

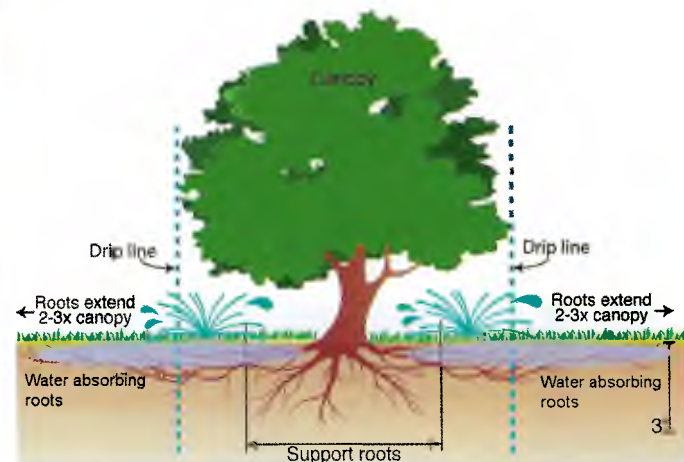
# Protecting Established Trees During a Lawn Removal

Since the early 2000's, voluntary turf reduction (lawn removal) for the purpose of conserving water and reducing maintenance has become a very popular method of landscape renovation. The removal of turf grass greatly reduces water usage and, therefore, helps the environment and saves you money. So, congratulations to all that are taking water conservation seriously.

On March 22, 2021, the Nevada Legislature passed Assembly Bill AAB356@ which makes the removal of nonfunctional decorative grass areas mandatory by December of 2026. Meaning that the grass between roads and sidewalks, in medians and traffic circles and the decorative grass outside of commercial sights, housing developments, etc., will need to be removed. This Bill does not affect the grass in backyards, parks or areas generally used for recreation.

Should you be involved with a lawn removal project, please be aware that if there are trees in that lawn area, some risks are involved if you don't protect them during this procedure. Trees can be put under a great deal of stress when a change to their environment occurs. When a plant is stressed, it's left vulnerable to secondary insect and disease infestations. All these factors can lead to further decline and possibly premature failure.

So, how do we avoid stressing our trees during a landscape conversion? Well, before we go there, we need to understand some tree and tree root basics.



The root system of a tree performs many vital functions. They store food needed to produce spring foliage, absorb and transport water and minerals from the soil to the rest of the tree, and anchor the above ground portion of the tree. Perceptions about tree roots are quite different from reality. Trees growing in urban areas seldom develop tap roots. Root systems actually consist of large perennial roots and smaller, short-lived, water absorbing roots. The large, woody tree roots, and their primary branches, increase in size and grow horizontally. They are usually located in the top 6 to 24 inches of the soil.

In contrast, small feeder roots, averaging only 1/16 inch in diameter, constitute the major portion of the root system's surface area. These roots grow outward and usually upward from the large roots near the soil surface and are mixed in with the lawn and shrub roots, where minerals, water, and oxygen are relatively abundant. The major



function of feeder roots is the absorption of water and minerals. About 50 percent of the root system grows beyond the dripline and can be three times as far from the trunk as the crown.

Once a tree has established itself in a lawn, it adapts to that environment and will begin to rely on the regular, and sometimes excessive, applications of water and/or fertilizer provided to the lawn. Additionally, lawn thatch can serve as a temperature buffer for tree roots. Any disruption to those growing conditions, such as removing the grass, can dramatically stress a tree and make it susceptible to numerous problems. It's probably safe to say that considering the extent and shallowness of a tree's water absorbing roots, even under the most carefully executed projects, much of the tree's root system is frequently torn out during the lawn removal process and/or other types of construction. Those roots that are left behind will lose the temperature buffer and water source that the lawn and sprinklers had provided which can lead to desiccation and additional root loss.

So, how can we protect our trees and minimize stress during the landscape transformation? First, make certain that the trees are healthy enough to undergo the environmental change. Are the trees already declining? Are they worth saving? Will they be able to adapt to their new environment? If not, you may consider removing them as there is a good chance that they won't survive the environmental change for very long.

If they appear healthy enough to survive, examine the area around the trees and attempt to identify some of the roots that are close to the surface. Note their location and keep removal and/or damage to them at an absolute minimum.

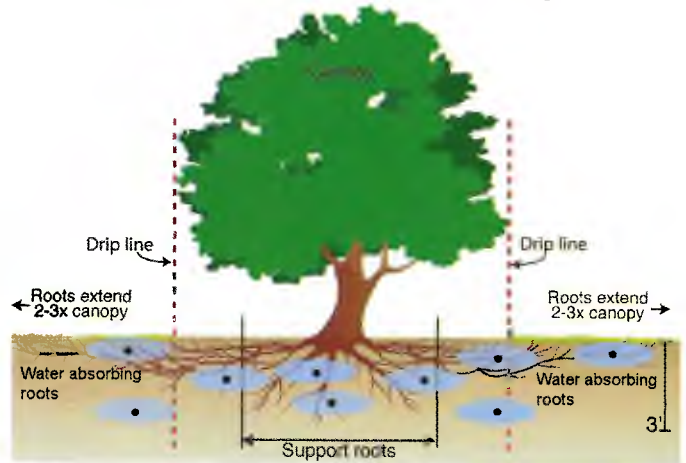
Next, try to plan turf removal during cooler times of the year. Moisture loss from tree leaves is usually lower and, therefore, the need to replenish water will also be less. Water the tree deeply several times in the weeks prior to the project date enabling it to build up some reserves.

The use of herbicides and a dethatcher are preferred over tractors to kill and remove the grass. Tractors or other heavy equipment can crush existing tree roots, break branches, and wound bark tissue. In the event it becomes necessary to use a sod cutter, tractor, or other heavy equipment, a protective barrier should be erected around the above ground portion of the tree(s).

A temporary fence around the tree at the edge of the canopy (dripline) will help to keep renovation equipment a safe distance from the tree and avoid physical injury to the trunk and branches. Keeping the equipment away from the base of the tree will also reduce damage to the large woody roots and keep soil compaction to a minimum. Soil compaction restricts water and oxygen uptake by roots.

Irrigation is probably the most important step and is often installed incorrectly. The new irrigation system must supply water where it will be most needed, under the canopy, at the drip line, and beyond! Too often, in landscape conversion projects, three or four drip irrigation emitters are installed at the base of the tree. Certainly,

this is fine for a newly planted tree, but an established tree? No way! Emitters must be installed in a pattern and quantity that will most benefit the tree. As mentioned above, roots radiate a good distance



out from the tree. The regeneration of feeder roots will require the application of adequate amounts of water. Your goal is to provide 50 to 75 percent of the water (depending on tree variety) that was being applied to the root zone before you removed the turf grass. If other plants are being installed under and/or near the tree canopy, those emitters will provide a portion of the moisture needed by the tree. However, additional emitters need to be installed solely for use by the tree(s). Ideally, they would be isolated on a separate irrigation valve allowing longer and less frequent applications of water.

As you finish the project, don't use plastic sheeting under the rock or organic mulches. Water and oxygen cannot penetrate the film. Therefore, in-lieu of plastic, use a landscape fabric. Landscape fabrics, also known as geotextiles or weed barriers, allow the penetration of water and oxygen yet reduce weed growth. Fabric generally costs a little more than plastic but the benefits and longevity of the material are far greater.

Finally, the mulch, whether rock or some other type, must be installed correctly. If it is too deep it can actually cause significant harm to trees and other landscape plants. Deep layers of mulch can work well at suppressing weeds but it can also lead to excess moisture in the root zone of your plants which can stress the plant and cause root rot. Piling mulch against the trunk or stems of plants can stress stem tissues and may lead to insect and disease problems. Keeping mulch to 2-4 inches thick and tapered away from the base of your trees will provide much better, and long-term results.

Compliments of the Southern Nevada Arborist Group (SNAG)  
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