak trees or trees that cannot be adequately protected.

understory trees (trees that grow under the larger canopy trees) are removed. Understory trees consist of redbud, dogwood, serviceberry and other small native tree species. Also lost during this process are many different types of native shrubs and wildflowers.

Grubbing can cause soil compaction. Soil compaction is the leading cause of tree death on a construction site. Tree roots mostly lie shallow in the soil, as shallow as 2 to 18 inches. The majority of the roots in this area are the small, fine, hair-like feeder roots, which are the life support system of the tree. When the soil is compacted by equipment and/or repetitive movement, oxygen and water become unavailable for these roots, causing tree decline and death.

Consider hiring a tree professional, such as a Certified Arborist or Consulting Forester, to look at the piece of property with you. They can assist with identifying tree species and determine which dead or dying trees should be removed, as well as which trees might be considered special for your property. They can also offer guidance throughout the construction process, helping you communicate your wishes to the builder and establishing tree protection during construction.

How to get started

If you have already chosen your contractor, include them at this time. Be sure to communicate to them exactly what you expect to accomplish for your property and your home.

Before any equipment is brought in, you will need a map drawn to scale of your property. It is easier to move items around on paper than it is to move heavy equipment around on site. This map should include all property lines, the dimensions (footprint) of the structure and the driveway, the amount and location of grading to be done, all of the utilities that are pre-existing and proposed. Remember, utilities include water, electrical, sewer, septic system lateral lines (if required), cable, and in-ground irrigation.

In order to properly save trees, this is the time to ask your contractor lots of questions about the site work. If you cannot obtain answers to these questions, then it is not the time to place any equipment on your property. Rather, continue to work on your paper plan. Once you are able to locate these items on your map, it is then time to move on to the physical layout of these items on the ground.

On the site, lay out the footprint of the home and all of the above-mentioned items. Use bright-colored flagging or spray paint to mark the lines. By identifying all of these areas, you should be able to see exactly

which trees will be impacted by construction.

At this time, inspect the adjacent trees (outside of the footprint and of the utilities corridor) and identify which trees to save or which ones to remove when the heavy equipment is on site. So, how do you know which to remove? Keep this in mind when making your decision: Tree roots grow horizontally in the soil with a length up to two times the height of the tree. Visualize the tree you are considering saving, lay it down on its side and flip it again

in most any direction, and you will probably be in the feeder roots of the tree. So, if the very large tree that you want to save falls into any of the construction zones, then it should be considered a candidate for removal.

Look around; are there any younger, smaller trees in this same area? Younger trees are better choices because younger tree roots do not have the horizontal length to them that larger tree roots have. Therefore, younger trees can acclimate easier to the ongoing construction damage with a greater chance of survival.

For example, a circle drive around a large oak tree is not the best choice for survival of the tree. You may want to move the driveway location and choose a smaller oak to build the circle drive around. Larger, older trees can be saved, but they require special care. You improve your chances for success with these and all trees if proper protection is installed around the saved tree area before any equipment arrives on site.

Tree protection

No matter the size of the tree, a protection barrier should always be installed. Tree protection should be a physical barrier—something that is visible to anyone who enters the construction site. Orange construction fence wired to T-post works well. The fence or barrier should be placed as far away from the tree as possible. At minimum, the barrier should be set at the dripline on construction sites. The dripline is measured at the point on the ground beneath the farthest overhanging limb.

At this point in the construction process, I recommend you have another meeting with your contractor. Designate storage areas for materials, including soil. Soil placed inside of the saved tree areas has the same effect as compaction on tree feeder roots. Establish turn-around areas for equipment, parking for construction workers and concrete truck cleanout. I recommend you



Set fencing so that as much undisturbed area as possible is retained around trees to be saved. Keep in mind roots extend well beyond the spread of branches. Smaller trees are more tolerant of disturbance than larger ones.

also do one more thing—meet with as many people as possible that will be working on your property. Damage often occurs unknowingly. Explain the purpose of the fence. As with most things, communication is vital.

If a barrier of orange fencing is just not possible, use mulch instead. Chipped bark mulch can be placed as deep as 10 inches around the saved tree areas. This protects the feeder roots by acting as a mattress for them. It also keeps the roots cool and moist. When the project is finished, rake the mulch out to about 3 to 4 inches deep and away from the trunk of the tree. This will help with post-construction care as well. During and after construction, watering trees can help reduce the mortality rate.

Finish work

Trees are often damaged during finish work on a project. The tree protection fence is removed because final grade is about to occur. Remember that the tree feeder roots lie shallow in the soil, so if fill dirt is added any more than 6 inches deep and then graded out with equipment, then the same type of compaction and reaction occurs to the trees on the property.

The trees were there before construction, so they don't need any additional soil. Only add topsoil to open areas that you are considering for grass. Utilize the mulch rings as part of the landscape, and if the great oak tree didn't have grass under it to start with, consider the mulch ring as the "grass" under it now.

Following these guidelines will help you retain both the beauty and value of your property. Contact a local forester or arborist or your regional Conservation Department office (see phone numbers on back cover) for more information. A wealth of resources is also available on the Department Web site at www.missouri-conservation.org/forest. ▲

Checklist for constructing with care:

- ✓ Scaled detail map of property:
Location of structure and driveway
Location of all utilities
- ✓ On-site identification of all of the above (marked on the ground)
- ✓ Identify trees for removal.
- ✓ Choose younger trees to save.
- ✓ Choose areas of trees to save rather than one tree (if possible).
- ✓ Install tree protection barriers.
- ✓ Use mulch instead of fences for barricades or better yet, use both.
- ✓ Have a pre-construction meeting on site:
Make sure everyone understands why the fences are there and everyone knows what you expect.
- ✓ Write a contract that includes fines for encroachment on the protection areas.
- ✓ Designate employee parking, turnaround areas and storage areas for all building supplies.
- ✓ Drop in unexpectedly often and on your project.
- ✓ Prune trees for clearance of equipment to the site.
- ✓ Remember that compaction hurts!
- ✓ If trenching is to occur anywhere in a saved tree area, make sure roots are cleanly cut, not ripped or torn.
- ✓ Water saved trees during and after construction.
- ✓ Consider hiring a tree professional to monitor your project and care for the saved trees.

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