



Landscape Services

Safety Standard Operating Procedure

(Revised 1/2023)

Tree Planting

This SSOP provides guidance on the safe practice of Tree Planting. Large and/or small equipment may be used while planting trees. As with any equipment or tool, the most basic premise for safe operation is reading and adhering to the manufacturer’s instructions and warnings. This SSOP is not a substitute for the owner’s manual(s) produced by the manufacturer.

Safety Requirements PPE Required: Gloves, safety glasses, hard hat, high-vis vest, optional ear protection. Caution cones and caution tape. The work area should be cautioned off for pedestrian safety. While large equipment is in operation, hard hats and high-vis vest are a necessity for anyone working inside the caution zone. A hard hat must also be worn when operating a t-post driver.

Safety Hazards: Vehicle and pedestrian traffic, underground and overhead utilities, lifting, bending, overhead objects, slipping, dust, noise, sharp objects, blind spots, equipment malfunction, pinch points, hot or cold temperatures, and inclement weather.

Scheduled: As needed. Spring through winter.

Horticultural Elements: Newly planted trees will be on the Install watering list for 90 days, then care is turned over to the Zone. Remove stakes after one year or when the tree is established.

IPM: There are many potential tree pests. While most insects are a normal and healthy part of an ecosystem, don’t hesitate to report any perceived pest issue to the University Arborist. Scale and Squirrels are the most prevalent tree pests on campus. Scale is treated chemically, depending on tree location and time of year. Physical barricades are put between the trunks of new trees and squirrels, usually in the form of plastic-coated chicken wire.

Pre-planting preparation should include but not be limited to securing a dig permit, coordinating with Arborist, Install, and Shop Support teams, gathering all necessary tools as listed in this SOP, and ensuring that everyone involved has appropriate PPE.

Tree Planting Item Checklist

Table with 2 columns and 8 rows listing items for a tree planting checklist, including PPE, tools, and materials.

	*Bolt cutters		Squirrel protection, pliers to cut
	Handsaw		*Tree wrap
	Jute rope		*Irrigation system supplies
	Rubber tree straps		*If applicable

Tree planting position is determined ahead of time. Ex: how far away from sidewalks/buildings/other plantings/lines of center. Tree position will be communicated to planting team via written instructions or directly on site. Position measurements should be double checked before planting and after the tree has been placed in the planting hole.

Tree planting begins with safely loading the tree and moving it to the planting area. Some small containers can be moved manually while others require the tractor. All ball and burlap trees will require the tractor. While working near large equipment, staff must wear hard hats and high-vis vests. When possible, wrap the tree trunks with blankets and secure with duct tape. Using the forks on the tractor, lift the tree from the sand and place into the back of a gator or trailer. Strap trees appropriately to ensure they won't move in the transport process. Leave the blanket on until the tree is in the planting hole.

Digging a planting hole may be completed manually with hand tools, or with assistance from Shop Support with heavy equipment. Usually a backhoe. If the tree is being planted in a turf area, remove turf from the entire tree planting ring. Tree rings should be a minimal 6" in diameter when planting space allows. Discard turf or repurpose elsewhere. While digging, spoils should be collected on top of a black mat, in the bed of a gator, or a different container to prevent soil from settling into nearby turf. This accomplishes a cleaner look at the end of the planting. Grass should be raked back upright after the temporary holding structure is removed.

Trees should be planted no deeper than the root ball measured from the bottom of the root ball to the trunk flare at the top of the soil level, and generally 2 - 3 times the diameter width of the root ball. We typically plant in holes no smaller in diameter than 6-8 ft. Lay a t-post or straight board across the top of the planting hole next to the root ball to check its depth in conjunction with the soil grade. In irrigated heavy soils, the trunk flare base should be 1 to 2 inches above the existing soil grade at planting. In poorly drained, waterlogged soils, the trunk flare should be 2 to 4 inches above existing soil grade. If the hole was dug too deep, add soil to the bottom of the hole and compact it firmly with your feet. The planting hole's side walls should be scarred to allow for water and root penetration verses a smooth surface that creates compaction and sealing. Another option in heavy clay soils is to drill holes into the planting hole's bottom and sidewalls to encourage further root penetration.

For ball and burlap trees, attach an appropriately sized tree harness. Using the forks on the tractor, lift it from the gator or trailer and move it to the planting hole. Hard hats and high-vis vests should be worn around large equipment.

When planting ball and burlap trees; remove the burlap, twine, nails, and wire baskets before back filling the hole. Girdling will occur if items are left in place, which will shorten the life of the tree. This may be done prior to placement in the hole. However, it is preferred to complete this step after placing the specimen in the planting hole. Sometimes as the burlap comes off, the root ball can become unstable which may not be healthy for the new tree.

When planting container grown trees scarify the sides and base of the root ball to avoid tree girdling and encourage horizontal root regeneration out into the soil.

Fill around the root ball with the existing un-amended soil to help stabilize the ball. Break up large soil clumps and do not over pack the soil. Small air pockets are okay and encourage root development. Sometimes extra soil may be needed to completely fill the planting hole.

Staking is essential for all new tree plantings. On rare occasions root ball stakes may be used, *see final paragraph for more detail. But most trees are staked with t-posts. On or near main campus we use 8ft wooden tree stakes. For smaller trees they may be cut to a more appropriate height. Most trees will require three t-posts. The first is set to the north of the tree on the outer side of the water holding reservoir (see explanation further down). The next two are set to form an equilateral triangle. The person using the t-post driver must wear a hard hat. Smaller caliper trees can often get by with two t-posts. Use heavy duty jute rope/twine to tie from the post guyed to a stretchable rubber inner tube strap with grommets, located above the first row of branches on the tree. Coarse nylon straps, rubber water hoses and similar products should not be used since they are rigid causing tree trunk bruising and wounds. Tree stakes should not be left on trees for more than eight to twelve months depending on the planting season. Trees four-inch caliper and larger should have three green t-post stakes equally spaced used for tying, set at a uniform height.

Jute rope/twine should be snug but not unyielding to allow for some minimal movement of the trunk. Safety caps and ribbon could be used on posts and twine in specific situations to circumvent pedestrian injury.

A water holding reservoir should be constructed along the edge of the tree ring with extra soil at a height of 4 to 6 inches depending on the tree size. The reservoir holds water and forces it down to the root system verses running off along the soil surface. Sometimes extra soil must be brought to the site to complete the water holding reservoir. The reservoir berm should be removed after one year or when the tree is established. Do not push the excess soil onto the root ball or trunk since it can change the planting depth. Instead, remove the berm soil from the site.

As soon as the tree has an established water holding reservoir, the tree should be watered in at time of planting. This can be accomplished using a water hose if there is a nearby source. Or a water wagon may be employed. If possible, irrigation to the tree should also be installed.

Usually wood chips, but sometimes much should be spread over all bare soil and the water holding reservoir at a depth of about two inches.

Squirrel protection, plastic coated chicken wire, should be loosely wrapped around the trunk of the tree from the base to the first whorl of branches. Seasonally in the winter months, tree wrap such as crinkle paper or burlap may also be wrapped around this portion of the trunk to prevent southwest injury.

A tree planting schematic is found in Figure 1. Tree planting examples found in Images 1 and 2.

Figure 1: Tree planting schematic.

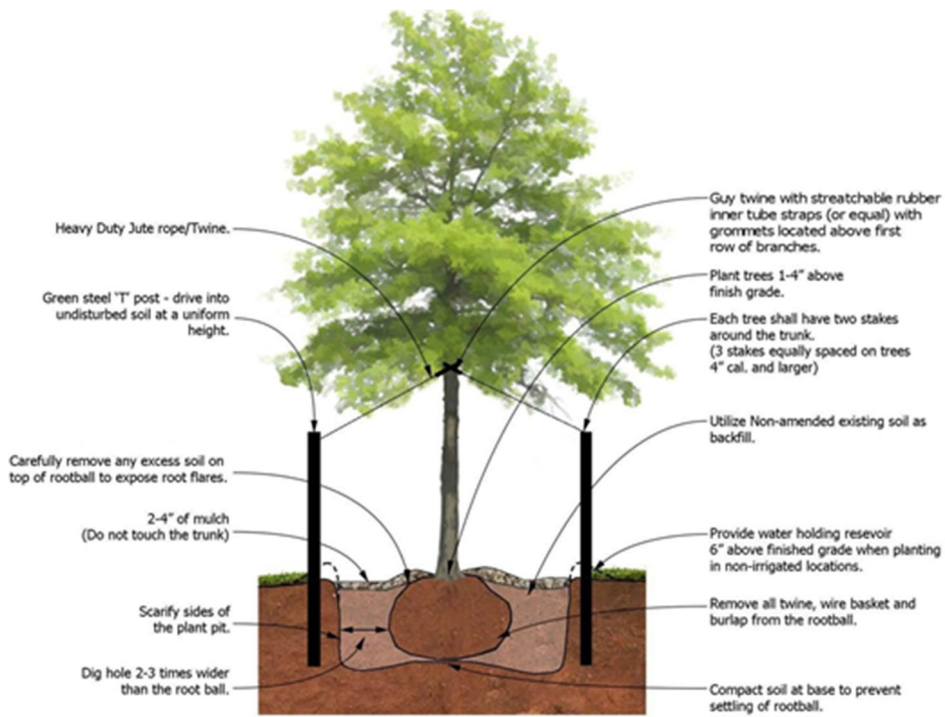


Image 1: Ideal tree planting. Last steps are applying wood chip layer and watering in.



Image 2: Completed Planting.



*Root ball stabilization stakes can be used when root balls are firm and hold together, and in locations where trunk stakes are unsightly. Untreated lumber is used horizontally to brace the root ball at the ground level with additional lumber attached and driven into the

existing soil out past the planting holes backfill Mulch can be used to cover the lumber which would not need to be removed like a trunk staking system since it will decay within a few years.