

TREE RELOCATIONS

SECTION 02910

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Tree and palm relocations indicated on Drawings or specified in this section.

1.02 SUBMITTALS

- A. Prior to tree canopy pruning and root pruning, excavation, removal, planting pit preparation, or relocation, Contractor shall provide a detailed, daily schedule of operations, indicating the work items listed herein as they apply to each of the numbered and/or lettered trees/palms to be relocated. Included shall be:
 - 1. anticipated number of trees to be root pruned, canopy pruned, and prepared for relocation, each day;
 - 2. actual number of trees to be relocated each day;
 - 3. total number of days required to relocate all trees;
 - 4. canopy and root pruning schedule.
- B. Contractor shall apply for and obtain all licenses and permits and pay all fees if required by the City of Miami, county, state, or federal agencies or governing bodies. Insure full compliance with any and all governing environmental regulations related specifically to tree removals and/or relocations.
- C. Proposed methods, materials, and schedule for canopy pruning, root pruning, and tree maintenance shall be submitted for written approval of the Landscape Architect.

1.03 QUALITY ASSURANCE

- A. Comply with applicable requirements of the following standards. Where standards conflict with other specified requirements, most restrictive requirements shall govern.

1. Z60.1 / American Standard for Nursery Stock.
(American Association of Nurserymen, Inc.).
 2. National Arborists Association (NAA):
Ref. 1 / Transplanting of Trees and Shrubs in the Southeastern United States.
 3. Florida Nurserymen and Growers Association:
Grades and Standards for Nursery Stock.
 4. International Society of Arborists (ISA).
 5. Florida Division of Forestry.
- B. The term 'relocated tree' includes deciduous and evergreen trees, and palms.

1.03 DESCRIPTION

- A. Trees and palms to be relocated are designated on the drawings and/or in this specification. They shall be prepared for relocation, moved, and replanted as directed by the Landscape Architect.
- B. The foreman/superintendent of the work force utilized by the Contractor in the relocation of existing trees shall have a minimum of five years arboricultural/horticultural experience in the preparation, relocation, and maintenance of relocated specimen trees with canopy and caliper sizes comparable to those indicated on the drawings.
- C. Open excavations resulting from tree relocations shall be immediately backfilled with clean fill in compacted 18" lifts, and brought flush with surrounding grade, after removal of the tree. Contractor shall take appropriate measures to stabilize such excavations and shall be aware of the potential intrusion of children during and after work hours into the site of the work. Contractor shall correct all problems related to settlement, erosion, or other distress of excavated areas from which trees have been removed: this includes the complete and thorough removal of all roots and stumps.
- E. Staging of tree preparation and relocations shall occur as expeditiously as possible, and in a manner that will insure protection of and appropriate access to relocated trees, for purposes of on-going maintenance and watering.

1.04 TREE IDENTIFICATION

- A. The Contractor shall preserve in place each numerical tree identification tag.

1.05 CANOPY PRUNING

- A. Selectively prune and thin canopy to remove approximately 1/3 of the secondary branches. Preserve the typical species shape and character of the tree, and remove all dead, dying, diseased, split, broken, damaged, and rubbing branches. Prune trees with

- foliage in place.
- B. Remove by hand stripping all leaves, following canopy pruning and prior to relocation.
- C. After installation at new location, apply anti-dessicant (WiltPruf or equal) to all foliage, branches, and trunks of relocated trees.

1.06 ROOT PRUNING

- A. Trees to be relocated shall be root pruned with sharp, clean equipment at least 30 days prior to relocation. Root ball sizes shall conform to the following:

ROOT BALL SIZE TABLE:

(Note; Root ball sizes shall exceed minimum standards set forth in Grades and Standards for Nursery Plants, Part II, Palms and Trees, Florida Department of Agriculture).

- a.

<u>CALIPER DBH</u>	<u>MINIMUM BALL DIAMETER</u>
1" - 1 1/2"	16"
1 1/2" - 1 3/4"	20"
1 3/4" - 2"	24"
2" - 2 1/2"	28"
2 1/2" - 3 1/2"	32"
3 1/2" - 4"	36"
4" - 4 1/2"	40"
4 1/2" - 5"	44"
5" - 5 1/2"	48"
5 1/2" - 6"	52"
6" - 6 1/2"	56"
6 1/2" - 7"	60"
- b. MINIMUM ROOT BALL HEIGHT (DEPTH)
 - [1] Root balls with a diameter less than 20" shall have a height (depth) of not less than 18".
 - [2] Root balls with a diameter 20" to 36" shall have a height (depth) of not less than 26".
 - [3] Root balls with a diameter greater than 36" shall have a height (depth) of not less than 34".
- c. The root ball of each tree to be relocated shall be fully and completely enclosed within a burlap covering of a minimum of three complete layers (thicknesses) common to the nursery industry.

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 - [2] Root balls with a diameter 20" to 36" shall have a height (depth) of not less than 26".
 - [3] Root balls with a diameter greater than 36" shall have a height (depth) of not less than 34".
- c. The root ball of each tree to be relocated shall be fully and completely enclosed within a burlap covering of a minimum of three complete layers (thicknesses) common to the nursery industry.

- d. Trees having a caliper of 6" or greater shall be placed on a wood platform, to which the root ball shall be temporarily temporarily fastened. The appurtenances and wood platform shall be subject to the inspection and approval of the Landscape Architect.

B. After relocation, brace trees as follows:

1. wrap trunk of tree with a minimum of three layers of burlap, approximately 6 feet above crown of root structure;
2. place four, 12' long 2x4 pressure treated blocks, vertically and evenly spaced, around the trunk of the tree, over the burlap;
3. affix securely two steel bands, 3" from the top and 3" from the bottom of the pressure treated blocks, and secure tightly with banding lock;
4. securely fasten four, 4x4 pressure treated braces, one to each PT block, at approximately 60 degree angles to the trunk, and secure each approximately 6" below grade with a single, 12" long pressure treated wood stake.
5. paint approximately 18' of visible length of each PT brace with DayGlo paint, approximately 48" above grade.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Planting Mix: An evenly blended mixture of 30% organic "Everglades Muck", 35% coarse ("sharp-edged") sand, 20% decomposed pine bark or wood chips, 15% Spaghnum peat moss. Add 12 pounds of specified fertilizer to each cubic yard of Planting Mix and thoroughly blend. After addition of fertilizer amendment, Planting Mix shall have pH between 6.0 and 7.0 after blending. The Landscape Architect reserves the right to reject at any time Planting Mix utilized during the execution of work, which does not meet the specification.
- B. Commercial Fertilizer: Commercial grade fertilizer, uniform in composition, dry, free flowing and delivered to site in fully labeled, unopened containers, bearing name, trade name or trademark and warranty of producer. All fertilizers shall conform to applicable State and Federal law. At least 50% of the nitrogen content shall be derived from natural organic sources and potash derived from sulfate of potash. Each container of fertilizer shall bear the manufacturer's statement of analysis or a manufacturer's certificate of compliance shall be submitted to the Landscape Architect upon delivery to the site. The following minimum percentages of available plant food by weight are required.
 1. 12-4-8 Fertilizer
 - a. Total Nitrogen, not less than 12.00%.

- b. Nitrate Nitrogen, not less than 1.5%.
- c. Ammoniacal Nitrogen, not less than 5.7%.
- d. Granular Blend Requirements:
 - [1] Water soluble organic nitrogen, not less than 1.3%;
 - [2] Water insoluble organic nitrogen, not less than 3.5%;
 - [3] Available Phosphoric Acid, not less than 4.0%;
 - [4] Water Soluble Potash, not less than 8.0%;
 - [5] Total primary plant food, not less than 24.0%;
 - [6] Chlorine, not more than 6.0%;
 - [7] Secondary Plant Foods;

OXIDE	or	ELEMENTAL
Magnesium 2	or	Mn 1.20%
Manganese 1	or	Mn .70%

- [8] From F.T.E. 504 - 30 lbs. per ton to be composed of the following elements;

ELEMENTAL			
Boron	B ₂ O ₃	.1845%	B .05%
Copper	CuO	.1312%	Cu .10%
Iron	Fe ₂ O ₃	.3360%	Fe .26%
Manganese	MnO	.1372%	Mn .10%
Molybdenum	MoO ₃	.0015%	Mo
Zinc	ZnO	.1312%	Zn .10%

- [9] Derived from this source Materials:
 - a) Ammonium Nitrate
 - b) Sulfate of Ammonia
 - c) Ureaform or I.B.D.U.
 - d) Triple Superphosphate
 - e) Muriate of Potash
 - f) Sulfa-Mag
 - g) Manganese Sulfate

- [10] All materials to be prilled or granular in form, except Manganese Sulfate.

- C. Peat: Spaghnum peat moss for horticultural use.
- D. Mulch: Shredded 'Florimulch' (Forestry Resources, Ft. Myers, Florida), free of weed retardant. **No other mulch in any form is acceptable.** Place a loose measure 3" layer of 'Florimulch' over the entirety of the root ball crown after relocation and replanting.
- E. Anti-dessicant: Apply a uniform coating by sprayer over the trunk braches, twigs, and foliage of each tree, of "Wilt-Pruf" (1-800-972-0726), composed of carbon and hydrogen to create a film-forming polymer coating. Spray each tree immediately after root pruning and canopy pruning have been completed. Spray each tree with "Wilt-Pruf" a second time, immediately after replanting.

- F. Stress-reducer: For each one inch of caliper DBH, incorporate one, three ounce packet of “PHC Tree Saver” (1-800-421-9051) a mycorrhizal fungal transplant inoculant, into the uppermost 8” of compacted Planting Mix surrounding the root ball, and water to total soil

saturation. For example, a 6” caliper DBH tree shall receive 18 ounces of “PHC Tree Saver” incorporated into the uppermost 8” of Planting Mix.

- G. Water absorber/retainer: For each one inch of caliper DBH, thoroughly incorporate into the Planting Mix 2 ounces by weight of “Terra-Sorb Coarse Hydrogel” (1-800-421-9051), a water-absorbing and storing copolymer gel . For example, a 6” caliper DBH tree shall receive 12 ounces of Terra-Sorb incorporated into the Planting Mix.
- H. Water: Potable water shall be provided by the Contractor. In the event of emergency or other loss of water supply, Contractor shall be responsible for providing adequate water supply for required watering of all plant materials.

PART 3 EXECUTION

3.01 INSPECTION

- A. Proceed with the work of this section only when conditions favorable to the proper and timely completion of the work exist, and when unacceptable conditions have been corrected in an acceptable manner.
- B. Periodic observation work of this section will be undertaken by the Landscape Architect.

3.02 TRANSPLANTING

- A. Trees shall be dug and prepared for relocation in a manner that will not cause damage to the branches, shape, root system, symmetry, and development of the tree.
- B. Root balls shall be firmly wrapped with burlap. ***Trees shall be lifted from the bottom of the root ball, using multiple straps, or a solid wood platform.*** Do not lift large trees from trunk.

3.03 HANDLING AND TRANSPORTATION

- A. Trees shall be properly handled during excavation, moving and relocation so trunks will not be scarred or otherwise damaged, and to avoid breaking limbs and large branches. Broken limbs and branches may cause tree to be determined unacceptable requiring its removal and replacement.
- B. The root balls of all trees and palms shall be supported by slings and/or platforms during relocation. Trees shall not be lifted by slings connected only to trunks and branches.

- C. All trees exceeding 24' in height, shall have secured to the base of their trunks immediately above the crown of the root ball, a guide rope minimum 20' in length, to assist

in maneuvering the tree from its removal location to its proposed new planting location. Contractor shall provide adequate supervision during relocation operations to insure protection of persons and property.

- D. Immediately backfill each tree removal site, prior to excavating next tree for relocation. Contractor shall provide sufficient skilled work force to continue excavation operations of next tree, while installation of previous tree is completed.
- E. Trees removed from their existing locations shall be completely replanted the same day.
- F. Contractor shall be responsible for the manual watering of all relocated trees.
- G. Establish with the Landscape Architect an appropriate and safe bracing program for all relocated trees whose size requires additional or specialized bracing.

3.04 MAINTENANCE

- A. Each relocated tree shall be maintained by the Contractor immediately after relocation, and Watered for a minimum period of 20 minutes, between the hours of 6AM and 9AM, three days each week for 12 weeks, until Final Written Acceptance of the all tree relocation work as specified on the drawings and in the specifications has been issued by the Landscape Architect.

END OF SECTION

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