



**Tree Care
Landscaping
Consulting Services**

All About Tree Preservation

There are many reasons we decide to preserve trees. They add grace and beauty to our landscapes, provide shade and protection for our homes, and increase our property values. Changing the environment around trees can cause a great deal of harm and stress. In wooded areas, trees live in harmony, protecting and supporting each other, when the woods become a yard the trees have to adapt to their current environment. The goals of tree preservation are to lessen the impact of construction and to decrease expensive long-term maintenance. The tree preservation process begins before construction, so involve an arborist in the planning process team. The following is an explanation of the steps involved in the Tree Preservation process.

Understanding Tree Biology

The first step in tree preservation is to understand how trees grow and function. There are two problems we watch for: mechanical injury and root damage.

Mechanical damage, physical injuries/wounds to the trunks and/or limbs is common during construction. When wounded, trees are structurally unable to heal as humans and animals do. As trees can not replace damaged tissue, they must wall off the area to limit the amount of decay and disease using a process called Compartmentalization of Decay in Trees (CODIT). Trees are capable of compartmentalizing small wounds quickly, but the larger wounds require great amounts of energy. A **trunk wound** removing as little as 30% of the bark may in fact be fatal. Trees are weakened due to the amount of energy required to try to compartmentalize the wound. Wounds also provide an entrance for decay and disease to enter the tree. Decay also weakens trees, which may cause them to be unable to support their own weight, putting people and property at risk. Protecting **trunks and limbs** from damage is crucial.



Protect those Roots!

Damage to the **root system** causes even more significant problems. Roots provide anchorage, storage, and conduction and absorption of water, oxygen, and nutrients for the whole tree. Many believe roots are “as deep as the tree is tall.” The root system of most trees, however, is very shallow, growing within the top twelve to eighteen inches and extending up to two to three times the radius of the crown. Due to the importance of roots, changes within the root zone can have serious consequences. Processes common in construction, including trenching, soil compaction, and grade changes become major concerns. Whether the roots are removed or smothered, damage to the root system can lead to serious, long-term problems, including trunk decay, tree decline, and death.



Knowing how trees function, the Vine & Branch staff uses the following steps to provide the information needed to properly care for the trees. We first identify the trees through a **Tree Inventory**. During the

inventory, we scout the property, identifying trees over a designated diameter. We inventory the species, diameter, and condition. We typically tag the tree to designate it being included on the inventory using either a temporary plastic tag, or a permanent metal tag.



So what do we do with this information?

Tree inventories are designed to provide the client with enough data to help them choose which trees would be suitable for tree preservation. When choosing the trees, we suggest looking at the following:

- **Species:** Each species has its own level of tolerance to construction which must be considered. Trees with low tolerance located near construction may need to be removed. There are also a few species of trees, including silver maple (*Acer saccharinum*) and mulberry (*Morus* spp.), which are considered undesirable and may also need to be removed.
- **Location:** Prior to construction, lay out the plans and examine where the trees are, relative to the construction. Understand what construction processes are involved. All site changes should be noted, from the location of the structures to the access roads to the material storage areas.
- **Condition:** During the inventory we rate the condition of the trees on a scale of 1 to 5, with 1 indicating excellent and 5 indicating a dead/or risk tree. When rating the condition, we look at the crown structure, the trunk, and the root flare. Trees with significant root, trunk, or crown issues may need immediate care or removal. We also consider the approximate age of the tree. The younger the tree, the more tolerant it will be of construction. Old trees may need further protection and care!



These three factors should be considered when determining which trees to preserve. Focus should be on specified trees, which then have a greater chance at survival.

As part of the inventory we will also note tree-specific characteristics that we find important, including remarkable specimens or notable weaknesses. Additional information may be gathered, including trunk diameter, height, drip line diameter, and current compaction levels. This data, site details and construction details are used to develop the written **Tree Preservation Plan**

Within a written preservation plan we analyze the trees on the property using the information from the inventory and investigate how they are likely to respond to the construction. We then make our recommendations for which tree preservation measures to pay particular attention to. In the plan we include written **Specifications**. These are to be used as guidelines throughout the construction process. The specifications explain the tree preservation requirements for the project, including root zone restrictions, material storage, pruning requirements, and much more. Specifications also discuss details on how to adjust many common construction processes to best protect the trees, including trenching and paving temporary roads and aftercare procedures.

Vine & Branch recommends the **Plan and Specifications** be reviewed and adjustments to preservation and/or construction processes discussed with the arborist prior to construction for optimum tree preservation and survival. Vine & Branch often suggests additional procedures that should be completed prior to construction commencement.

- **Fencing and Signage:** Once trees are chosen, construction fencing is installed to protect the critical root zone of the chosen trees. Signage is placed on the fencing to designate the "Tree Preservation Area".
- **Fertilization:** Trees are ideally fertilized one year prior to the beginning of construction. This is especially important for those trees that are weak before construction begins. All efforts to improve their health should be taken.
- **Site Meetings:** To ensure everyone understands the tree preservation procedures, the arboricultural consultant meets with the owner, the builders and developers prior to construction. This relieves many future problems and misunderstandings.> Issues such as critical root zones, material storage and access roads are discussed.
- **Root Pruning:** To avoid ripping roots of preserved trees to be preserved, areas where trenching will interfere with tree roots, small trenches are dug to expose the roots first. These roots are then pruned properly, leaving a clean wound that has much better chance of regrowing. Ideally instead of trenching a directional boring procedure can take lines under the roots and thereby not disturbing them.
- **Tree Pruning:** All trees to be preserved should be crown cleaned. This improves the health and vigor of the trees by removing dead, diseased, broken, and poorly attached branches.



Once Construction begins, the following are recommended:

- **Site Inspections:** The arboricultural consultant visits the site periodically to check on the status of the trees.
- **Further Tree Pruning:** Damage to the trees should be avoided whenever possible. If trees are damaged, it should be reported to the arboricultural consultant, who will repair to tree to the best of his/her abilities. If limbs of preserved trees show to be in the way of construction processes, the limbs should be removed properly by qualified arborists.
- **Root Pruning:** Occasionally roots are found during the construction process. If this occurs, ripping should be again avoided. The arboricultural consultant should be contacted, cleanly cutting the exposed roots.
- **Watering:** Trees require one to one and a half inches of water per week. This is critical through the construction process, especially if the sprinkling systems are turned off. Tensiometers are often installed to measure the amount of water the trees are receiving.



Vine & Branch considers the first five years following construction as the most critical for tree survival. Proper care continues to be necessary to protect the trees from further stress. Precautions may include:

- **Soil Compaction Mediation:** Once construction is complete, the soil within critical root zones of the trees should be tested. Areas with high compaction will need remediation measures. Common methods include vertical mulching (holes drilled in the compacted zone and filled with organic material) and radial trenching (trenches up to one foot wide by one foot deep are dug in a spoke fashion within the root zone).
- **Fertilization:** Each tree should be evaluated individually for a fertilization program. In general, fertilization is performed following the completion of the construction. By skipping the first year after construction and then fertilizing the trees for the next four years. After the period further fertilization should be investigated.

Vine & Branch's Tree Preservation During Construction: As we have discussed, trees live in a delicate balance with nature. Any disturbance, from removing some of the root system to piling materials around the tree, can have detrimental effects on the trees. Proper tree preservation takes knowledge of tree

growth and biology as well as an understanding of the construction process. Hiring the right arborist gives your trees the best chance at survival.

These trees are less likely to survive due to a lack of preservation efforts. The tree on the right has had a large portion of its roots removed and another portion covered by soil. The tree of the left is going to have difficulty due to soil compaction and mechanical damage. Call our arborists before construction to avoid unnecessary damage.



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Updated: 03.06.03
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