

**The University of Texas at Rio Grande Valley– Facilities
Services**
***Tree Preservation and Protection-
Standards and Specifications***

These requirements and specifications shall pertain to all construction projects on The University of Texas at Rio Grande Valley (UTRGV) campus, including The University of Texas

Systems Projects (Office of Facilities Planning and Construction, OFPC), and UTRGV Project Management and Construction Services, PMCS. All trees on campus fall under this provision. Projects primarily fall under OFPC or PMCS but these standards and specifications shall apply to all trees on main campus and the Pickle Research Center campus (PRC).

Damage to trees is not always visible. Impacts to the root systems of trees are common on construction sites, and may not be immediately apparent; trees can show signs of decline years after root damage occurs. It is for this reason that this specification addresses damage prevention as it pertains to construction parameters. This specification also details requirements for workers on site—areas off limits for parking, storing equipment, etc. The goal is to address conflicts before they arise and before start of work.

Failure to adhere to these standards and specifications shall result in work stoppage (in the affected work area).

1.00.0 Definitions

- *Caliper Inch*: is the diameter of a young tree. It is measured 6” above ground for trees up to and including 4” caliper size. If caliper at 6” above ground exceeds 4” caliper, the tree will then be measured at 12” above the ground. Newly planted (nursery stock) trees on the University of Texas at Austin campus are measured in caliper inches.
- *Critical Root Zone (CRZ)*: an area from the base of the tree that extends beyond the drip line. It is equal to 1 foot radius for every inch of stem diameter. This minimum area is needed for tree and root health and stability.
- *Damage or damaged*: A tree is considered “damaged” when a physical/mechanical action damages parts of the stem, canopy or roots.
- *Diameter at Breast Height (DBH)*: a standard method of measuring stem diameter 4.5 feet above the ground. Established trees on The University of Texas at Austin campus are measured in DBH inches.
- *Drip Line*: Considered the outer edge of the tree canopy. An imaginary vertical point that extends from the canopy edge to the ground.

- *Heritage Trees*: Trees greater than 24" DBH. Does not include: Tree of Heaven, Salt Cedar, Mimosa, Chinese Tallow, Paper Mulberry, Siberian Elm, White Mulberry, Vitex, Russian Olive, Chinese Parasol, Golden Rain Tree, Ligustrum species, Chinaberry, Nandina, Photinia, and Pyracantha.
- *Landscape Services (LS) representative*: urban forester, staff arborist (or designee by UTRGV landscape services).
- *Owner*: TBD by project scope
- *Owner's representative*: TBD by project scope but usually an OFPC or PMCS project manager.
- *Replacement Tree*: A self-supporting tree on the UTRGV Desirable Tree Species list that meets caliper inch requirements.
- *Tree Survey*: Part of the construction plans; contains tree tag number, location of trees (GPS located if possible), DBH, species, and drip line (if possible).
- *Tree Protection Plan*: A written part of the construction plans that describes measures to protect trees during all phases of the project; it should include details, notes, location of tree protection fence, and any other applicable items.

2.00.0 Preconstruction Requirements

An ISA Certified Arborist <http://www.isa-arbor.com/certification/index.aspx> shall manage any contract work dealing with trees on The University of Texas at RGV campus. All tree care activities shall require at minimum, an ISA Certified Tree Worker to be on site at all times. UTRGV tree-related construction standards and specifications can be found on the PMCS website at:

<http://www.utexas.edu/pmcs/dcstandards/> Additional construction details for trees are forthcoming.

Trees to be planted and managed on construction sites at The University of Texas at Austin shall adhere to specifications based on the most recent editions of the following:

2.00.1 American National Standards Institute (ANSI) Z60.1-2013

2.00.2 ANSI A300-01 Pruning (2014)

2.00.3 ANSI A300-02 Soil Management (Fertilization) (2011)

2.00.4 ANSI A300-05 Management of Trees and Shrubs during Site Planning, Site Development, and Construction (2012)

2.00.5 ANSI A300-06 Planting and Transplanting (2012)

2.00.6 ANSI A300-08 Root Management (2013)

2.00.7 Related ISA Best Management Practices (BMP's)

2.01.0 Pre-Construction Conference

A pre-construction meeting with the Owner's Representative shall be set at least seven days before start of work to review any questions the Contractor may have regarding the work, administrative procedures during construction, and project work schedule. This meeting shall include a UTRGV LS representative.

2.01.1 The following Contractors shall attend the preconstruction conference:

2.01.11 General Contractor

2.01.12 Consulting Arborist

2.01.13 Subcontractor assigned to install Tree and Plant Protection measures

2.01.14 Earthwork Contractor

2.01.14 All site utility Contractors that may be required to dig or trench into the soil.

2.01.15 Landscape subcontractor

2.01.16 Irrigation subcontractor

2.02.0 Development Site Tree Assessment

2.02.01 The UT Arborist shall provide a tree evaluation of trees on site. This will be communicated to OFPC, PMCS and other applicable UT departments prior to any site preparation beginning. The project may provide an assessment from an outside arborist (ISA Certified Arborist, or ASCA Registered Consulting Arborist (RCA); this assessment shall include all potential tree pruning, removals, health care, or transplanting and must be approved by the UT arborist. A written report and map including the current condition of the tree shall be provided.

2.03.0 Tree Survey

2.03.1 Any outside tree survey shall use the existing University of Texas at Rio Grande Valley tree inventory tag numbers. If a tree is missing a tag or has a number that is illegible or not intact, then a new number can be assigned and tagged on that tree. Inform UT Arborist of these changes. Do not remove existing tree tag numbers. If needed, UT Arborist shall provide tree inventory data for project area. **2.03.2** All trees 8" DBH and greater on all development sites shall be surveyed and shown on the site plan. Survey criteria shall state tree number, species, and tree DBH, and shall cross-reference existing tree numbers. Any tree survey must be vetted by the UT Arborist prior to the issuance of construction documents.

2.04.0 Critical Root Zone Determination (CRZ):

The UT Arborist will coordinate specific requirements regarding scaffolding, construction traffic, build back, forms, foundation or any other issues as they relate to CRZ. These standards act as the minimum amount of preservation required:

2.04.1 1 foot of radial protection per diameter inch of tree shall determine CRZ (i.e., a 20" tree would have a 40 foot diameter CRZ; see chart below) **2.04.2** Areas:

2.04.21 A quarter of CRZ means no impact is allowed

2.04.22 Half of CRZ means no cut or fill greater than 4" is allowed (i.e., for a 20" tree it would be 20ft in diameter)

2.04.23 Total CRZ needs to be preserved by at least 50%

Tree diameter, DBH (inches)	Critical Root Zone, CRZ (feet)
8 inches	16 feet
10 inches	20 feet
15 inches	30 feet
20 inches	40 feet
25 inches	50 feet
30 inches	60 feet
40 inches	80 feet

The Critical Root Zone - Development Impact Zones

Example: 20 inch diameter tree



Graphic Used with Permission from City of Austin

2.05.0 Tree Protection Fencing

All trees and natural areas shown on plan to be preserved shall be protected with temporary chain-link fencing. In areas where installation of chain-link fencing would be detrimental to a tree or a tree's root system, other methods of fencing

may be acceptable per approval from UT Arborist (i.e., Chain-link panels, plastic fencing, etc.).

2.05.1 Protective fences shall be erected according to The University of Texas at Rio Grande Valley standards for tree protection.

2.05.2 Protection fencing shall be installed prior to the start of any site preparation work (clearing, grubbing grading) and shall be maintained throughout all phases of the construction project until the final walkthrough is performed unless prior approval is sought through UT Arborist.

2.05.3 Tree protection fencing that is damaged or found to be non-compliant shall be repaired/replaced within 24 hours of notice or a stop work order shall be given.

2.05.4 Erosion and sedimentation control barriers shall be installed or maintained in a manner that does not result in damage to the tree or Critical Root Zone (CRZ) and in a manner that does not result in soil buildup.

2.05.5 Protective fences shall surround the trees or groups of trees, and will remain at the location specified in the approved site plan. For natural areas, protective areas shall follow the limit of construction line in order to prevent the following:

2.05.51 Soil compaction in the root zone area as a result from vehicular traffic or storage of equipment and materials.

2.05.52 Root zone disturbances due to grade changes (greater than 4 inches of cut or fill), or trenching not approved or authorized by the UT Arborist.

2.05.53 Wounds to exposed roots, trunk or limbs by mechanical equipment.

2.05.54 Other activities detrimental to trees such as chemical storage, concrete clean-outs and other construction spoils.

2.05.6 Exceptions to installing fences at CRZ shall be permitted in the following cases:

2.05.61 Where there is to be an approved grade change, impermeable paving surface, tree well, or other such site development, erect the fence 2 to 4 feet beyond the area disturbed.

2.05.62 Where permeable paving is to be installed within a tree's CRZ, erect the fence at the outer limits of the permeable paving area (prior to site grading so that the area is graded separately prior to paving installation to minimize root damage).

2.05.63 Where construction activities come within 6 feet of any tree, protection of the trunk with strapped on planking to the height of 8 feet (or the limits of lower branching) may be required in addition to the reduced fencing provided.

2.05.64 Where trees are close to proposed buildings, erect the fence so there is 6 to 10 feet of workspace between the fence and the building.

2.05.65 Where there are severe space constraints due to limits of

construction (LOC) or other special requirements contact the UT Arborist.

2.05.66 Special Note: For the protection of natural areas, fences are required. No exceptions.

2.06.0 Tree Transplant Specifications

2.06.1 Trees suitable for transplanting and their future locations shall be designated on site plan and marked on site at least six months prior to commencing site preparation activities.

2.06.2 Tree transplant contractor should be allowed at least 90 days lead time for root pruning activities prior to moving trees.

2.06.21 It is recommended that trees be moved between the months of October and February, if possible.

2.06.3 Final grading and elevation of transplant trees shall be confirmed prior to final issuance of construction documents.

2.06.4 Coordination of logistics for movement of transplant trees shall include OFPC, general contractor, engineer, and UT Arborist.

2.06.5 Transplanting of trees shall be done in a manner that is industry standard (e.g., time-tested practices etc.). UT Arborist shall approve these means and methods.

2.06.6 The tree transplant contractor or landscape subcontractor shall maintain all transplanted trees during construction and for an additional twelve months following substantial completion. In addition, all transplant trees must survive two years past substantial completion.

2.06.61 To include irrigation, mulching, erosion control, weed control, and any other necessary plant care activities.

2.06.62 If a tree fails to survive the 2 year timeframe, a new tree will be provided by the general contractor (size and species TBD).

2.07.0 Tree Removal and Repurposing Specifications

2.07.1 Trees approved for removal shall be removed in a manner that does not impact trees to be preserved. Reference *Technical Standards Subsection 3.00.0*.

2.07.2 Contractor performing tree removal shall coordinate with UT Arborist to remove selected trees in a manner that will enable them to be processed into usable materials.

2.07.3 Contractor will transport trees removed for repurposing to a local UT property (exact location TBD).

3.00.0 Tree Protection During Construction

3.01.0 Projects on The University of Texas at Rio Grande Valley shall adhere to specifications based on the most current editions of the following:

3.01.1 American National Standards Institute (ANSI) A300– 05 Management of Trees and Shrubs during Site Planning, Site Development, and Construction (2012).

3.01.2 ANSI z133.1 Safety Standards

3.01.3 Related ISA Best Management Practices (BMP's)

3.02.0 Trees within LOC are ultimately the property of The University of Texas at Rio Grande Valley. All attempts shall be made to ensure survivability of trees in regards to construction impacts. Including:

3.02.1 Continuous inspection of tree protection fencing installed per university specifications and approved site plan (by UT arborist and general contractor).

3.02.2 Any encroachments into tree protection fencing and CRZs shall be brought to the attention of the project manager and/or construction inspector, UT Arborist, or Landscape Services representative. **Refer to section 2.05.3**

3.02.3 Deviations from approved tree preservation plans will occur only with written authority from UT Arborist or UT Landscape Services Representative.

3.03.0 Critical Root Zone Management

Any roots two inches (2") or greater severed by construction activities shall be pruned flush with the soil. Roots severed shall be backfilled with quality soil or compost as soon as possible. Cuts to oak roots shall be made using disinfected tools and painted when finished. If exposed roots are not backfilled within 48 hours, cover them with organic material in a manner that reduces soil temperature and minimizes water loss due to evaporation. Excavations within CRZ shall be first assessed by means of air excavation. Utilizing a compressed air tool significantly decreases damage to roots. Locating roots using this method allows for proper root pruning and preservation techniques that will increase the chance of survival of the tree.

3.03.1 Air Excavation Specifications:

3.03.11 A compressor-powered air excavation tool shall be used to "pothole" (probe soil to certain depth in search of root material) proposed excavation areas.

3.03.12 Roots 2" and greater will be exposed and cut cleanly back to existing soil (wound paint and disinfected tools required for all oaks).

3.03.13 A quality topsoil and/or compost shall be used as backfill in areas where roots are present.

3.03.14 Coordinate with the requirements of the proposed Planting Soil section for modifications to the soil within the root zone of existing trees.

3.03.2 Any trenching required for the installation of landscape irrigation shall be installed as far from existing tree trunks as possible, and must be outside of quarter CRZ .

3.03.3 No soil greater than 4 inches shall be permitted within the half CRZ of trees. No soil or mulch is permitted on the root flare of any tree.

3.03.4 Pruning to provide clearance for structures, vehicular clearance and equipment shall take place before damage occurs (ripping of branches etc.).

3.03.5 All pruning shall be performed to ANSI A300 - 01 Pruning Standards (2014), ANSI Z133.1 Safety Standards, and be completed by tree care professionals with a minimum of an ISA Certified Tree Worker on site. No more than 25% of the tree may be pruned. Anything above 25% must be approved by UT Arborist.

3.03.6 UT Arborist shall approve any modifications to the tree protection plan.

3.03.7 Removal of Hardscape Areas from CRZ

Special care shall be taken when removing sidewalks, streets, pavers, etc., from within CRZ. This will include but not be limited to:

3.03.71 Saw cutting and hand removal of materials within CRZ

3.03.72 Reduced heavy equipment access within CRZ

3.03.73 Installation of mulch (4-6 inches) within CRZ for root protection

3.03.8 Installation of Ground Protection Mats or Mulch

3.03.81 Areas where foot traffic or storage of lightweight materials is unavoidable, provide a layer of 4-5 inches of wood chips or mulch.

3.03.82 Areas where heavy vehicle traffic is unavoidable provide a layer of 68 inches of wood chips or mulch and add ground protection mats on top.

3.03.9 Concrete Washout areas shall be outside of CRZ.

3.04.0 Irrigation Standards for Trees Preserved on Site

In order to minimize impacts of construction, trees located within LOC and slated for preservation shall continue to receive the necessary levels of irrigation to ensure survival. Coordination must be made between UTLandscape Services Irrigation staff and the general contractor.

3.04.01 Trees within preservation zones will continue to be irrigated through duration of project.

3.04.02 Irrigation systems shall be continually monitored to ensure correct coverage.

3.04.03 If irrigation service is interrupted, water shall be provided by the general contractor. Water barrels, tree gators and water trailers/tankers are suitable substitutes.

3.05.0 Maintenance of CRZ Areas within LOC

Contractors shall be responsible for grass and weed maintenance inside LOC and tree protection fence areas.

3.05.01 Grass will remain trimmed inside all tree protection fencing, work shall be performed on the same frequency as surrounding area.

3.05.02 Routine hand weeding is required for all mulch areas located within the tree protection zone.

3.05.03 Trash inadvertently deposited within tree preservation zones shall be removed prior to trimming or mowing.

3.06.0 Tree Inspections

To ensure compliance of tree preservation, a UT Arborist, UT- Landscape Services representative, or a project appointed arborist, shall conduct regular inspections. Frequency based on project needs. If project has a consultant arborist, inspections shall be monthly at minimum. Reports shall be provided to the university project manager and sent to all parties. Inspections shall include:

3.06.01 Tree preservation zone encroachment

3.06.02 Structural integrity of tree protection fencing

3.06.03 Irrigation/soil moisture levels

3.06.04 Evidence of plant stress

3.06.05 Insects and disease activity

3.06.06 Dust levels on leaves

5.00.0 Tree Mitigation Policy

5.01.0 Heritage Trees

5.01.1 Heritage Trees (24" DBH and above) shall not be removed without a review process, except those species listed in section 5.04.2 below. That review will take into account the following:

5.01.12 Current health of the tree (tree is dead, tree is a risk, or tree is diseased)

5.01.121 UT Arborist shall determine current condition of tree. If tree is dead, diseased, or poses a risk, UT Arborist will evaluate and this will affect mitigation requirements.

5.01.13 Final approval will be determined by the Director of Facilities Services for UT- RGV.

5.01.2 Trees shall be replaced on a 3" to 1" ratio (i.e., if you have removed a 24" DBH tree, 72 caliper inches must be replaced). *See section 1.00 for difference between DBH and caliper.*

5.02.0 8"- 23.9" DBH Trees

5.02.1 Trees shall be replaced on a 1" to 1" ratio, except those species listed in section 5.04.2 below. For example: a 20" diameter tree will be replaced by 20 caliper inches; this could mean five, 4" trees or ten, 2" caliper trees.

5.03.0 Trees less than 8" in diameter require no replacement for any species. (see section 6.01.4 for preservation credits).

5.04.0 Species

5.04.1 The following species are required to be replaced:

All Native Texas Oaks, Acacaho orchid, Anacahiuta, Anacua, Bald Cypress Black Willow, Brasil, Cedar Elm, Chapote, Colima, Coma Del Sur, Coral Bean, Desert Yaupon, Honey Mesquite, Magnolia 'Bronze Sentinel,' Mescal Bean, Mexican Sycamore, Montezuma Cypress, Pecan, Retama, Spiny Hackberry, Tepeguaje, Texas Ebony, Texas Paloverde, Texas Persimmon, Western Soapberry, White Brush, Wright Catclaw and Yaupon Holly.

5.04.2 The following species are not required to be replaced on any site:

Chinese Parasol, Chinese Tallow, Chinaberry, Golden Rain Tree, Hackberry, Ashe Juniper, Ligustrum species, Vitex, Mimosa, Nandina, Paper Mulberry, Photinia, Pyracantha Russian Olive, Salt Cedar, Siberian Elm, Tree of Heaven and White Mulberry.

5.05.0 Memorial Trees

5.05.1 Various memorial trees exist throughout The University of Texas at Rio Grande Valley campus. The project shall attempt to preserve in place or transplant any memorial trees on the site. The university reserves the right to remove or relocate trees in an unforeseen circumstance. If a tree cannot be relocated due to restrictions of tree size and available planting locations, the tree will be removed and replaced with a new one at the discretion of the UT Arborist. The first option shall be to replace on site if space is available; costs to be covered by the project.

5.06.0 Trees with Historical Significance

5.06.1 The project shall make every attempt to preserve in place or transplant any trees with historical significance within LOC. The university reserves the right to remove or relocate trees in an unforeseen circumstance. If a tree cannot be relocated due to restrictions of tree size and available planting locations, the tree will be removed and replaced with a new one(s) at the discretion of the UT Arborist. The first option shall be to replace on site if space is available; costs shall be covered by the project.

6.00.0 Tree Replacement Requirements

6.01.0 Tree mitigation shall be required when the above sizes of trees are removed.

Examples shall include one or more of the following mitigation measures:

6.01.1 Planting replacement trees on the site in accordance with the latest edition of the American Standard for Nursery Stock (ANSI Z60.1).

6.01.2 Transplanting existing trees on site or nearby. Any transplant tree can count 50% toward total mitigation; for example: a 30" diameter oak would count toward 45 inches of required mitigated inches (due to heritage trees being replaced 3:1).

6.01.3 If above options have been exhausted, trees shall be planted at other available locations on main campus, other local UT properties, or with a local tree non-profit.

6.01.4 All trees (from section 5.04.1) below 8" diameter that are preserved on site will count 50% toward total mitigation; for example: five 6" elm trees are preserved on the perimeter of the site – this would count toward 15 inches of required mitigated inches.

6.02.0 Quantities of Replacement Trees

6.02.1 Existing tree inches are calculated in DBH inch but replacement trees are calculated in caliper inch (i.e.: 20" DBH tree removed equals 20 caliper inches replaced).

6.02.2 Size of trees replaced on development sites should range between 1” and 4” in caliper. Trees greater than 4” may be planted if feasible and approved by UT Arborist.

6.02.3 Replacement trees shall be planted to the extent on the site without jeopardizing spacing requirements for future growth of the trees, or impacting existing tree canopy.

6.02.4 Newly planted trees on development projects shall be spaced in the following manner:

6.02.41 Large trees shall be planted at least 30 feet off center

6.02.42 Medium sized trees shall be planted at least 20 feet off center

6.02.43 Small sized trees shall be planted with proper spacing per species

6.02.5 Types and sizing of replacement trees: refer to the UT Austin

Desirable Tree Species List:

<http://www.utexas.edu/facilities/divisions/support/documents/UT-Desirable-Tree-List.pdf>

*Disclaimer: Riparian restoration projects may have a different list of desirable species.

6.02.6 A minimum of 5 different species from the UTRGV Desirable Tree Species List should be planted if more than 100 caliper inches is required. No more than 30% of one species should be planted.

6.02.7 Newly planted trees should have the following available soil volumes:

6.02.71 Large trees (from desirable species list) - 1,000 ft³

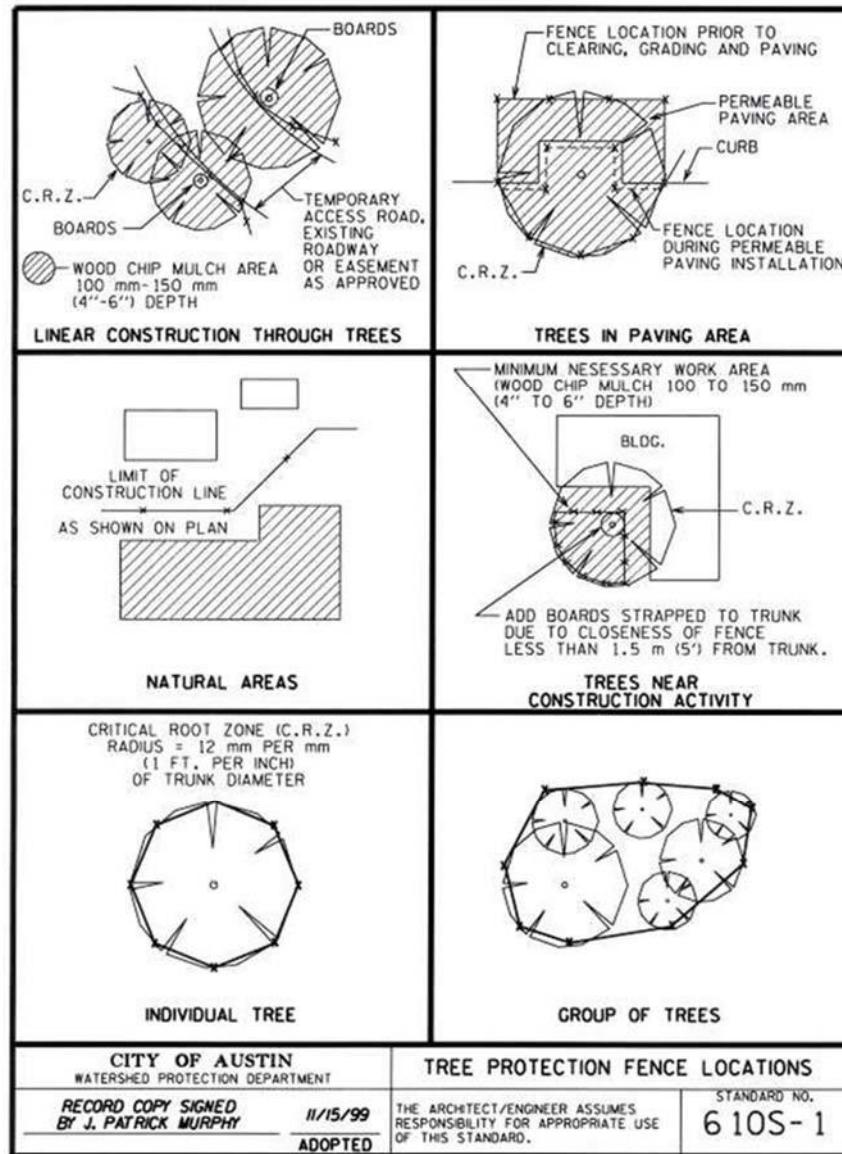
6.02.72 Medium trees – 500 ft³

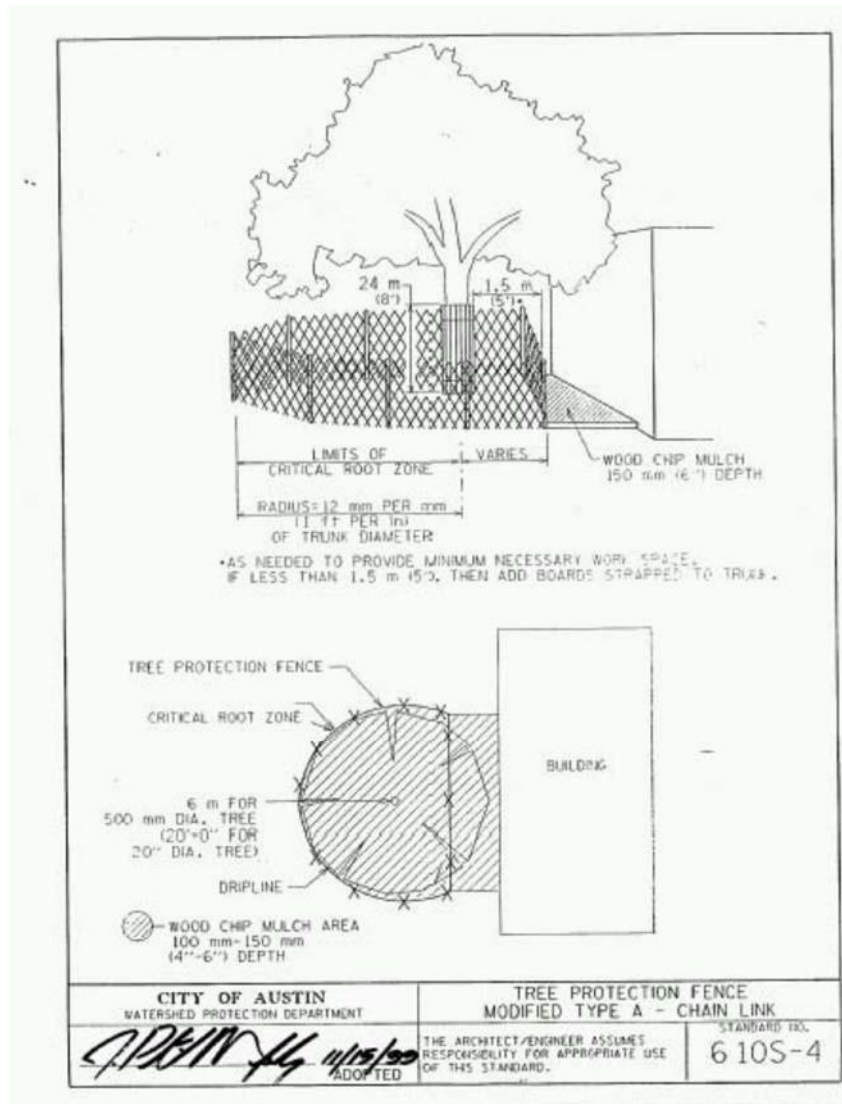
6.02.73 Small trees (ornamental) – 275 ft³

6.03.0 Planting Season Requirements

6.03.1 Optimal tree planting window in South Texas is typically from October through March. Projects shall consider this during the site plan process. If possible, landscape installations should be held to that time frame. Signage and education materials can be used to assist in this area. Consider minimal plantings to suffice until planting season.

Examples of tree protection details for construction documents:





Technical Standards for Tree Planting, Maintenance and Removal

1.00.0 Tree Planting Specifications

1.01.0 Projects on The University of Texas at Rio Grande Valley shall adhere to specifications based on the most recent editions of the following for tree planting:

1.01.1 American National Standards Institute (ANSI) A300 – 06 Planting and Transplanting Standards (2012)

1.01.2 American National Standards Institute (ANSI) Z60.1-2013, standards for nursery stock

1.01.3 ANSI Z133.1 Safety Standards

1.01.4 Related ISA Best Management Practices (BMP's)

1.02.0 Planting Soil: refer to UTRGV soil specifications and standards.

1.03.0 Irrigation: Refer to UT-RGV landscape irrigation specifications. Note: Tree irrigation zones (valves) must be separate from other landscape irrigation zones. Every newly planted tree shall have a minimum of 1 irrigation bubbler installed (drip allowed), with the goal of watering as much of the root ball surface area as possible.

1.04.0 Staking: Place 3 t-posts (or similar) around each tree, and drive into existing soils. Wire, rope, or other methods of securing the tree shall not injure the bark. Stakes should be removed after the first growing season. Posts must be marked for safety (painting, caps, etc.). Six foot t-posts are the typical means of staking.

1.05.0 Tree Grates: Only in instances of pier and beam (floating-deck) walk areas will tree grates be permitted. These are areas where a significant gap exists between top of root ball of newly planted trees and the finished elevation of the hardscape. No tree grates shall be installed on existing mature trees.

1.06.0 Types of Nursery Stock: Trees and shrubs can be purchased as bare root, in containers or pots, or with root balls wrapped in burlap (B&B). Bare root trees and shrubs are usually less expensive than containerized or B&B plants, but are available only during their dormant season, usually in early spring. Containerized and B&B trees and shrubs are available throughout the growing season. The preference is for all plant material to be from local seed source. UT-landscape services shall receive at least 48 hour notice of delivery of plants to job site.

1.06.1 Planting of Bare Root Trees

1.06.11 Roots of bare root trees should be moist and protected at all times prior to planting. Prepare planting hole for each plant before removing it from their protected area.

1.06.12 The hole prepared shall be large enough to spread the roots without crowding. The sides of the hole shall be roughed sure to ensure glazing of hole does not occur.

1.06.13 Inspect roots and prune any that appear broken or damaged.

1.06.14 Place the roots in the hole at a level so that the soil surface will be at the same level where the plant was previously growing, as indicated by the slightly darker area of the trunk. Trees should be planted so that trunk flare is visible above the final soil surface.

1.06.15 Backfill with existing soil from excavated hole, and add the soil into the hole a few inches at a time, firming the soil after each addition. While backfilling, be sure the plant remains vertical and be careful not to damage roots. Use water to settle the soil around the roots while backfilling. Do not compact wet soil.

1.06.16 After backfilling is complete, form a ridge of soil (berm) around the edge of the hole to hold water on the roots.

1.06.17 Thoroughly water the plant at installation. Mulching with a local hardwood mulch helps retain moisture and deter weeds. Mulch root ball with 3" of mulch and keep mulch 1-2 inches away from the plant's trunk to prevent damage from moisture.

1.06.2 Planting of Containerized Trees

1.06.21 Prepare a planting hole as described in #2 above. The depth of the hole should be the same as the soil in the container, and the width of the hole should be at least twice the width of the container.

1.06.22 Once the planting hole is prepared, lay the containerized tree or shrub on its side and gently slide the plant out of the container. It may be necessary to push on the sides of the container to loosen the root ball. If the plant has become root-bound and roots have circled the container, slice the root ball in 4-5 places with a pruning saw or hand pruners that will cleanly cut roots. Loosen exterior of root ball to promote lateral root growth.

1.06.23 Place the intact root ball in the hole. Trees should be planted so that trunk flare is visible above the final soil surface. Ideally, this is the same level at which the tree was growing in the container, but many trees are buried several inches deep.

1.06.24 Backfill the soil into the hole a few inches at a time, firming the soil after each addition. While backfilling, be sure the tree remains vertical.

1.06.25 Form a ridge to hold water and stake and protect trees as described above under "Planting Bare Root Trees and Shrubs."

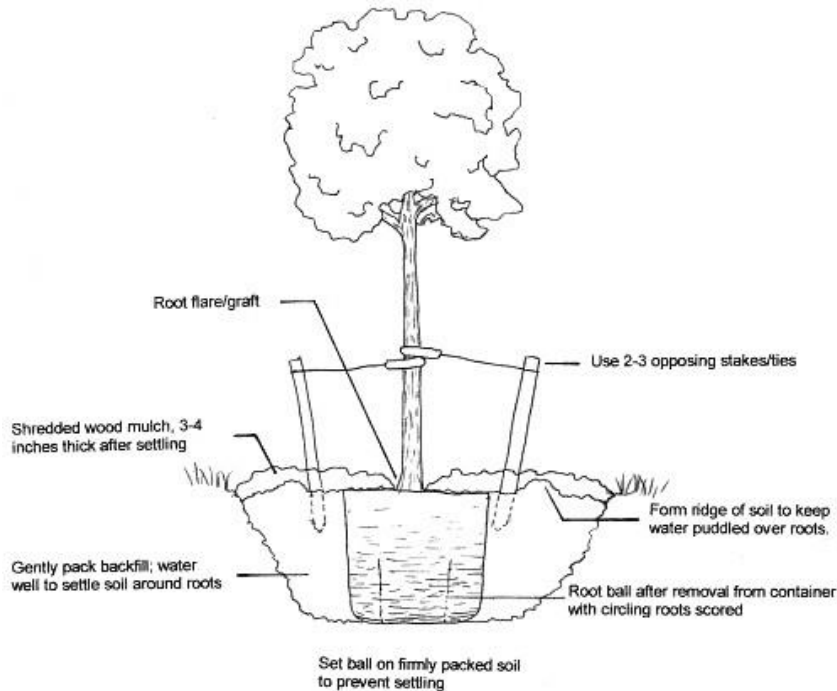


Diagram 2

1.06.3 Planting of Balled and Burlapped Trees (B&B)

1.06.31 Prepare a planting hole as described above. The depth of the hole should be the same as the soil in the root ball, and the width of the hole should be at least twice the width of the root ball.

1.06.32 Place the root ball into the hole so that the soil surface will be at the same level where the plant was previously growing, as indicated by the slightly darker area of the trunk. This is usually the same level as the soil in the root ball. Trees should be planted so that trunk flare is visible above the final soil surface.

1.06.33 Cut the twine from the root ball and peel back the burlap and any metal basket or other material meant to hold the root ball together. Remove burlap from at least top third of root ball. Remove all metal from root ball. Also be sure to remove all twine from around the trunk of the tree or shrub.

1.06.34 Backfill the soil into the hole a few inches at a time, firming the soil after each addition. While backfilling, be sure the tree remains vertical.

1.06.35 Form a ridge to hold water and stake trees as illustrated.

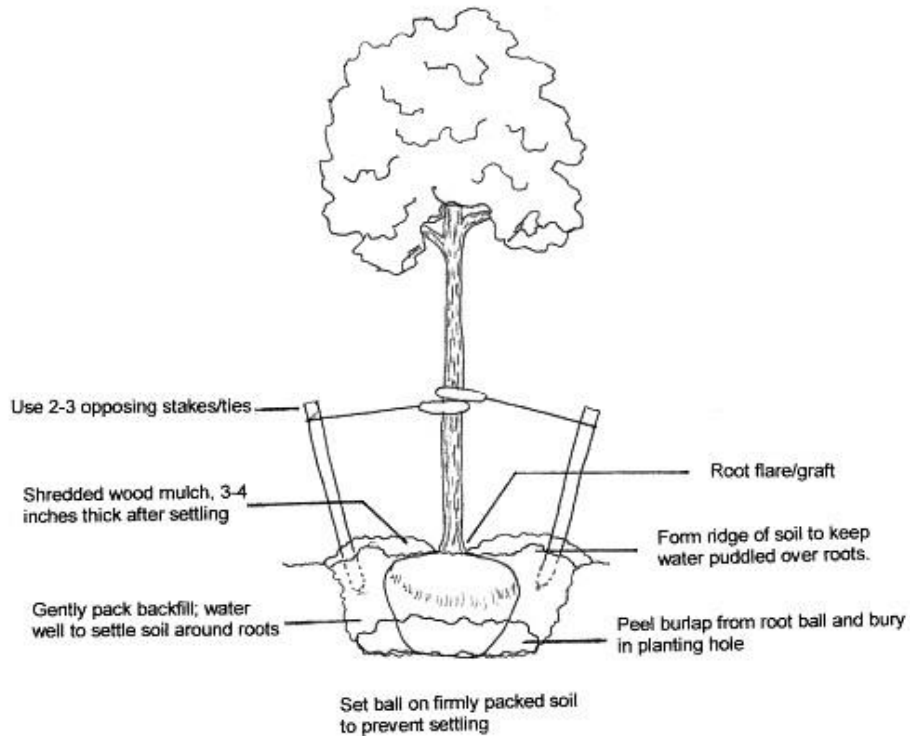


Diagram 3

1.07.0 Install a tree guard on the base of each new tree to protect from weed trimmer damage. The guard must be expandable as the tree grows.

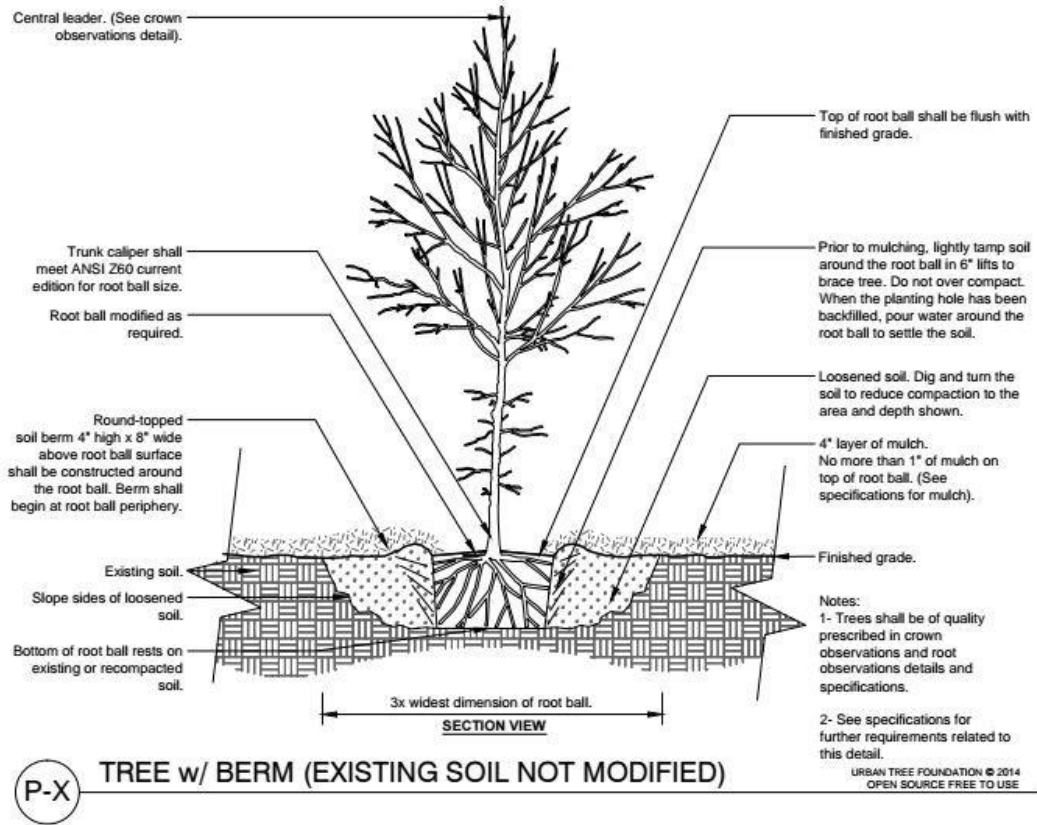
Appropriate B&B Root Ball Sizes

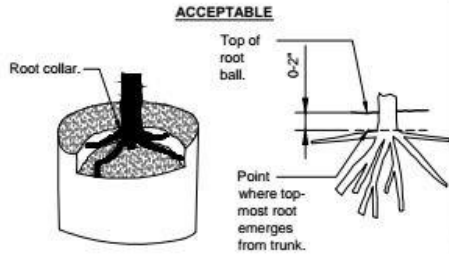
Trunk Caliper (inches)	Root ball Diameter
1/2	12
3/4	14
1	16
1 1/2	20
2	24
2 1/2	28
3	32

Common Planting Problems

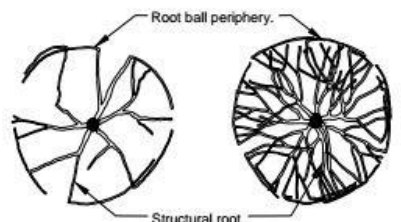
- Planting too deep – roots suffocate
- Planting too shallow – roots dry out
- Hole too narrow – root system struggles to establish
- Soft fill added to bottom of hole – plant settles too deeply

Twine left on trunk – girdles trunk
 Wire basket left intact – girdles roots
 Container tree circling roots left intact – root system struggles to establish/girdles trunk
 Examples of tree planting details for construction documents:

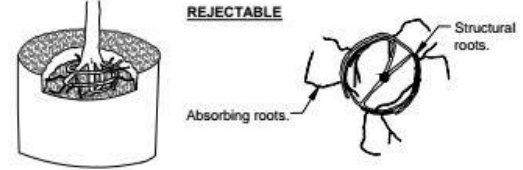




The point where top-most root(s) emerges from the trunk (root collar) should be within the top 2" of substrate. The root collar and the root ball interior should be free of defects including circling, kinked, ascending, and stem girdling roots. Structural roots shall reach the periphery near the top of the root ball.

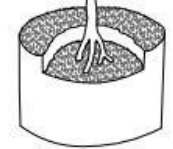


Roots radiate from trunk and reach side of root ball without deflecting down or around.

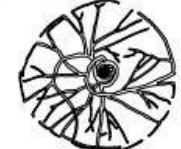


Structural roots circle interior of root ball. No structural roots are horizontal and reach the root ball periphery near the top of the root ball.

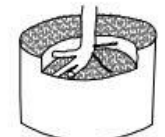
Only absorbing roots reach the periphery near the top of the root ball. Structural roots mostly wrap or are deflected on the root ball interior.



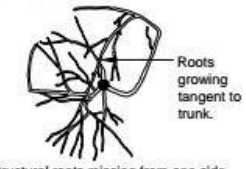
Structural roots descend into root ball interior. No structural roots are horizontal and reach the root ball periphery near the top of the root ball.



Structural roots circle and do not radiate from the trunk.



Structural roots primarily grow to one side.



Structural roots missing from one side, and/or grow tangent to trunk.

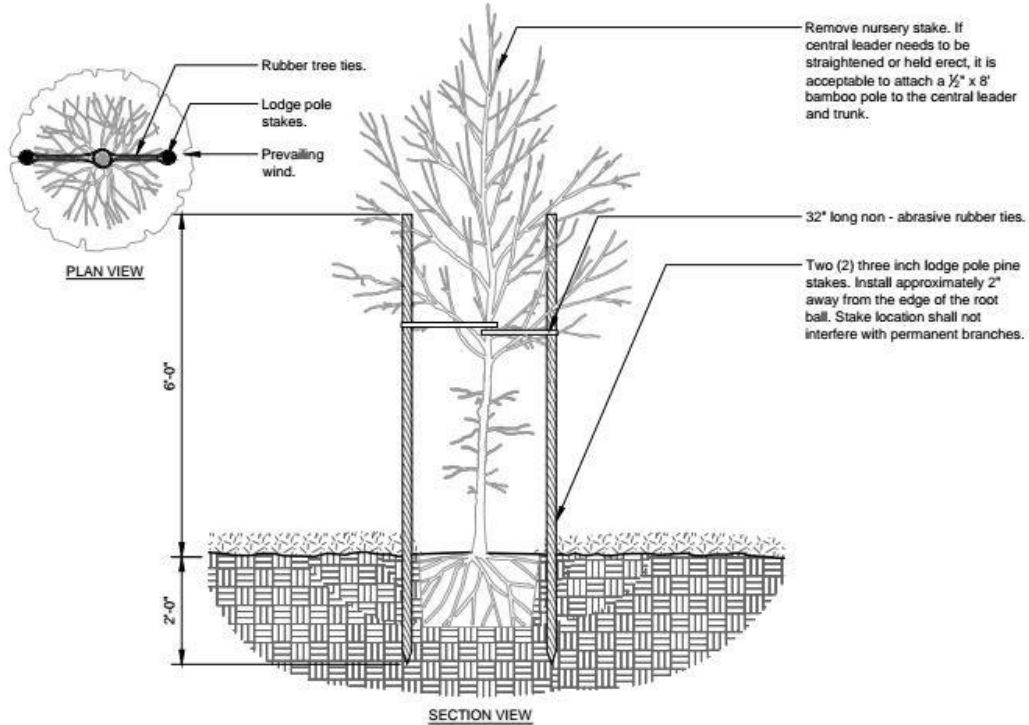
Notes:

- 1- Observations of roots shall occur prior to acceptance. Roots and substrate may be removed during the observation process; substrate/soil shall be replaced after observation has been completed.
- 2- Small roots (1/4" or less) that grow around, up, or down the root ball periphery are considered a normal condition in container production and are acceptable however they should be eliminated at the time of planting. Roots on the periphery can be removed at the time of planting. (See root ball shaving container detail).
- 3- See specifications for observation process and requirements.

P-X

ROOT OBSERVATIONS DETAIL - CONTAINER

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P-X

TREE STAKING - LODGE POLES (2)

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2.00.0 Tree Pruning Specifications

2.01.0 Projects on The University of Texas at Rio Grande Valley shall adhere to specifications based on the most current editions of the following for tree pruning:

- 2.01.1** American National Standards Institute (ANSI) A300 - 01 Pruning Standards 2008(R2015)
- 2.01.2** ANSI Z133.1 Safety Standards
- 2.01.3** Related ISA Best Management Practices (BMP's)

2.02.0 Contractors will apply the standards and guidelines when engaged in pruning operations on campus. To ensure that pruning is appropriate for the species and tree/site conditions, it is important to have a clear understanding of the specific needs of the tree and the objectives for pruning. Pruning objectives shall comply to section 2.04.0.

2.03.0 Requirements for Pruning Trees

- 2.03.1** No more than 25% of the tree may be pruned. Anything above 25% must be discussed and approved by UT Arborist.
- 2.03.2** No tree shall be cut back in such a manner that its health will be impaired. An exception to this may occur in tree removal or emergency storm

damage situations in which protecting people or property is urgent. Any emergency procedures shall be brought to the attention of the UT Arborist.

2.03.3 When pruning cuts are made to a lateral branch, the remaining branch must possess a basal thickness of at least half the diameter of the wound affected. Such cuts shall be considered correctly done when the branch collar is left intact and the cut is not “flush” with the stem.

2.03.4 Tree branches shall be removed and controlled in such a manner as not to cause damage to other parts of the tree or to other plants and property.

2.03.5 All cutting tools and saws used in pruning shall be kept adequately sharpened so as to retain smooth surfaces and secure bark on all cuts.

2.03.6 Precautions for the inadvertent transmittal of oak wilt will be recognized. This includes the disinfecting of cutting tools between trees and cuts to be treated with tree wound dressing.

2.04.0 Pruning Objectives

2.04.1 Maintenance Pruning: Recommended when the primary objective is to maintain or improve tree health and structure, and includes risk reduction pruning.

2.04.2 Risk Reduction Pruning: Recommended when the primary objective is to reduce overall tree risk and chance of limb or tree failure.

2.05.0 Pruning Types

2.05.1 Crown Cleaning: The selective removal of one or more of the following items: dead, dying or diseased branches, weak branches and water sprouts.

2.05.2 Crown Thinning: The selective removal of branches to increase light penetration, air movement and to reduce weight.

2.05.3 Crown Raising: The removal of lower branches to provide clearance.

2.05.4 Crown Reduction or Shaping: Decrease the height and/or spread of a tree. Consideration should be given to the ability of the species to sustain this type of pruning.

2.05.5 Vista Pruning: The selective thinning of framework limbs or specific areas of the crown to allow a view of an object from a predetermined spot.

2.05.6 Crown Restoration: Should improve the structure, form and appearance of trees that have been severely headed, vandalized or storm damaged.

2.06.0 Campus Clearance Recommendations

2.06.1 All trees and/or branches in or around infrastructure shall be shortened or removed when necessary to prevent damage to infrastructure or tree.

2.06.2 Growth on the tree should be directed away from infrastructure such as buildings light poles power lines and signs by reducing and/or removing limbs on that area of the tree.

2.06.3 Vertical clearance for roads shall be in accordance with RGV city code Section 6-3-25 and provide a minimum clearance of 14 above street level. An 8' vertical clearance shall be provided for pedestrian walkways.

2.06.4 Building Clearance: Clear all branches and foliage in contact with or within 2 foot of roofs, walls, stairways, decks or other building appendages to the extent feasible while maintaining aesthetics and canopy structure. Prune to direct growth parallel to or away from the building.

2.06.5 Exceptions will be made in instances that operations will eventually hinder the structural integrity of the tree or clearly cannot conform to ANSI A300 standards.

2.07.0 Prohibited Pruning Acts

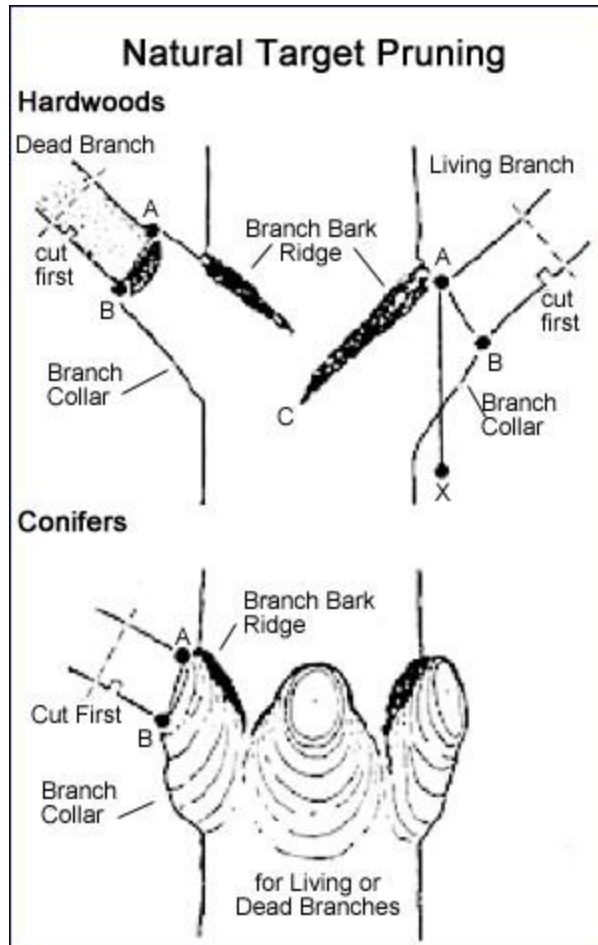
2.07.1 Excessive Pruning: Except for clearance of utility lines, traffic or abating a public nuisance, excessive pruning will not be tolerated.

2.07.2 Topping: Topping is the indiscriminate cutting of tree branches to stubs or lateral branches that are not large enough to assume the terminal role. Other names for topping include "heading," "tipping," "hat-racking," and "rounding over."

2.07.3 "Lion Tailing": Excessive removal of branches from the lower two-thirds of a stem or branch.

2.07.4 No pruning of a tree's canopy shall take place to compensate for removal or damage to its root system.

2.07.5 No cavities shall be filled with any substance (except in instances of bee hive relocations)



3.00.0 Tree Removal Specifications

3.01.0 Projects on The University of Texas at Rio Grande Valley shall adhere to specifications based on the most recent editions of the following for tree removals:

3.01.1 American National Standards Institute (ANSI) A300 – 01 Pruning Standards 2008(R2015)

3.01.2 ANSI Z133.1 Safety Standards

3.01.3 Related ISA Best Management Practices (BMP's)

3.02.0 A campus tree shall not be removed without university review and approval. All removals as a result of a development project or campus operations shall follow the specifications in section 5.00 of the The University of Texas at Rio Grande Valley – Tree Preservation and Protection, Standards and Specifications.

Any tree removed for campus operations will likely be dead or a risk to the university. These tree locations will be made available for new trees planted by Landscape Services (Arbor Day, memorial trees, etc.).

3.03.0 Trees may be removed if:

3.03.1 A tree is infected with an insect or disease and its removal is recommended practice to prevent transmission.

3.03.2 The tree is creating an extreme nuisance because of its species, size, location, or condition. The nuisance could be caused by fruit or seed drop, harboring insects, root conflicts and excessive twig or limb breakage.

3.03.3 The tree is posing a severe safety risk that cannot be corrected by pruning, transplanting or other treatments. *Tree risk assessments (per the ISA Tree Risk Assessment Qualification ANSI A300-09 Tree Risk Assessment (2011)) should be performed as needed for significant trees.*

3.03.4 The tree severely interferes with growth and development of a more desirable tree.

3.03.5 The tree's aesthetic value is so low that the site would be enhanced visually by the removal of the tree.

3.03.6 Any construction, improvements or maintenance to be made around the tree would substantially interfere with the tree's natural growth and size or would damage or destroy it.

3.03.7 The tree has been topped or disfigured thus producing an unsound branching structure conducive to severe storm damage, wind throw and accelerated death.

4.00.0 Plant Healthcare (PHC) for Trees

4.01.0 A Soil Analysis shall be done when prescribing soil amendments and fertilizer for trees.

4.02.0 The application of pesticides shall be done by a Texas Department of Agriculture (TDA) licensed applicator, and the products must be labeled to target the desired pest. All applications shall be logged and recorded per TDA rules. All pesticide recommendations must come from an ISA certified arborist.

4.03.0 Tree Growth Regulators (TGR) must be applied by a TDA licensed applicator, and be used only as the label states. Special considerations are for trees in overhead utility corridors or smaller grower spaces, and trees growing in reduced soil volumes.

4.04.0 Soil Health is critical to the survival of trees at UTRGV. Several tactics are used to improve the soils where trees grow. These include incorporating various types of compost and other forms of organic matter (via soil injection or air-tillage), such as bio-char, mycorrhiza fungi, and humate. Fertilizers and fungicides are used only as a last resort where timing and condition of the tree are of utmost importance.