

ORIGINATION FORM

THE INFORMATION BELOW IS TO BE PROVIDED BY THE ORIGINATOR

(The person who receives or originates the issue and needs to forward the issue for action.)

Modify Specification _____
Section/File number

New Specification 580_____
Section number

Subject: Landscape Installation

Origination date: 2-27-02

Originator: Lori E. Williams, P.E.
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Problem statement: The purpose of this modification is to improve the quality and durability of the landscape projects. It is intended to reflect current industry practice.

Information source: Ernest Garcia, P.E., Gainesville Construction Resident Engineer,
Kenneth Cheek, District II Landscape Manager
Ornamental Horticulture Department at the University of Florida

Background data: Several landscape contractors, arborists, landscape architects and construction project engineers were consulted in an effort to improve the specification by clarifying the Department's performance expectations and to improve the quality and long term health and maintainability of the project.

Desired implementation date: July 2003 letting.



Florida Department of Transportation

JEB BUSH
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

THOMAS F. BARRY, JR.
SECRETARY

MEMORANDUM

DATE: September 23, 2002
TO: Specification Review Distribution List
FROM: Duane F. Brautigam, P.E., State Specifications Engineer
SUBJECT: **Proposed Specifications Change – D5800000.D02 - Landscape Installation**

In accordance with Specification Development Procedures, we are sending you a copy of a proposed specification change to Section 580.

This change was proposed by Lori Williams to improve the quality and durability of the landscape projects. This change reflects current industry practice.

Please share this proposal with others within your responsibility. Review comments are due within four weeks and should be sent to Mail Station 75 or to my attention via e-mail at SP965DB or duane.brautigam@dot.state.fl.us. Comments received after October 21, 2002 may not be considered. Your input is encouraged.

DFB/jf

Attachment

COMMENTS:

Submitted by:

Phone #:

LANDSCAPE INSTALLATION.
(REV 9-23-02)

SECTION 580 (Pages 707-712) is deleted and the following substituted:

SECTION 580
LANDSCAPE INSTALLATION

580-1 Description.

Plant trees and shrubs of the species, size, and quality indicated in the plans.

The Engineer reserves the right to adjust the number and location of any of the designated types and species to be used at any of the locations shown, in order to provide for any unanticipated effects which might become apparent after the substantial completion of other phases of the project, or for other causes.

580-2 Materials.

580-2.1 Plants:

580-2.1.1 Authority for Nomenclature; Species, etc.: For the designated authority in the identification of all plant material, refer to two publications of L.H. Bailey: "Hortus III" and "Manual of Cultivated Plants," and ensure that all specimens are true to type, name, etc., as described therein. For the standard nomenclature, refer to the publication of the American Joint Committee on Horticultural Nomenclature, "Standardized Plant Names". *Should discrepancies between botanical and common nomenclature arise, the botanical name will take precedence.*

580-2.1.2 Grade Standards and Conformity with Type and Species: Only use nursery grown plant material *purchased from Florida based ~~Nurserymen Stock~~ nurserymen stock* except where specified as Collected Material. Use nursery grown plant material that complies with all required inspection, grading standards, and plant regulations in accordance with the latest edition of the Florida Department of Agriculture's "Grades and Standards for Nursery Plants" *including any and all revisions.*

Except where a lesser grade might be specifically specified in the plans, ensure that the minimum grade for all trees and shrubs is Florida No. 1. Ensure that all plants are the ~~proper~~ *specified* size and grade at the time of delivery to the site, throughout the project construction period and during the plant establishment period.

Ensure that plant materials are true to type and species and that any plant materials not specifically covered in Florida Department of Agriculture's "Grades and Standards for Nursery Plants" conform in type and species with the standards and designations in general acceptance by Florida nurseries.

~~Before~~ *Prior to planting, furnish certification to the Engineer that all plant materials have been purchased from Florida based ~~Nurserymen Stock~~ nurserymen stock.*

Ensure that plant materials are shipped with tags stating the botanical and common name of the plant.

580-2.1.3 Inspection and Transporting: Move nursery stock in accordance with all ~~Federal~~ *federal* and ~~State~~ *state* regulations ~~therefor~~, and accompany each shipment with the required inspection certificates for filing with the Engineer.

580-2.2 Water: Meet the requirements of Section 983.

580-3 Specific Requirements for the Various Plant Designations.

580-3.1 Balled-and-Burlapped Plants (B&B), and Wired Balled-and-Burlapped (WB & B):

580-3.1.1 General: *Ensure that field grown material follows local industry standards for root pruning, digging, balling and burlapping, etc. All balled and burlapped materials must be hardened*

off for a minimum of four weeks. Provide written verification to the Engineer from the nursery that validates the specified time frame.

Properly protect the root ball of these plants until planting them. The Engineer may reject any plant which shows evidence of having been mishandled.

Set the B&B and WB&B plants then remove the top 2/3 of all wire, rope, and binding surrounding the plant. Remove the burlap from the top 4 inches [100 mm] of the root ball. Do not disturb the root ball in any way. *Do not remove burlap.* Bare root material is not allowed for substitution.

At least 90 days before digging out B & B and WB & B plants, root-prune those 1½ inches [38 mm] or greater in diameter and certify such fact on accompanying invoices.

580-3.1.2 Provisions for Wiring: For plants grown in soil of a loose texture, which does not readily adhere to the root system (and especially in the case of large plants or trees), the Engineer may require WB & B plants. For WB & B plants, before removing the plant from the excavated hole, place sound hog wire around the burlapped ball, and loop and tension it until the tightened wire netting substantially packages the burlapped ball such as to prevent disturbing of the loose soil around the roots during handling.

580-3.2 Container-Grown Plants (CG): The Engineer will not accept any CG plants with roots which have become pot-bound or for which the top system is too large for the size of the container. Fully cut and open all containers in a manner that will not damage the root system. Do not remove CG plants from the container until immediately before planting to prevent damage to the root system. *Scarify the root system immediately before planting.*

580-3.3 Collected Plants (Trees and Shrubs) (C): Use C plants which have a root ball according to "Florida Grades and Standards for Nursery Plants". Do not plant any C plant before the Engineer's inspection and acceptance at the planting site.

580-3.4 Collected Plants (Herbaceous) (HC): The root mass and vegetative portions of collected herbaceous plants shall be as large as the specified container-grown equivalent. Do not plant any collected plant before inspection and acceptance by the Engineer.

580-3.5 Specimen Plants (Special Grade): When Specimen (or Special Grade) plants are required, label them as such on the plant list, and tag the plant to be furnished.

580-3.6 Palms: *All cabbage (Sabal palmetto) palms must have a clean (non-booted) trunk unless otherwise noted.*

Wrap the roots of all plants of the palm species before transporting, except if they are CG plants and ensure that they have an adequate root ball structure and mass for healthy transplantation as defined in "Florida Grades and Standards for Nursery Plants".

The Engineer will not require burlapping if the palm is carefully dug from marl or heavy soil that adheres to the roots and retains its shape without crumbling. During transporting and after arrival, carefully protect root balls of palms from wind and exposure to the sun. Muck grown palms are not allowed. After delivery to the job site, if not planting the palm within 24 hours, cover the root ball with a moist material. Plant all palms within 48 hours of delivery to the site.

~~Move sabal and coconut~~ Handle all palms in accordance with the "Florida Grades and Standards for Nursery Plants."

580-3.7 Substitution of Container-Grown (CG) Plants: With the Engineer's approval, the Contractor may substitute CG plants for any other root classification types, if he has met all other requirements of the Contract Documents.

580-4 Planting Requirements.

580-4.1 Delivery: *All materials must be available for inspection before installation and will be subject to approval or rejection.*

580-4.12 Layout: Prior to any excavation or planting, mark all *proposed* planting beds and individual locations of palms, trees, large shrubs and proposed art and architectural structures, as shown in the plans, on the ground with a common bright orange colored spray paint, or with other approved

methods, within the project limits. Obtain the Engineer's approval and make necessary utility clearance requests. *The Engineer may request to review all proposed construction and maintenance practices before the start of the operations.*

Make no changes to the layout, materials or any variations of plant materials from the Contract Documents without the Engineer's written approval.

580-4.23 Excavation of Plant Holes: Excavate plant holes after an area around the plant three times the size of the root ball has been tilled to a depth of the root ball. Ensure that the plant hole is made in the center of the tilled area only to the depth of the plant root ball.

Where excess material has been excavated from the plant hole, use the excavated material to backfill to proper level.

580-4.4 Drainage of Plant Holes: *Ensure that all tree planting pits and shrub beds drain properly before installing any plant materials. Immediately notify the Engineer of drainage or percolation problems before plant installation.*

580-4.35 Setting of Plants: Center plants in the hole. Lower the plant into the hole so that it rests on a prepared hole bottom such that the roots are level with, or slightly above, the level of their previous growth and so oriented such as to present the best appearance. *Set and maintain all trees and shrubs to a vertical position regardless of the slope of the ground in which they are planted.*

Backfill with native soil, unless otherwise specified on the plans. *Do not cover the top of the rootball with soil. Install any specified fertilizer before final watering and mulching.* Firmly rod and water-in the backfill so that no air pockets remain. Apply a sufficient quantity of water immediately upon planting to thoroughly moisten all of the backfilled earth. Keep plants in a moistened condition for the duration of the planting period. ~~*Set and maintain all trees and shrubs to a vertical position regardless of the slope of the ground in which they are planted.*~~

~~*When so*~~ ~~*Unless otherwise directed, form and maintain a water ring 6 inches [150 mm] in width and height above the finished grade to make a water collecting basin with an inside diameter equal to the diameter of the excavated hole. Maintain the water ring in an acceptable condition in accordance with Standard Index 544.*~~

~~*Provide for maintenance of all plant materials immediately after each plant is planted and continue the upkeep of watering, fertilizing, pruning, staking, mulching, etc. for the duration of the planting period and the establishment period as determined by the Contract.*~~

580-4.46 Special Bed Preparation: Where multiple or mass plantings are to be made in extended bedding areas, and the plans specify Special Bed Preparation, prepare the planting beds as follows:

Remove all vegetation from within the area of the planting bed and excavate the surface soil to a depth of 6 inches [150 mm]. Backfill the excavated area with peat, sand, finish soil layer material or other material to the elevation of the original surface. Till the entire area to provide a loose, friable mixture to a depth of at least 8 inches [200 mm]. Level the bed only slightly above the adjacent ground level. ~~*Then*~~ mulch the entire bedding area, in accordance with 580-8.

580-5 Staking and Guying.

580-5.1 General: When specified in the plans, or as directed by the Engineer, stake plants in accordance with the following.

Use wide plastic, rubber or other flexible strapping materials to support the tree to stakes or ground anchors that will give as the tree moves in any direction up to 30 degrees. Do not use rope or wire through a hose. Use guy chords, hose or any other thin bracing or anchorage material which has a minimum 12 inches [300 mm] length of high visibility flagging tape secured to guys, midway between the tree and stakes for safety.

Stake trees larger than 1 inch [25 mm] diameter and smaller than 2 inches [50 mm] diameter with a 2 by 2 inch [50 by 50 mm] stake, set at least 2 feet [0.6 m] in the ground and extending to the crown of the plant. Firmly fasten the plant to the stake with flexible strapping materials as noted above.

Remove staking and guying of all materials at the end of the establishment period or at the direction of the Engineer.

580-5.2 Trees of 2 to 3 1/2 inches [50 to 90 mm] Caliper: Stake all trees, other than palm trees, larger than 2 inches [50 mm] caliper and smaller than 3 1/2 inches [90 mm] caliper with two 2 by 4 inch [50 by 100 mm] stakes, 8 feet [2.4 m] long, set 2 feet [0.6 m] in the ground. Place the tree midway between the stakes and hold it firmly in place by flexible strapping materials as noted above.

580-5.3 Large Trees: Guy all trees, other than palm trees, larger than 3 1/2 inches [90 mm] caliper, from at least three points, with flexible strapping materials as noted above.

Anchor flexible strapping to 2 by 4 by 24 inch [50 by 100 by 600 mm] stakes, driven into the ground such that the top of the stake is at least 3 inches [75 mm] below the finished ground.

580-5.4 Special Requirements for Palm Trees: Brace palms which are to be staked with three 2 by 4 inch [50 by 100 mm] wood braces, toe-nailed to cleats which are securely banded at two points to the palm, at a point one third the height of the trunk. Pad the trunk with five layers of burlap under the cleats. Place braces approximately 120 degrees apart and secure them underground by 2 by 4 by 12 inch [50 by 100 by 300 mm] stake pads.

580-6 Tree Protection and Root Barriers.

Install tree barricades when called for in the Contract Documents or by the Engineer to protect existing trees from damage during project construction. Place barricades at the drip line of the tree foliage or as far from the base of the tree trunk as possible. Barricades shall be able to withstand bumps by heavy equipment and trucks. Maintain barricades in good condition. *Remove all tree barricades at final acceptance or at the direction of the Engineer.*

When called for in the Contract Documents, install root barriers or fabrics in accordance with the details shown.

580-7 Pruning.

Prune all broken or damaged roots and limbs in accordance with established arboriculture practices. When pruning is completed ensure that all remaining wood is alive. Do not reduce the size or quality of the plant below the minimum specified.

580-8 Mulching.

Uniformly apply mulch material, consisting of ~~wood chips (no Cypress Mulch is allowed)~~, pine straw, compost, or other suitable material (*no cypress mulch allowed*) as approved by the Engineer, to a minimum loose thickness of 3 inches [75 mm] over the entire area of the backfilled hole or bed *in accordance with Standard Index 544* within two days after the planting. Compost used for mulch shall meet the requirements of Section 987. ~~Maintain the mulch continuously in place until the time of final inspection throughout the establishment period.~~

580-9 Disposal of Surplus Materials and Debris.

Dispose of surplus excavated material from plant holes by scattering or otherwise as might be directed so that it is not readily visible or conspicuous to the passing motorist or pedestrian. Remove *weekly all roadside litter and construction debris* and other objectionable material from the site and clean up the entire area and leave it in neat condition.

580-10 Contractor's Responsibility for Condition of the Plantings.

Begin maintenance of all plant materials immediately after each planting.

Ensure that ~~the~~ all plants are kept watered, fertilized, mulched, pruned and that the staking and guying is kept adjusted as necessary, that all *individual planting locations areas and planting beds* are kept free of weeds and undesirable plant growth and that the plants are maintained so that they are healthy, vigorous, and undamaged *throughout the planting and establishment periods and at the time of*

final acceptance. During the establishment period, replace any plants that fall below Florida grade No. 1 standards that do not exhibit the characteristics and conditions required to qualify for the minimum grade as originally specified. Ensure that replacement materials are of the same nomenclature, size and planting medium as specified in the landscape plans.

580-11 Plant Establishment Period and Contractor's Warranty.

Assume responsibility for the proper maintenance, survival and condition of all landscape items for a period of one year after the final acceptance of all work under the Contract in accordance with 5-11. *Ensure that all planting locations are kept free of weeds and undesirable plant growth. Any mowing specified in eContract Documents shall be continued during the establishment period.* Provide a Warranty/Maintenance Bond to the Department in the amount of the total sums bid for all landscape items as evidence of warranty during this plant establishment period. The costs of the bond will not be paid separately, but will be included in the costs of other bid items.

In addition to satisfying the provisions of Section 287.0935, Florida Statutes, the bonding company is required to have a A.M. Best rating of "A" or better. If the bonding company drops below the "A" rating during the one year Warranty/Maintenance Bond period, provide a new Warranty/Maintenance Bond for the balance of the one year period from a bonding company with an "A" or better rating. In such event, all costs of the premium for the new Warranty/Maintenance Bond shall be at the Contractor's expense.

~~Take responsibility to~~ Apply water as necessary during this period and include the cost in the various landscape items. No separate measurement or payment will be made for water during the plant establishment period.

The Engineer will conduct interim inspections of all landscape items 90 days, 180 days and 270 days into the plant establishment period, as well as at the end of the plant establishment period. As part of the warranty to the Department, and at no cost to the Department, ~~immediately~~ replace all landscape items found not to meet minimum specifications as shown in 580-2.1.2 and 580-10 within 10 days after each inspection.

At the end of the one year warranty period, the Engineer will release the Contractor from further warranty work and responsibility, provided all landscape items are established and all previous warranty and remedial work, if any, has been completed.

580-12 Method of Measurement.

The quantities to be paid for will be the items shown in the plans, completed and accepted.

580-13 Basis of Payment.

Prices and payments will be full compensation for all work specified in this Section, including furnishing and planting the designated plant types, the furnishing and placing of the plant backfill, fertilizer and mulch, (except where such are shown to be paid for under a separate item), the application of water, the maintenance, care, etc., and all costs of any required replacing of plantings or restoring of damaged areas.