



General Overview:

The Grounds crew within the Physical Plant Department is responsible for maintaining all vegetation associated with the main campus and peripheral facilities with the exception of the Research Farm (642 acres), Piney Woods Conservation Center (25 acres), Arboretum Proper (10 acres), Azalea Garden (8 acres), and Native Plant Center (40 acres). In accordance to maintaining the vegetation, and overall beauty of the campus grounds, they are responsible with ensuring that all project work meets best practices established by the department, is performed in a professional manner, and that all appropriate training, as-built drawings, and original equipment manufacturer documentation is received. In order to accomplish these goals, the following standards have been adopted by SFASU.

Tree Care:

- The Critical Root Zone (CRZ) is defined as 1.5 times the crown diameter of the tree at its widest point, with the exception of very narrow crowned specimens, for which it shall be 2 feet for every inch of diameter, measured at 4.5 feet.
- Tree preservation & protection should start in the *planning* phase, not in the review phase.
- Preconstruction tree preparation should begin a year prior to construction.
- Before beginning work, the contractor is required to meet with the owner's representative to review all work procedures, access routes, storage areas and tree protection measures.
- Fences shall be erected to protect all trees to be preserved. Fences define a specific protection zone for each tree or group of trees. Fences are to remain until ALL work on the site has been completed. Fences may not be relocated or removed without the written permission of the University's Urban Forester & ISA Certified Municipal Arborist.
- All construction trailers, traffic and storage areas must remain outside fenced areas at all times.
- All underground utilities, drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the tree protection zone, they shall be tunneled, bored or trenched by use of an air-spade type device. In addition, if multiple utilities must cross through the zone, the operations should be consolidated so as to impact the tree only once during construction. Consultation with and supervision by the University's Urban Forester & ISA Certified Municipal Arborist is required.
- No materials, equipment, spoil, waste or washout water, fuels, oils or chemicals, may be deposited, stored or parked within the tree protection zone.
- All pruning required for clearance during construction must be brought to the attention of the University's Urban Forester & ISA Certified Municipal Arborist. Work must be performed by a qualified arborist or technician and NOT by construction personnel.
- Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree safe and not easily transportable by water.
- If injury should occur to any tree during construction, the University's Urban Forester & ISA Certified Municipal Arborist shall be notified immediately, so that a timely evaluation can be made and appropriate remedial solution applied.



- All grading, construction, demolition, utility or other work that is expected to encounter tree roots must be monitored by the University's Urban Forester & ISA Certified Municipal Arborist.
- All trees shall be irrigated on a schedule to be determined by the University's Urban Forester & ISA Certified Municipal Arborist. Each irrigation shall wet the soil within the tree protection zone to a depth of 30 inches.
- Erosion control devices, such as silt fences, debris basins and water diversion structures shall be installed to prevent siltation, and/or erosion within the tree protection zone.
- Before grading, pad preparation, or excavation for foundations, footings, walls or trenching, tree roots shall be pruned 1 foot outside the tree protection zone, by cutting all roots cleanly to a depth of 36 inches. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, sharp pruners or loppers, or other approved root pruning equipment. These operations must be supervised by the University's Urban Forester & ISA Certified Municipal Arborist.
- Any roots exposed during grading or construction shall be exposed to sound tissue and cut cleanly with approved root pruning equipment.
- If temporary access or haul roads must pass over the root area of trees to be retained, a road bed of 12 inches of coarse mulch shall be created to protect the soil. The road bed material shall be replenished as necessary to maintain a 12 inch depth.
- Spoil from trenches, basements or other excavations shall not be placed within the tree protection zone, either temporarily or permanently.
- No burn piles or debris pits shall be placed within the tree protection zone. No ashes, construction debris of any type, garbage, trash or litter may be placed, dumped or buried within the tree protection zone.
- Maintain fire safe areas around fenced areas. No heat or ignition sources, flames, fuels, flammable gasses, welding, or smoking is allowed near mulch or trees.

Soil:

- Planting areas requiring compaction and/or load bearing surfaces.
 - Narrowly graded crushed stone, ¾" – 1 ½", highly angular with no fines. Limestone is **not** permitted.
 - Clay loam conforming to USDA soil classification system (gravel < 2%, sand 25 – 40%, silt 25 – 40%, clay 25 – 40%).
 - Organic matter should range between 5 – 10%
 - Hydrogel.
 - pH shall be between 5.7 – 7.0.
- Ingredients should be mixed in the following proportions by weight
 - Crushed stone – 100
 - Clay loam – 20
 - Hydrogel – 0.03
- Total moisture at mixing should be 10% (AASHTO T99 optimum moisture).
- Material **must** be kept in motion if transported to prevent separation.
- Minimum planting depth of not less than 36".
- Material can be compacted to 95% Proctor density and still be viable for plant rooting.



Irrigation:

- Parts shall be Rainbird brand, to be compatible with current equipment in use on campus.
 - Valves – PEB or PGA series
 - Spray Heads – 1800 series
 - Rotor Heads – 3500 and/or 5000 series
 - All heads shall be sized and spaced to service the intended area appropriately.
- Rainbird controller part # E.S.P. 8-40 MC-SS-TW (8, 12, 16, 20, 24, 28, 32, 36, or 40 stations available) as follows:
 - Must be pad mounted in a stainless steel pedestal, to allow for future components.
 - Must be installed according to the instructions supplied with unit. Proper mounting hardware supplied with the controller must be used, so as to be easily demounted or serviced.
 - Must be protected by using an 8 foot, triangular grounding grid of three – 8 foot grounding rods, as per NED and IBC codes.
 - 110v power supply must include lightning arrestor (Intermatic part #A.G. 2401).
 - Must install a CAT5 or better, 2 pair telephone line connection to communicate with the Cluster Control Unit (CCU)
 - Must be installed with a surge protector for CCU communication line (part #MSP-1)
 - Requires a flow meter sensor to monitor water flow (Part numbers are FS200P for 2" plastic, FS 300-P for 3", FS400-P for 4").
 - Must be installed with a Pulse Transmitter (part #PT320).
 - Must be installed with a Pulse Decoder (Part #DECPULLR)
- Installed piping and valves shall conform to the following:
 - All main line piping shall be schedule 40 or better.
 - All main lines shall be buried to minimum depth of 12" below grade.
 - All lateral lines shall be buried to a minimum depth of 8" below grade.
 - All lateral and other piping beyond the zone valves shall be a minimum of class 200.
 - Zone wiring must be 14 ga. or larger, U.L., single strand. White as common wire and Red as hot.
 - A Wilkins Zurn RPZ backflow device must be installed per letter and intent of all irrigation codes and regulations.
 - A Rainbird master valve is required and shall be installed downstream from the RPZ.
 - Valve box lids must be the solid, anti-vandal type to prevent breakage and unwanted entry. Valve boxes shall be installed at finished grade to prevent hazardous conditions to pedestrians.
- System shall be installed as follows:
 - A licensed irrigator is required to be on site during installation.
 - Written notification of completion and intent to "turn-over" the system to SFASU Grounds shall be provided to the SFASU Construction Manager in a timely manner.
 - A set of as-built plans shall be delivered to SFASU upon project completion.
 - The irrigation contractor is required to provide all appropriate training and demonstrate the operation of the system to the SFASU irrigation technician upon completion of work.



Special Considerations

- In the planning process, care should be given when planting materials near buildings, electrical transformers, light poles, etc. to avoid damage and/or disruption to underground utilities (electrical, gas, telecommunications, water, sewer, storm drains, etc.).